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(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Madurai – 625 002

MEETING OF THE ACADEMIC COUNCIL
March 2020 Session

Wednesday 28 October 2020
4:00 P.M. ONLINE

APPENDIX – AP

AGENDA

1. Prayer
2. Welcome—Dr. M. Davamani Christober, Principal & Secretary
3. Confirmation of the minutes of the meeting of the Academic Council held on Thursday, 24 October 2019
4. Special Resolutions
5. Department Resolutions
6. Observations from the External Members
7. Other Matters, if any
8. Vote of Thanks – Dr. D. Lourdu Immaculate

MINUTES OF THE ACADEMIC COUNCIL MEETING HELD ON FRIDAY 24 OCTOBER 2019 IN PLL SEMINAR HALL

Dr. M. Davamani Christober, Principal & Secretary, was in chair.

The meeting began with prayer by Chaplain. Mr. John Jeya Kamaraj.

The Principal welcomed all the members of the Academic Council on behalf of the college and extended a special word of welcome to the external members who represented the various constituents. First, he extended a warm welcome to the University nominees:

1. Dr. M Lellis Thivagar, Member Syndicate, Professor and Head, Chairperson, Department of mathematics, School of Mahtmatics, Madurai Kamaraj University, and
2. Dr. S. Rajashabhala, Member Syndicate, Associate Professor & Head i/c. department of Theoretical Physics.

Second, he welcomed the disciplinary experts from the field of industry, commerce, law, education, and medicine.

1. Mr. Sekar is the proprietor of Supreme Electrical
2. Mr. M. E. Elango is also an advocate
3. Dr. J. Aruldoss, is former vice principal of the college, and
4. Dr. J. Daniel Chellappa is a Senior Scientis (TCW) at Bhabha Atomic Research Center (BARC) Govt. of India, Chennai.

He welcomed the Vice Principal, Bursar, Dean for Policy and Administration, and Member-Secretary of the Academic Council, Controller of Examinations, Heads, Directors, and Coordinators.

He then briefly explained the salient features of Outcome Based Education and Programme Outcomes of undergraduate, postgraduate, and research programmes. He acknowledged the good work done by all the Deans, Additional Deans, Chairpersons of all the Departments, Members of the faculty for processing the curriculum planning and the proposals for the present Academic Council. He recognised the meticulous work done by the Office of the Dean for Academic Policies and Administration, Dr J. John Sekar, Dean and Dr. J. Paul Jayakar, Additional Dean for Academic Policies and Administration.

The minutes of the previous meeting held on Thursday 24 October 2019 **was passed unanimously**.

Special Resolutions

SR1: As Recommended by the Senatus, RESOLVED to accept the proposal that four or two multiple choice questions from each unit depending upon credits in Section A, one either…or question from each unit in Section B, and one question from each unit in Section C of the question paper of all UG and PG programmes with the appropriate knowledge levels fixed by the Boards of Studies together with a detailed key and scheme of valuation.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR2: As recommended by the Senatus, RESOLVED to accept the proposal that two sets of EOS Question papers in each course for UG & PG programmes be jointly set by the course teachers and the external examiner in the department anytime between 8 am and 8 pm with a detailed key and scheme of valuation, and with a self-declaration by the examiners on the coverage of the entire syllabus across all five units adhering to the OBE.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR3: As recommended by the Senatus, RESOLVED to accept the proposal that the key to Section A be shaded in the OMR sheet at the time setting by the question setters of both UG and PG courses.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR4: As recommended by the Senatus, RESOLVED to accept the proposal that there be single valuation by the external examiner only to be chosen by the COE from among the panel of examiners approved by the Academic Council for all undergraduate programmes within three days from the date of examination.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR5: As recommended by the Senatus, RESOLVED to accept the proposal that the COE consider additional examiners for those courses which are offered as additional sections under self-financed stream.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR6: As recommendot by the Senatus, RESOLVED to accept the proposal that the COE select the one of the course teachers or an external examiner from the panel who is not involved in the setting and valuation for revaluation in UG programmes if there is any request.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously

SR7: As recommended by the Senatus, RESOLVED to accept the proposal that there be double valuation for all postgraduate and MPhil courses to be carried out separately by the course teachers in the department within three days from the date of examination, and the external examiner within the next three days at the Valuation Centre arranged by the Office of the COE.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR8: As recommended by the Senatus, RESOLVED to accept the proposal that COE select the third single external examiner from the panel of that course for revaluation of PG courses without involving course teachers in the revaluation process.
Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously.

SR9: As recommended by the Boards of Studies in all subjects offered by the college, RESOLVED to accept the panels of examiners for End-of-Semester Examinations of November 2019 and April 2020.

Resolution was moved by Dr. J. John Sekar and seconded by Dr. J. Paul Jayakar.
Resolution was passed unanimously

Departmental Resolutions

R10: As recommended by the Board of Studies in English, RESOLVED to adopt Library Work and Term Paper as new modes of continuous internal assessment at the postgraduate level in lieu of the present quiz and assignment as part of first and second cycles of CIA respectively with a view to inculcating the academic habit of using library resources and facilitating students to write original, critical, academic essays in the form of term papers with effect from the even semester of the academic year 2019-2020.

Resolution was moved by Dr. J. Paul Jayakar and seconded by Dr. J. John Sekar
Resolution was passed unanimously.

R11: As recommended by the Senatus, RESOLVED to change the course codes in BA English (SF) as presented on page ENG 7 & ENG 8 with retrospective from 2018-19.

Resolution was moved by Dr. J. Paul Jayakar and seconded by Dr. J. John Sekar
Resolution was passed unanimously.

R12: As recommended by the Board of Studies in Mathematics RESOLVED to accept the Outcome Based Education for M.Phil Mathematics programme as presented on pages from MPM 1 to MPM 16 with retrospective effect from the academic year 2018-2019.

Resolution was moved by DMr. S. Stephen and seconded by Mr. J. Jesupaul Thangaraj
Resolution was passed unanimously.

R13: As recommended by the Board of Studies in Physics RESOLVED to accept the changes for the course PHY/PHS 2479 Modern Optics instead of PHY/PHS 2477 Modern Optics and syllabus as presented on page PHY 01 with effect from the academic year 2019-20.

Resolution was moved by Dr. K. Gnanasekar and seconded by Dr. R. Daphine
Resolution was passed unanimously.

R14: As recommended by the Board of Studies in Botany RESOLVED to accept the changes in the course codes from PGB 4426 and PGB 4428 to PGB 4446 and PGB 4448 and the course title of PGB 4447 from Plant Cell Biochemistry to Plant Cell Chemistry, and to accept the course outcomes for lab courses, the project, & II year M.Sc. Courses along with the rubrics for OBE attainment through question paper setting as presented on page PGB 1 with effect from the academic year 2019-20.

Resolution was moved by Dr. Rajkumar Immanuel and seconded by Dr. G.C. Abraham Resolution was passed unanimously.

R15: As recommended by the Board of Studies in Food Science RESOLVED to accept the changes in the nomenclature of the PG programme from M.Sc Food Science to M.Sc Food Science and Nutrition with effect from the academic year 2019-20.

Resolution was moved by Dr. E. Joy Sharmila and seconded by Mr. C. Andrew Pradeep Resolution was passed unanimously.

External Members' Observation

The Principal-Chairperson invited the external members to make their observations.

Dr. Daniel Chellappa, Senior Scientist, Technical Coordination Wing, Bhabha Atomic Research Centre (BARC-NRB) congratulated all the members on their meticulous efforts in implementing Outcome Based Education in all disciplines and designing syllabi for various courses. He also appreciated Dr. J. John Sekar, Dean for Academic Policies and Administration for drafting the Programme Outcomes for undergraduate, postgraduate, and research programmes. He suggested that science departments could have discussion with scientists at BARC, TIFR, and other research centers in India so that syllabi would match with the existing requirements. He also suggested that all the science departments could encourage their students to visit science laboratories of all research centers in the country and departments can also send students for internship programmes, invite experts for lectures and seminars. He further encouraged Department of Biochemistry, Food Science, Physics, and Chemistry to start entrepreneur courses which would help students become entrepreneurs.

Dr. Arul Doss expressed his concern about the autonomy of the college as the American College happens to be one of the first few colleges to get autonomy status and agencies like NAAC and other accreditation agencies should not condition the American College.

Vote of Thanks

Dr. J. Paul Jayakar, Member-Secretary thanked the Principal-Chairperson for creating an academic ambiance which facilitated all the faculty members to work continuously and diligently which helped the faculty members to align the question papers along with OBE. He also thanked Dr. J. John Sekar, Dean for Academic Policies and Administration for facilitating all the faculty members by giving them the rubrics for aligning the question papers with OBE. He thanked all the external members for the all the members and external experts for their valuable suggestions and the chairpersons of the Boards of Studies. He also thanked Mr. Edward John and Mr. Ravi, support staff foe meticulously preparing the Appendix.

Adjournment

Finally, the Principal adjourned the meeting and invited all the members to dinner at Officers' Mess.

Dr. J. Paul Jayakar
Member-Secretary

Dr. J. PAUL JAYAKAR,
M.A., M.Phil., P.B.D.C.A., Ph.D.,
Assistant Professor of English
Guide & Supervisor
Research Department of English
Additional Dean for Policies and Administration
The American College
Madurai-625 002

Dr. J. John Sekar
Dean, Academic Policies and Administration

Dr. J. JOHN SEKAR
M.A.,M.Phil.,PGDTE(CBE),PGDCA(NK), Ph.D.,
Head & Associate Professor
Research Department of English
Dean, Academic Policies & Administration
The American College, Madurai-625 002

Dr. M. Davamani Christober
Principal & Secretary

Dr. M. DAVAMANI CHRISTOBER
Principal & Secretary
The American College
Madurai-625 002

THE AMERICAN COLLEGE * MADURAI-2 *

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RESOLUTIONS

SPECIAL RESOLUTIONS

SR1: As Recommended by the Senatus, RESOLVED to accept the proposal that value-added courses as part of NAAC requirement be offered to all students in all semesters outside the curriculum with retrospect effect from 2018-2019 (18 UG series& 19 UG series) and (19 PG series) series and for all students admitted from the academic year 2020-2021on optional basis as approved by the respective boards of studies with detailed as found on pages from SR 1 to SR 4

SR2: As Recommended by the Senatus, RESOLVED to accept the proposal that continuous internal assessment (CIA) and End-of-Semester Examinations be conducted online for value added courses even after the college resumes face-to-face instruction and examination.

SR3: As Recommended by the Senatus, RESOLVED to accept the norms for certification of value added courses as found on page SR 5.

SR4: As Recommended by the Faculty, RESOLVED to accept the proposal that the acronym of the aided departments to be prefixed before programme codes and course codes in additional sections offered under self-financed stream as details presented on page from SR 6 to SR 7 with effect from the academic year 2020-2021.

SR5: As Recommended by the Faculty, RESOLVED to continue the practice of using acronyms of self-financed departments that offer aided programmes for student roll numbers for administrative contingencies.

POSTGRADUATE DEPARTMENT

R6: As recommended by the Board of Studies in Tamil, RESOLVED to approve the Value Added Courses for MA Tamil as presented on page PGT 1 and the syllabi for the courses for semesters I & III as presented on pages from PGT 1 to PGT 4 with effect from the academic year 2020-2021.

R7: As recommended by the Board of Studies in English, RESOLVED to approve the Value Added Courses for MA English as presented on page PGE 1 and the syllabi for semesters I & III semesters as presented on pages from PGE 23 to PGE 24 with effect from the academic year 2020-2021.

R8. As recommended by the Board of Studies in English, RESOLVED to approve the changes in the programme of studies for MA English as presented on pages from PGE 1 and the syllabi for semesters I & II as presented on pages from PGE 4 to PGE 22 with effect from the academic year 2020-21.

R9. As recommended by the Board of Studies in Mathematics, RESOLVED to approve the Value Added Courses for MSc Mathematics as presented on page PGM 1 and the syllabi for semesters I, III& IV as presented on pages from PGM 1 to PGM 6 with effect from the academic year 2020-2021.

R10. As recommended by the Board of Studies in Physics, RESOLVED to approve the Value Added Courses for MSc Physics as presented on page PGP 1 and the syllabi for semesters I, II, III & IV as presented on pages from PGP 2 to PGP 8 with effect from the academic year 2020-2021.

R11. As recommended by the Board of Studies in Chemistry, RESOLVED to approve the Value Added Courses for MSc Chemistry as presented on page PGC 1 and the syllabi for semesters I, II, III & IV as presented on pages from PGC 1 to PGC 8 with effect from the academic year 2020-2021.

R12. As recommended by the Board of Studies in Botany, RESOLVED to approve the Value Added Courses for MSc Botany as presented on page PGB 1 and the syllabi for semesters I&II as presented on pages from PGB 1 to PGB 4 with effect from the academic year 2020-2021.

R13. As recommended by the Board of Studies in Zoology, RESOLVED to approve the Value Added Courses for MSc Zoology as presented on page PGZ 1 and the syllabi for semesters I, II, III & IV as presented on pages from PGZ 1 to PGZ 11 with effect from the academic year 2020-2021.

R14. As recommended by the Board of Studies in Economics, RESOLVED to approve the Value Added Courses for MA Economics as presented on page PEC 1 and the syllabi for semesters I & III as presented on pages from PEC 1 to PEC 3 with effect from the academic year 2020-2021.

R15. As recommended by the Board of Studies in Commerce, RESOLVED to approve the Value Added Courses for M.COM as presented on page PCO 1 and the syllabi for semesters I and III as presented on pages from PCO 1 to PCO 4 with effect from the

academic year 2020-2021.

R16. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the Value Added Courses for MCA as presented on page MCA 3 and the syllabi for semesters I, III & V as presented on pages from MCA 62 to MCA 67 with effect from the academic year 2020-2021.

R17. As recommended by the Board of Studies in Computer Science, RESOLVED to accept the restructuring of the three year MCA programme into two year MCA programme, and to approve the changes in the programme of studies for MCA as presented on pages from MCA 2 to MCA 3 and the syllabi for semesters I to IV as presented on pages from MCA 7 to MCA 61 with effect from the academic year 2020-21.

R18. As recommended by the Board of Studies in Computer Science, RESOLVED to accept the programme of study in MSc Data Science as presented on page PDS 2 and the syllabi for semesters I & II as presented on page PDS 7 to PDS 39 with effect from the academic year 2020-2021.

R19. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the Value Added Courses for MSc Data Science as presented on page PDS 2 and the syllabi for semester I as presented on pages from PDS 40 to PDS 41 with effect from the academic year 2020-2021.

R20. As recommended by the Board of Studies in Microbiology, RESOLVED to approve the Value Added Courses for MSc Microbiology as presented on page MIM 1 and the syllabi for semesters I, II, III & IV as presented on pages from MIM 2 to MIM 9 with effect from the academic year 2020-2021.

R21. As recommended by the Board of Studies in Business Administration, RESOLVED to approve the Value Added Courses for MBA as presented on page MBA 3 and the syllabi for semesters I and III as presented on pages from MBA 41 to MBA 44 with effect from the academic year 2020-2021.

R22. As recommended by the Board of Studies in Business Administration, RESOLVED to accept the changes in the programme of studies for MBA as presented on pages from MBA 2 to MBA 3 and the syllabi for semesters I and II as presented on pages from MBA 6 to MBA 40 with effect from the academic year 2020-21.

R23. As recommended by the Board of Studies in Social Work, RESOLVED to approve the

Value Added Courses for MA Social Work as presented on page MSW 3 and the syllabi for semesters I and III as presented on pages from MSW 31 to MSW 34 with effect from the academic year 2020-2021.

R24. As recommended by the Board of Studies in Social Work, RESOLVED to accept the changes in the programme of studies for MA Social Work as presented on pages from MSW 1 to MSW 2 and the syllabi for semesters I and II as presented on pages from MSW 6 to MSW 30 with effect from the academic year 2020-2021.

R25. As recommended by the Board of Studies in Psychology, RESOLVED to accept the programme of studies for MSc Applied Psychology as presented on pages from PAP 1 to PAP 3 and the syllabi for semesters I and II as presented on pages from PAP 6 to PAP 66 with effect from the academic year 2020-2021.

R26. As recommended by the Board of Studies in Psychology, RESOLVED to approve the Value Added Courses for MSc Applied Psychology as presented on page PAP 3 and the syllabi for semesters I, II, III, & I as presented on pages from PAP 67 to PAP 70 with effect from the academic year 2020-2021.

R27. As recommended by the Board of Studies in Visual Communication, RESOLVED to accept the programme of studies for MSc Visual Communication as presented on pages from PGV 1 and the syllabi for semesters I to IV as presented on pages from PGV 5 to PGV 40 with effect from the academic year 2020-2021.

R28. As recommended by the Board of Studies in Visual Communication, RESOLVED to approve the Value Added Courses for MSc Visual Communication as presented on page PGV 1 and the syllabi for semesters I, II, III, & IV as presented on pages from PGV 41 to PGV 49 with effect from the academic year 2020-2021.

R29. As recommended by the Board of Studies in Food Science & Nutrition, RESOLVED to approve the Value Added Courses for MSc Food Science & Nutrition as presented on page PFN 1 to PFN 2 and the syllabi for semesters I & III as presented on pages from PFN 7 to PFN 48 with effect from the academic year 2020-2021.

R30. As recommended by the Board of Studies in Food Science and Nutrition, RESOLVED to accept the changes in the programme of studies for MSc Food Science and Nutrition as presented on pages from PFN 2 and the syllabi for Semesters I to IV as presented on pages from PFN 49 to PFN 52 with effect from the academic year 2020-2021.

UNDERGRADUATE DEPARTMENTS

R31. As recommended by the Board of Studies in Tamil, RESOLVED to approve the Value Added Courses for BA Tamil as presented on page TAM 2 and the syllabi for semestersI, III and V as presented on pages from TAM 35 to TAM 37 with effect from the academic year 2020-2021.

R32. As recommended by the Board of Studies in Tamil, RESOLVED to accept the changes in the programme of studies for BA Tamil as presented on pages from TAM 1 to TAM 2 and the syllabi for semesters I and II as presented on pages from TAM 5 to TAM 34 with effect from the academic year 2020-2021.

R33. As recommended by the Board of Studies in Hindi, RESOLVED to approve the Value Added Courses for BA Hindi as presented on page HIS 6 and the syllabi for semesters I, III and V as presented on pages from HIS 17 to HIS 22 with effect from the academic year 2020-2021.

R34. As recommended by the Board of Studies in Hindi, RESOLVED to approve the changes in the programme of studies for BA Hindi presented on pages from HIS 3 and HIS 5 and the syllabi for Part I, Part III, Life Skills courses and NME courses in Semesters I and II as presented on pages from HIS 7 to HIS 16 with effect from the academic year 2020-2021.

R35. As recommended by the Board of Studies in French, RESOLVED to approve the Value Added Courses for BA French as presented on page FRS 2 and the syllabi for semesters I to VI as presented on pages from FRS 12 to FRS 20 with effect from the academic year 2020-2021.

R36. As recommended by the Board of Studies in French, RESOLVED to accept the changes in the programme of studies for BA French presented on pages from FRS 1 to FRS 2 and the syllabi for Semesters III & IVas presented on pages from FRS 4 to FRS 11 with effect from the academic year 2020-2021.

R37. As recommended by the Board of Studies in English, RESOLVED to approve the Value Added Courses for BA English as presented on page ENG 3 and the syllabi for semesters I, III and V as presented on pages from ENG 25 to ENG 27 with effect from the academic year 2020-2021.

R38. As recommended by the Board of Studies in English, RESOLVED to accept the changes in the programme of studies for BA English as presented on pages from ENG 1 to ENG 3

and the syllabi for semesters I and II as presented on pages from ENG 6 to ENG 24 with effect from the academic year 2020-2021.

R39. As recommended by the Board of Studies in Mathematics, RESOLVED to approve the Value Added Courses for BSc Mathematics as presented on page MAT 1 and the syllabi for semesters I, III, IV & V as presented on pages from MAT 4 to MAT 9 with effect from the academic year 2020-2021.

R40. As recommended by the Board of Studies in Mathematics, RESOLVED to approve the course MAT1472 for BSc Data Science as presented on page from MAT 1 and the syllabus for the course as presented on page MAT 2 to MAT 3 with effect from the academic year 2020-2021.

R41. As recommended by the Board of Studies in Physics, RESOLVED to approve the Value Added Courses for BSc Physics as presented on page PHY 1 and the syllabi for semesters for I to VI as presented on pages from PHY 1 to PHY 12 with effect from the academic year 2020-2021.

R42. As recommended by the Board of Studies in Chemistry, RESOLVED to approve the Value Added Courses for BSc Chemistry as presented on page CHE 1 and the syllabi for semestersI to VI as presented on pages from CHE 2 to CHE 14 with effect from the academic year 2020-2021.

R43. As recommended by the Board of Studies in Botany, RESOLVED to approve the Value Added Courses for BSc Botany as presented on page BOT 3 and the syllabi for semesters I, II, III & V as presented on pages from BOT 31 to BOT 38 with effect from the academic year 2020-2021.

R44. As recommended by the Board of Studies in Botany, RESOLVED to accept the changes in the programme of studies for BSc Botany as presented on pages from BOT 1 to BOT 3 and the syllabi for semesters I and II as presented on pages from BOT 5to BOT 30 with effect from the academic year 2020-2021.

R45. As recommended by the Board of Studies in Zoology, RESOLVED to approve the Value Added Courses for BSc Zoology as presented on page ZOO 3 and the syllabi for semesters for I to VI as presented on pages from ZOO 21 to ZOO 31 with effect from the academic year 2020-2021.

R46. As recommended by the Board of Studies in Zoology, RESOLVED to accept the changes

in the programme of studies for BSc Zoology as presented on pages from ZOO 1 to ZOO3 and the syllabi for the programme as presented on pages from ZOO 7 to ZOO 20 with effect from the academic year 2020-2021.

R47. As recommended by the Board of Studies in Economics, RESOLVED to approve the Value Added Courses for BA Economics as presented on page ECO 1 and the syllabi for semesters for I, III and V as presented on pages from ECO 1 to ECO 8 with effect from the academic year 2020-2021.

R48. As recommended by the Board of Studies in Economics, RESOLVED to accept the programme of studies already approved by the Council for additional section in BA Economics (Self-financed) with effect from the academic year 2020-2021.

R49. As recommended by the Board of Studies in Commerce, RESOLVED to approve the Value Added Courses for BCOM, B.COM (CA), BCOM (IT), & BCOM (PF) as presented on page COM 28 and the syllabi for semesters for I, III and V as presented on pages from COM 29 to COM 34 with effect from the academic year 2020-2021.

R50. As recommended by the Board of Studies in Commerce, RESOLVED to accept the changes in the programme of studies for BCOM as presented on pages from COM 1 to COM 3 and the syllabi for semesters III and IV as presented on pages from COM 4 to COM 27 with effect from the academic year 2019-2020.

R51. As recommended by the Board of Studies in Commerce, RESOLVED to accept the changes in the programme of studies for BCOM (Computer Applications) as presented on pages from CMC1 to CMC3 and the syllabi for semesters III and IV as presented on pages from CMC4to CMC27 with effect from the academic year 2019-2020.

R52. As recommended by the Board of Studies in Commerce, RESOLVED to accept the changes in the programme of studies for BCOM (Information Technology) as presented on pages from CIT1 to CIT3 and the syllabi for semesters III and IV as presented on pages from CIT4 to CIT27 with effect from the academic year 2019-2020.

R53. As recommended by the Board of Studies in Commerce, RESOLVED to accept the study modules for the courses COM/CME/CMC/CIT 2461 *Information Technology* and COM/CME/CMC/ClT 2462 *E Commerce* for the second year B.Com students published by the Department of Commerce with effect from the academic year 2020-2021.

R54. As recommended by the Board of Studies in Religion, Philosophy & Sociology,

RESOLVED to approve the Value Added Courses for BA RPS as presented on page RPS 1 and the syllabi for semesters for III and V as presented on pages from RPS2 to RPS 5 with effect from the academic year 2020-2021.

R55. As recommended by the Board of Studies in Physical Education, RESOLVED to approve the ValueAdded Courses for BSc Physical Education as presented on page BPE 1 to BPE 2 and the syllabi for semesters for I, III and V as presented on pages from BPE 5 to BPE 24 with effect from the academic year 2020-2021.

R56. As recommended by the Board of Studies in Physical Education, RESOLVED to accept the changes in the programme of studies for BSc Physical Education as presented on page from BPE and the syllabi for semester I as presented on pages from BPE to BPE with effect from the academic year 2020-2021.

R57. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the ValueAdded Courses for BSc Computer Science as presented on page COS 2 and the syllabi for semesters for I, III and V as presented on pages from COS 5 to COS 10 with effect from the academic year 2020-2021.

R58. As recommended by the Board of Studies in Computer Science, RESOLVED to accept the changes in the course COS 1202 for BSc Computer Science as presented on page COS 3 to COS 4with effect from the academic year 2020-2021.

R59. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the ValueAdded Courses for Bachelor of Computer Applications as presented on page BCA 1 and the syllabi for semesters for I, III and V as presented on pages from BCA 1 to BCA 6 with effect from the academic year 2020-2021.

R60. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the ValueAdded Courses for BSc Information Technology as presented on page BIT 3 and the syllabi for semesters for I, III and V as presented on pages from BIT 10 to BIT 15 with effect from the academic year 2020-2021.

R61. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the changes in the programme for BSc Information Technology as presented on pages from BIT 1 to BIT 2 and the syllabus for semesters I & II as presented on pages from BIT 4 to BIT 9 with effect from the academic year 2020-2021.

R62. As recommended by the Board of Studies in Computer Science, RESOLVED to accept

the programme of studies in BSc Data Science as presented on pages from BDS 4 and the syllabi for semesters I and II as presented on pages from BDS 29 to BDS 30 with effect from the academic year 2020-2021.

R63. As recommended by the Board of Studies in Computer Science, RESOLVED to approve the ValueAdded Courses for BSc Data Science as presented on page BDS 2 to BDS 4 and the syllabi for semesters for as presented on page BDS 9 to BDS 28 with effect from the academic year 2020-2021.

R64. As recommended by the Board of Studies in Microbiology, RESOLVED to approve the ValueAdded Courses for BSc Microbiology as presented on page MIC 3 and the syllabi for semesters for I to VI as presented on pages from MIC 28 to MIC 39 with effect from the academic year 2020-2021.

R65. As recommended by the Board of Studies in Microbiology, RESOLVED to accept the changes in the programme of studies for BSc Microbiology presented on pages from MIC 1 to MIC 3 and the syllabi for semesters I &II as presented on pages from MIC 6 to MIC 27 with effect from the academic year 2020-2021.

R66. As recommended by the Board of Studies in Biochemistry, RESOLVED to approve the ValueAdded Courses for BSc Biochemistry as presented on page BCH 3 and the syllabi for semesters for I, III and V as presented on pages from BCH 33 to BCH 38 with effect from the academic year 2020-2021.

R67. As recommended by the Board of Studies in Biochemistry, RESOLVED to accept the changes in the programme of studies for BSc Biochemistry presented on pages from BCH 1 to BCH 3 and the syllabi for semesters I & II as presented on pages from BCH 7 to BCH 32 with effect from the academic year 2020-2021.

R68. As recommended by the Board of Studies in Biochemistry, RESOLVED to approve the Certificate Courses in Biochemistry as presented on pages from BCH 39 and the syllabi for the certificate courses as presented on pages from BCH 40 to BCH 43 with effect from the academic year 2020-2021.

R69. As recommended by the Board of Studies in Business Administration, RESOLVED to approve the ValueAdded Courses for BBA as presented on page BBA 1 and the syllabi for semesters for I, III and V as presented on pages from BBA 1 to BBA 6 with effect from the academic year 2020-2021.

R70. As recommended by the Board of Studies in Psychology, RESOLVED to approve the ValueAdded Courses for BSc Psychology as presented on page PSY 3 and the syllabi for semesters for I to VI as presented on pages from PSY 20 to PSY 25 with effect from the academic year 2020-2021.

R71. As recommended by the Board of Studies in Psychology, RESOLVED to accept the changes in the programme of studies for BSc Psychology presented on pages from PSY 1 to PSY 3 and the syllabi for semester I as presented on pages from PSY 8 to PSY 19 with effect from the academic year 2020-2021.

R72. As recommended by the Board of Studies in Visual Communication, RESOLVED to approve the ValueAdded Courses for BSc Visual Communication as presented on page BVC 3 and the syllabi for semesters for I to VI as presented on pages from BVC 21 to BVC 31 with effect from the academic year 2020-2021.

R73. As recommended by the Board of Studies in Visual Communication, RESOLVED to accept the changes in the programme of studies for BSc Visual Communication as presented on pages from BVC 1 to BVC 2 and the syllabi for semestersI and II semesters as presented on pages from BVC 4 to BVC 20 with effect from the academic year 2020-2021.

R74. As recommended by the Board of Studies in Food Science & Nutrition, RESOLVED to approve the ValueAdded Courses for BSc Food Science & Nutrition as presented on page FSN 3 and the syllabi for semesters for I, III and V as presented on pages from FSN 19 to FSN 21 with effect from the academic year 2020-2021.

R75. As recommended by the Board of Studies in Food Science and Nutrition, RESOLVED to accept the changes in the programme of studies for BSc Food Science and Nutrition presented on pages from FSN 1 to FSN 3 and the syllabi for the programme as presented on pages from FSN 10 to FSN 18 with effect from the academic year 2020-2021.

A Note on Value Added Courses

1. Genesis of the Concept of Valued Added Courses at The American College

1.1 History

In the academic year 2015-2016, select departments sought the approval of the Academic Council to offer value added courses to the students of different programmes in the college. They were all language courses from English, French and Hindi with focus on communication skills. Visual Communication began to offer value added courses from 2018-19 with focus on hard skills. Though it was a huge success, it had many limitations as far as value addition to the disciplines in which students graduate. Meanwhile, most departments were reluctant to offer valued added courses to their own students since they were of the opinion that value added courses were built-in components of their curricula through Life Skills courses, Non-Major Elective Courses, and Supportive Courses at the undergraduate level, and CBCS courses at the postgraduate level.

1.2 Rationale for the Valued Added Courses Offered by All Departments

However, the College took a policy decision that every department should offer at least one value added course per semester to its own students for the following reasons:

1.2.1 It is a statutory requirement from NAAC.

1.2.2 The departments alone can design value added courses that could lend value and credibility to their programmes of study.

1.2.3 The valued added courses that are offered across disciplines do not meet the requirements of students of all disciplines.

1.2.4 Department-wise value added courses could be offered to their students irrespective of aided and self-financed streams.

1.2.5 The value could be a judicious mix of courses that expand knowledge-base and promote employability opportunities.

1.2.6 All students of the college can get equal opportunities to earn six value added course certificates by undergraduate students and four by postgraduate courses. Finally,

1.2.7 There could be uniformity in the institution.

2. Misconception and Misperception about Value Added Courses

There is some misconception and misperception that value added courses should be of higher level or that they should not be of lower level than the courses that are offered in the curriculum. As per the statutory requirement, value added courses should be offered outside the curriculum and therefore they need not be compared with curricular courses in terms of levels and comparability. Mostly, they are all stand-alone courses. They are expected to add extra value to the overall programme whose essence is articulated in the programme specific outcomes (PSO) and in programme outcomes (POs). Incidentally, they can also enhance employability potentials.

3. Rubrics for Designing Value Added Courses

The following rubrics were sent to all departments for deciding and designing the value added courses. Most of them are statutory requirements of accrediting agency like NAAC.

3.1 It is mandatory for all your students in the department on optional basis.

3.2 It should add extra value to the programme/graduate attributes (Math/Phy/Eng/Com etc.).

3.3 It should be offered outside the curriculum online.

3.4 It is designed for 30 hours a semester. In other words, it is offered two hours a week for fifteen weeks.

3.5 Each course carries two credits.

3.6 Grades, NOT marks, will be awarded. The mode of assessment and grading will be decided in the faculty meeting and it should be approved by the Academic Council.

3.7 Mode of valuation is preferably online.

3.8 Shift I students will attend online classes in the afternoon and Shift II students will attend online classes in the forenoon.

3.9 Certificates will be issued with the college seal by the Principal and the Head of the Department.

3.10 It is optional in nature. However, students are expected to choose at least one. Since we have no time to offer at least two courses from which students of a class can choose, we have decided to offer at least one course. We can offer choices in the future.

3.11 The courses proposed shall *add some value to the graduate attributes* that are stated in the Programme Specific Outcomes (PSOs).

3.12 All valued added courses *shall conform to outcome based education* as it was already adopted from 2019.

3.13 Each value added course is a stand-alone course. However, departments are free to design them as sequential courses without fixing any eligibility criteria.

3.14 It follows the pattern that is usually adopted for curricular courses:

3.14.1 Course Code

3.14.2 Course Title

3.14.3 Contact Hours (2)

3.14.4 Credits (2)

3.14.5 Objective (preamble)

3.14.6 Five Course Outcomes (COs)

3.14.7 Five units

3.14.8 Textbook/references

3.14.9 Mapping of COs with Bloom's Taxonomy.

4. Course Codes

The following pattern is proposed for uniform course codes in the college.

4.1 Three Letter Department Abbreviations (MAT or COM or PSY).

4.2 It is followed by a four digit alpha number to refer to the course.

4.3 The first number refers to the year, and the second number 2 represents credit for all courses. The third number (1 & 2) refers to the odd and even semester respectively.

4.4 The last will be *V* that stands for value added course.

Thus, the following is the model:

Sem	Course Code
I	MAT121V
II	MAT122V
III	MAT221V
IV	MAT222V
V	MAT321V
VI	MAT322V
I (PG)	PGM421V
II	PGM422V
III	PGM521V
IV	PGM522V

5. Target Audience

Since NAAC is expecting all students at both UG and PG levels to benefit value added courses, It is proposed that

5.1 It is applicable to all UG and PG students admitted in June 2020.

5.2 It is also applicable retrospectively to students who were admitted in June 2018 (the current third year students), and in June 2018 (the current second year UG and PG students). Thus, there is a possibility that the current third year UG students and the current second year PG students can benefit two value added courses while the current second year UG students can benefit four valued added courses.

6. Attendance

Attendance sheet should be preserved and handed over to the college at the end of the course for reference to Data Verification and Validation (DVV). DVV will ask for certificates of selected students at random and attendance sheet.

Norms for Certification of Value Added Courses

Since valued added courses are not part of the curriculum and since certification is not part of the statement of marks, it is proposed that

i. Continuous Internal Assessment (CIA) is conducted for 25 marks with one test for 15 marks and one assignment for 10 marks.

ii. The duration of End-of-Semester (EOS) online exam is one and half hours with 50 marks as maximum.

iii. The question paper is set and answer scripts are valued by the course teachers.

iv. Equal weight of 50% is given to both CIA and EOS.

v. Letter Grade is awarded to students on a four point scale:

Marks Obtained Out of 50	Course Grade	Grade Description
37.5-50	O	Outstanding
32.5-37	A	Very Good
27.5-32	B	Good
25-27	C	Average

vi. Certificates will be issued under the college seal signed by the Principal and the Head of the Department.

vii. Continuous Internal Assessment (CIA) and End-of-Semester Examinations (EOS) will be conducted only ONLINE.

Common Programme Codes and Course Codes

1. **Background**

When the college earned college autonomy in the year 1978, the college evolved its own system to name programme titles, courses titles and course codes. Thus, it continued to offer BSc Special Programmes for more than two three decades before the practice was discontinued when it was brought to the notice of the college administration that students faced some problems with regard to course equivalence. Again, it conceived of a very novel programme in 1985 that involved the study of triple major. It is BA Religion, Philosophy and Sociology. It has been recognized by the UGC Committee on Autonomy Extension and the NAAC Peer Team during their visits. Similarly, the college developed the practice of prefixing programmes and courses with the three letter acronym of the department that offer them for not only classification and identification of programmes and courses by students, faculty and administrators, but also for documentation purposes. When additional sections of aided programmes were started in 1990s, separate departments were started for administrative reasons. Consequently, the practice of a three letter acronym of SF department also started.

2. **New Norms**

2.1 However, the college started offering more number of new programmes under SF mode than the aided programmes as the government withdrew the grant-in-aid scheme in the early 1990s. While innovative programmes were being introduced under SF stream, there has also been a heavy demand for traditional programmes of study. Some of them are BCOM, Mathematics, Physics, English, and Chemistry. The college had to start an additional section in Economics under SF mode this academic year since there was a huge demand for it. Additional sections in English, Mathematics, and Physics at the postgraduate level have also been started.

2.2 It was observed by the NAAC Peer Team that wherever additional sections were offered, it should be considered as ONE programme since the university is offering the same degree irrespective of aided or self-financed mode. Meanwhile, it was noticed that the practice of following two sets of department acronyms for the same programme amounted to not only duplication but also administrative

inconvenience of using slashes like ENG/ENS even though the programme is the same.

2.3 Hence, it is proposed to dispense with the separate department acronyms for the additional sections of the aided programmes offered under self-financed stream. From the academic year 2020-2021, additional sections of aided programmes and course codes under self-financed stream will not use abbreviation CME, ENS, PSE, MAS, PSM, PHS, PSP, CHS in all documents including the statement of marks and question papers. Instead, they will use COM, ENG, PGE, MAT, PGM, PHY, PGP, CHE.

2.4 However, students' roll numbers will continue use the three letter self-financed department acronym so that they can be identified as belonging to SF stream.

2.5 This system is applicable to all additional sections of aided programmes as and when they are started in the future as well.

POSTGRADUATE DEPARTMENT OF TAMIL

Value Added Courses

w.e.f. 2020-2021

SEM	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.
I	PGT 421V	பேச்சுக்கலை	2	2
III	PGT 521V	நாட்டுப்புறவழக்காறுகள் : சேகரித்தலும் ஆவணப்படுத்தலும்	2	2

PGT421V **பேச்சுக்கலை** **2Hrs/2 Cr.**

நோக்கம்

உணர்த்த விரும்புகிற கருத்தொன்றைக் கோர்வையாகவும், தெளிவாகவும் எடுத்துரைத்திடப் பயிற்சியளிப்பது, அப்பேச்சைப் பொதுத்தளத்தில் அழகுணர்வுடனும் பிறர் ஏற்கத்தக்க விதத்திலும ் அமைத்துக்கொள்ள ஆவன செய்வது இப்பாடத்தின் நோக்கங்களாகும்.

கற்றலின் பயன்:

1. பேசக் கற்றுக்கொண்ட மனிதன் அதை பிரச்சார கருவியாக ஆக்கிக்கொண்ட வரலாற்றை அறிந்துகொள்ளும் திறன் பெற்றிருப்பர்.

2. பேச்சின் உள்ளடக்கமாக எவையெவை அமையவேண்டும் என்பதை அறிந்து அவற்றை பயன்படுத்தும் திறன்களை எய்தியிருப்பர்.

3. பேச்சை அமைத்துக் கொள்ள வேண்டிய விதங்களை அறியும் திறன்களை அடைந்திருப்பர்.

4. இருபதாம் நூற்றாண்டின் மனிதகுல வரலாற்றில் பேச்சு பெற்ற முக்கியத்துவத்தை அறிந்துகொள்ளும் திறன்களை பெற்றிருப்பர்.

5. இன்றைய இணையவழி தொழிற்நுட்பங்களை அறிந்துக்கொண்டு புதியன படைக்கும் ஆற்றல்களை எய்தியிருப்பர்.

கூறு:1பேச்சு : மொழி - தொடர்பு - பிரச்சாரம் - உலகுதழுவிய சான்றுகள் - சமயப்பிரச்சாரம் - மக்களாட்சிமுறை.**(6 மணி)**

கூறு:2உள்ளடக்கம்: கருத்து–மேற்கோள் - எழுத்துமொழியும் வழக்குமொழியும் - தெளிவு-புள்ளிவிபரங்கள் - சம்பவங்கள் - கவிதைகள் - இலக்கியவாசிப்பின் பின்புலம்.**(6 மணி)**

கூறு:3வடிவம் : - இடம் காலம் சூழல் - சொல்லும்முறை-குரல் - மொழிஆளுமை - உச்சரிப்பு-உடல் மொழி**(6 மணி)**

கூறு:4இலக்கியத்தில் பேச்சுமரபு : தர்க்க இலக்கியங்கள் - பேச்சுபற்றியவரையறைகள்-இருபதாம்நூற்றாண்டு இலக்கியங்கள் - இயக்கங்கள் **(6 மணி)**

கூறு:5தொழில்நுட்பம் : தகவல் தொழில்நுட்பமும் பேச்சும் - தமிழ் நாட்டுமேடைப்பேச்சு-பட்டிமன்றம் - தொலைக்காட்சி-வலையொளி(youtube)-காணொளி(ppt).**(6 மணி)**

PGT 2

பார்வைநூல்:

1. திருமலை. ம,பேச்சுக்கலை,மீனாட்சிபுத்தகநிலையம்,மதுரை, 2015

2.அறந்தைநாராயணன்,பேச்சுக்கலை- NCBH சென்னை, 2011

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1	**2**				
CO2	1	2	3	**4**		
CO3	1	2	3	4	**5**	
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean: 2.9

PGT 521V நாட்டுப்புறவழக்காறுகள் :சேகரித்தலும் ஆவணப்படுத்தலும் 2Hrs/ Cr.

நோக்கம் : நாட்டுப்புறவழக்காறுகளின் வழியாகப் புலனாகும் நாட்டுப்புறமக்களின் மரபுசார் அறிவினைச் சேகரித்தல்,பாதுகாத்தல்,ஆவணப்படுத்துதல் ஆகியன இப்பாடத்திட்டத்தின் அடிப்படையானநோக்கங்களாகும்.

பயன் : 1. நாட்டுப்புறவழக்காறுகளின் விளக்கங்களைத் தெளிவாகப் புரிந்துகொள்வர்.
2.களப்பணியைமேம்பாட்டுடன் செய்வதற்கானதிறன் பெற்றிருப்பர்.
3.ஆவணக் குறிப்புபற்றித் தெளிவானவிளக்கம் பெறுவர்.
4.பயன்பாட்டுநோக்கில் வழக்காறுகளைப்பகுத்துஅறியும் அறிவர்.
5வழக்காற்றின் அனுபவரீதியானஎதார்த்தங்களைஅடுத்ததலைமுறையினருக்கு எடுத்துச் செல்லும் திறன் பெற்றிருப்பர்.

கூறு1: நாட்டுப்புறவியல் அறிமுகம் - வழக்காறு/போலிவழக்காறுபற்றியவிளக்கம் - பயன்பாட்டுநாட்டுப்புறவியல் குறித்தவிளக்கங்கள் - வழக்காறுகளைவகைப்படுத்துதல்,வகைப்படுத்துதலில் ஏற்படும் சிக்கல்கள். **(6 மணி)**

கூறு2: களப்பணிஅறிமுகம் - சேகரிப்புப் பணிக்கானதிட்டங்களைஉருவாக்குதல் - இடம்,காலம் தேர்வுசெய்தல் (வழக்காற்றிற்குஏற்றவாறு இனங்காணுதல்) - வழக்காறுகளைச் சேகரிக்கும்போது - களப்பணியாளர் - தகவலாளிக்கு இடையிலானஉறவு, இணக்கம் /முரண். **(6 மணி)**

கூறு3: தூண்டப்பட்ட சூழலில் வழக்காறுகளைச் சேகரிக்கும் முறைகள் - தகவலாளிஎதிர்கொள்ளும் பாலியல்,சாதிய,சமயரீதியானநெருக்கடிகள் **(6 மணி)**

கூறு4: ஆவணம்,ஆவணக்காப்பகம் விளக்கம் - நாட்டுப்புறவியல் ஆவணக் காப்பகங்கள் - தேவை–பாதுகாக்கும் பராமரிக்கும் முறைகள் - ஆவணப்படுத்தும் முறைகள் - மின்னணுநாட்டுப்புறவியல். **(6 மணி)**

கூறு5: வழக்காறுகளைப் பரவலாக்கம் செய்தல் - பரவலாக்கம் செய்தலில் ஏற்படும் சிக்கல்கள் - பயன்வழிநோக்கில் வழக்காறுகளைப் பயன்படுத்துதல் - அதற்கானஉரிமைகள். **(6 மணி)**

குறிப்பு:

இப்பாடத்தைப் பயிலும் மாணவர்கள் குறிப்பிட்டவழக்காறுகளைக் களப்பணியின் வழியாகச் சேகரித்துபாடப்பருவத்தின் இறுதியில் ஆசிரியர் வசம் ஒப்படைப்புசெய்தல் வேண்டும்.

PGT 4

மாணவர்கள் களப்பணியின் வழியாகச் சேகரித்தவழக்காறுகளைமதிப்பீடுசெய்து (களப்பணியின் அடிப்படையில்),அதன்அடிப்படையில் புறத்தேர்வில் 50விழுக்காடுமதிப்பெண் வழங்கப்படும்.

பார்வைநூல்கள் :

தே.லூர்து **'நாட்டார் வழக்காற்றியல் : சிலஅடிப்படைகள்'** நாட்டார் வழக்காற்றியல் ஆய்வுமையம்,பாளையங்கோட்டை, 1987

ஆறு.இராமநாதன் **'தமிழர் கலை இலக்கியமரபுகள்'** மெய்யப்பன் பதிப்பகம்,சிதம்பரம், 2004.

சு.சக்திவேல் **'நாட்டுப்புற இயல் ஆய்வு'** மணிவாசகர் பதிப்பகம்,சிதம்பரம், 1984.

சேவியர் அந்தோனி **'ஈர்ப்புவிசை' (பயன்பாட்டுநாட்டுப்புறவியல் ஆய்வுகள்)** வைகறைப் பதிப்பகம்,திண்டுக்கல், 2000.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2	1	2	3			
CO3	1	2	3	4		
CO4	-	-	-	-	-	-
CO5	1	2	3	4	5	6

Mean:2.7

POSTGRADUATE DEPARTMENT OF ENGLISH

Grid for M.A. English

w.e.f. 2020 -2021

Sem.	Course Code	Course Title	Hr./ Wk	Cr.	Mark
I	PGE 4361	Research Methods in Language and Literature	5	3	60
	PGE 4463	British Literature I	5	4	80
	PGE 4465	Indian Literatures in Translation	5	4	80
	PGE 4467	Twentieth Century American Literature	6	4	80
	PGE 4369	Translation Studies	5	3	60
	PGE 4371	English for Careers (CBCS)	4	3	60
	Total		**30**	**21**	**420**
II	PGE 4462	Modern Literary Theories I	5	4	80
	PGE 4364	British Literature II	5	3	60
	PGE 4466	Structure of Modern English	6	4	80
	PGE 4468	Indian Literature in English	5	4	80
	PGE 4370	Shakespearean Tragedy	5	3	60
	PGE 4372	Film Studies (CBCS)	4	3	60
	Total		**30**	**21**	**420**
III	PGE 5471	Modern Literary Theories II	5	4	80
	PGE 5473	British Literature III	5	4	80
	PGE 5475	Teaching English Language & Literature	5	4	80
	PGE 5477	Cultural Studies	5	4	80
	PGE 5479	African-American Literature	5	4	80
	PGE 5481	Asian Literatures in English	5	4	80
	Total		**30**	**24**	**480**
IV	PGE 5472	British Literature IV	5	4	80
	PGE 5374	New Literatures in English	6	3	60
	PGE 5476	History of Englishes	5	4	80
	PGE 5478	European Literatures in Translation	5	4	80
	PGE 5480	African Literature	5	4	80
	PGE 5382	Special Author	4	3	60
	PGE 5284	Project	(3)	2	40
	Total		**30+ 3**	**24**	**480**
	GRAND TOTAL		**120 +3**	**90**	**1800**

Value Added Courses

Sem	Course Code	Course Title	Hr./Wk	Cr
I	PGE 421V	Classical Mythology	2	2
III	PGE 521V	Greek Tragedy	2	2
		Total	**30+30=60**	**2+2=4**

Programme Specific Outcomes (PSOs) for MA English

On completion of the programme, postgraduates will be able to

1. approach a wide range of literary texts and critical perspectives in English with an open mind; and contextually locate, critically evaluate, and creatively synthesize large amounts of ideologically conflicting information, concepts and theories;
2. negotiate the social, environmental and global implications of English studies; recognize the ethical implications of reading literary texts; and interpret literary texts within and beyond the theoretical framework offered by various literary-critical theories;
3. diligently identify and objectively assess the relative merits, values and ways of life and cross cutting issues relating to gender, environment, equality and human rights through national and regional literatures;
4. write well-organized and well-developed text-based essays in standard English with clear thesis statement at the discourse level and with the topic sentence together with supportive ideas at the paragraph level;
5. dispassionately evaluate the secondary sources and synthesize them with their original responses to literary texts; and demonstrate their capacity for critical reading of texts;
6. analyze Modern English both synchronically and diachronically; and teach and research on English as a second language;
7. participate as critical and active citizens in society and at work; and pursue career and research in English studies and allied disciplines;
8. document their reading and interpretive practices in assignments, translation works, and independent projects;
9. confidently and effectively articulate their literary and textual experiences; and
10. reorganize a professional and reflective approach to leadership, responsibility, personal integrity, empathy, care and respect for others, accountability and self-regulation.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
PGE 4361	✓	✓		✓	✓	✓	✓	✓	✓	
PGE 4463	✓		✓	✓	✓	✓		✓	✓	
PGE 4465	✓	✓	✓	✓			✓	✓	✓	✓
PGE 4467	✓	✓	✓	✓	✓		✓	✓	✓	✓
PGE 4369	✓	✓	✓		✓		✓	✓	✓	✓
PGE 4371		✓		✓	✓	✓	✓	✓	✓	✓
PGE 4462		✓		✓		✓	✓	✓	✓	✓
PGE 4364	✓	✓	✓	✓	✓				✓	✓
PGE 4466	✓	✓	✓	✓	✓		✓	✓	✓	✓
PGE 4468	✓	✓	✓	✓	✓		✓		✓	✓
PGE 4370	✓	✓	✓		✓	✓		✓	✓	✓
PGE 4372	✓	✓	✓	✓	✓				✓	✓

Mapping of Programme Specific Outcomes (PSOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓	✓	✓	✓		✓	✓	✓	✓	✓
PSO2	✓	✓	✓	✓			✓	✓	✓	✓
PSO3		✓	✓				✓	✓	✓	✓
PSO4	✓	✓	✓		✓	✓	✓			
PSO5	✓	✓	✓	✓	✓		✓	✓	✓	✓
PSO6	✓	✓		✓	✓	✓		✓	✓	✓
PSO7		✓	✓	✓	✓		✓	✓	✓	✓
PSO8		✓	✓		✓	✓				
PSO9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PSO10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

PGE 4361 Research Methods in Language & Literature 5 Hrs. / 3 Cr.

This course aims at building students' critical thinking and writing skills required for English Studies at Master's level. It emphasizes the effective use and synthesis of research materials, and the multi-drafting approaches to writing for clear communication of ideas in argumentative prose. The course also familiarizes students with the research methods of language and literature according to American Psychological Association (APA) and Modern Language Association (MLA).

At the end of the course, students will be able to

i. develop the process of writing,
ii. devise the mechanics and research writing,
iii. create knowledge production,
iv. apply APA documentation styles and
v. apply MLA styles.

Unit 1 Writing as a Process (20 Hours)
Pre-writing strategies, while-writing strategies, post-writing strategies; developing writing through extended practices; developing reflective abilities & meta-awareness about writing

Unit 2 Academic Writing (10 Hours)
Conventions of Writing – The Question of Style, Planning the Assignment, Defining the Problem, Limiting the Problem, Consulting Source Material

Unit 3 Planning the Dissertation (20 Hours)
Formatting the Dissertation, Thesis Statement, Research Questions, Review of Literature, Designing the Study, Chapter Outline, Scholarly Writing: A Case Study

Unit 4 Documentation Style: APA (12 Hours)
Overview of the History of the APA, APA Citation Rules—Case Study
(An ELT paper from *English Today* or *ELT Journal*)

Unit 5 Documentation Style: MLA (13 Hours)
Background History of the MLA handbook, Documentation styles, Mechanics of writing, and Works cited, Case Study (A Literature paper from *Journal of Postcolonial Studies*)

Textbook

Anderson, Jonathan and Millicent Poole. 2001. *Assignment and Thesis Writing*. Nice.

References

Bailey, Stephen. 2003. *Academic Writing: A Practical Guide for Students*. Routledge Falmer.
Hartley, James. 2008. *Academic Writing and Publishing: A Practical Handbook*. Routledge.
Langan, John. 2001. *Sentence Skills with Readings*. McGrawHill.
Zemach, Dorothy E. & Rumisek, Lisa A. 2005. *Academic Writing from Paragraph to Essay*. Macmillan.
American Psychological Association. 2013. *Publication Manual of the American Psychological Association*. 6th edn.
Modern Language Association. 2016. *MLA Handbook*. 8th edn.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	6
CO2		2	3	4	5	
CO3		2	3	4	5	6
CO4				4	5	6
CO5				4	5	6

Mean: 4.2

PGE 4463 **British Literature I** **5 Hrs./4 Cr.**

The course deals with literature of the Renaissance and Neo-Classical period in British literature. It aims to study the humanist tradition influenced by political and religious debates around that time. This course will take up for detailed discussion some of the notable literary works written during this period.

At the end of the course the students will be able

i. to focus on the importance of Renaissance and its impact on poetry,
ii. to identify the distinct literary characteristics of British poetry during Renaissance period,
iii. to analyse various kinds of essays,
iv. to critique the spirit of renaissance and restoration age through drama and
v. to evaluate novels from social, historical and political perspectives.

Unit 1 **Poetry-I (18 Hours)**
Geoffrey Chaucer "General Prologue," From *The Canterbury Tales*
John Milton Book IX *Paradise Lost*

Unit 2 **Poetry-II (17 Hours)**
John Donne "The Canonization" (SS)
Alexander Pope Canto I and II,"The Rape of the Lock"
Thomas Gray "Elegy Written in a Country Churchyard"

Unit 3 **Prose (5 Hours)**
Francis Bacon "Of Great Place"
Oliver Goldsmith Letters XCVII, LXXI from "The Citizen of the World"
1. Letter XCVII "Almost Every Subject of Literature has been Already Exhausted..."
2. Letter LXXI "The Shabby Beau..."
Joseph Addison & Richard Steele
Essays from "The Coverley Papers"
"Sir Roger at Home" (SS),
"On the Shame and Fear of Poverty"

Unit 4 **Drama (16 Hours)**
John Webster *The Duchess of Malfi*
William Congreve *The Way of the World* (SS)

Unit 5 **Novel (19 Hours)**
Henry Fielding *The History of Tom Jones, a Foundling*
Laurence Sterne *The Life and Opinions of Tristram Shandy, Gentleman.*

References

Baird, Theodore. "The Time-Scheme of Tristram Shandy and a Source." *Modern Language Association of America*, 1936.
Bush, Douglas. "Prefaces to Renaissance Literature." W.W. Norton, 1965.
Kean, Margaret. *John Milton's Paradise Lost: A Routledge Study Guide And Sourcebook*. Taylor and Francis, 2013.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4		
CO2		2	3	4	5	
CO3		2	3	4	5	6
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean- 3.5

PGE 4465 Indian Literatures in Translation 5 Hrs. /4Cr.

This course will familiarize the students with regional literary works in English representing diverse cultures, ideologies and societal patterns existing in our nation. It will sensitize students to the influences of politics, history, social customs, and caste systems in making up the regions and nations. The students will be motivated to read and critically appreciate these creative works written by prominent regional writers.

At the end of the course, students will be able to

i. evaluate poetry as a representation of various cultures and sub-cultures in India,
ii. express the human psyche, emotions and conflicts represented in the works
iii. assess different regional writers and their writing techniques,
iv. evaluate the political, historical, religious and social narrations/contexts of the texts and
v. judge the social structures and norms that are specific to each region,

Unit 1 Poetry (12 Hours)

Natrinai	"172 Playing With Friends One Time," Tr. A.K . Ramanujan
Kurunthokai	"40 Your Mother And My Mother" Tr. A.K.Ramanujan
Malkhan Singh	"Listen, Brahmin" Tr. Pratik Kanjilal
Balachandran Chullikad	"Where is John?" Tr.K.Satchidanandan
Jyothna Kalita	"Home" Tr. Kallol Choudhury
Shakti Chattopadhyay	"I Could Go, But Why Should I?" Tr. Antara Dev Sen
Naseem Shafaie	"Deception" Tr. Brij Nath Betab
Namdeo Dhasal	"People" Tr. Dilip Chitre
Sujata Chaudhry	"The Last Question" Tr. Poet
Amrita Pritam	"I Will Meet You Yet Again" Tr. Nirupama Dutt

Unit 2 Prose (11 Hours)

Periyar (EVR)	"Rationalism"(SS)
Raj Gauthaman	"Dalit Culture" Tr. M.S.S. Pandian
M.K. Sanoo	"The Ivory Tower" Tr. K.M. Sherrif
M. Govindan	"The Psychology of Power" Tr. Anitha Devasia

Unit 3 Drama (13 Hours)

Vijay Tendulkar	*Silence! The Court is in Session* Tr. Priya Adarkar
Girish Karnad	*Hayavadana* Tr. Author

Unit 4 Fiction I (20 Hours)

ThakazhiSivasankara Pillai	*Chemmeen* Tr.Anita Nair
P. Sivakami	*The Grip of Change and Author's Notes* Tr. Author

Unit 5 **Fiction II (20 Hours)**

Premchand	*Godan* Tr. Jai Ratan, P. Lal
Mahasweta Devi	*Pterodactyl* Tr. Gayatri Chakravorty Spivak

References

Iyengar, Srinivasa. *Indian Writing in English*. Sterling Publishers, 1962.
Rao, P. Mallikarjuna & M. Rajeshwar (eds.). *Indian Fiction in English*. Atlanta Publishers, 1999.
Satchidanandan, K. *Indian Poetry: Modernism and After: A Seminar*. Sahitya Akademi, 2001.
Satyanarayana, K. & Susie Tharu (eds.). *No Alphabet in Sight: New Dalit Writing from South India: Dossier 1: Tamil & Malayalam*. Penguin Books, 2011.
Sen,Antara Dev (ed.). *India in Verse Contemporary Poetry from 20 Indian Languages*. The Little Magazine, 2011.
Tiwari, Shuba (ed.). *Indian Fiction in English Translation*. Atlanta Publishers, 2005.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1	1	2		4	5	
CO 2	1	2	3	4	5	6
CO 3	1	2	3	4	5	
CO 4	1	2		4	5	
CO 5	1	2		4	5	

Mean: 3.13

PGE 4467 Twentieth Century American Literature 6 Hrs./4Cr.

The literary scene of the twentieth century America is punctuated by varied literary techniques in drama, poetry, and fiction with the leading authors tending toward radical technical experiments. The course aims at giving an insight into the literary trends that characterize this period. It focuses on distinct aspects of American literature and its rich diversity as highlighted in texts representing different literary genres.

At the end of the course, students will be able to

i. distinguish the individual writing techniques that contribute to the gamut of twentieth century American poetry,
ii. relate to American prose as a distinct expression of the emerging consciousness of the new society,
iii. analyze the literary trends that shaped twentieth century American fiction,
iv. evaluate the themes and approaches of Realist and Naturalist drama and
v. critique the way in which the ideas, values and themes, inform and impact culture and society.

Unit 1 **Poetry (18 Hours)**

Robert Frost	"Home Burial" (1914)
Sara Teasdale	“Barter” (*Love Songs* 1917)
e.e. cummings	“Buffalo Bill’s” (1920)
Wallace Stevens	“The Idea of Order at Key West” (1934)
Gertrude Stein	“Daughter” (1935)
Bob Dylan	“Every Grain of Sand” (1962)
Sylvia Plath	“Daddy” (1965)
Wendell Berry	“The Peace of Wild Things” (*Openings: Poems* 1968)
John Ashbery	“And Ut Pictura Poesis Is Her Name” (1987)

Unit 2 **Prose (6 Hours)**

Saul Bellow	“The Sharp Edge of Life” (1951)
Susan Sontag	“Against Interpretation” (1966)
Czeslaw Milosz	Nobel Prize Acceptance Speech-(Section III) (1980)

Unit 3 **Drama (33 Hours)**

Tennesse Williams	*The Glass Menagerie* (1944)
Arthur Miller	*Death of a Salesman* (1949)
David Henry Hwang	*M. Butterfly* (1988) (SS)

Unit 4 **Fiction (25 Hours)**

John Steinbeck	*The Grapes of Wrath* (1939)
John Updike	*Rabbit is Rich* (1981)

Unit 5 **Short Fiction (8 Hours)**

O. Henry	*The Cop and the Anthem* (1906)
Katherine Anne Porter	*Flowering Judas* (1930)
Ernest Hemingway	*A Clean, Well-Lighted Place* (1933)
William Faulkner	*A Rose for Emily* (1970)

References

Chénetier, Marc. *Critical Angles: European Views of Contemporary American Literature*. Southern Illinois University Press, 1986.

Macgowan, Christopher. *The Twentieth-Century American Fiction Handbook*. Wiley-Blackwell, 2011.

Yannella, R. Philip. *American Literature in Context after 1929*. Wiley-Blackwell, 2011.

Weber, Ronald. *Hired Pens: Professional Writers in America's Golden Age of Print*. Ohio University Press, 1997.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1				4		
CO2				4		
CO3					5	
CO4					5	
CO5						6

Mean: 4.8

PGE 4369 Translation Studies 5 Hrs./3 Cr.

The course aims to train students in translating literary, journalistic, scientific and critical passages, and articles of general interest and get them acquainted with theories of translation. Problems in translation will also be studied to make students understand the limitations as well as nuances in translating different genres.

At the end of the course, students will be able to

i. analyse the issues and understand the significance of translation as an art and craft,
ii. estimate theories of translation,
iii. employ different translation techniques and methods on different literary genres,
iv. assess the problems of translation and resolve them and
v. produce translations like a professional translator in the fields like journalism & mass communication, public administration, critical discourse and science & technology and thus facilitating trans-creations.

Unit 1 **Central Issues (20 Hours)**
Language and Culture
Types of Translation
Decoding and Recoding
Problems of Equivalence
Problems in Translation

Unit 2 **Theory (15 Hours)**
Bible Translation (Cicero to Tytler)
A linguistic Theory of Translation (J. C. Catford)
Semantic Translation (Peter Newmark)

Unit 3 **Translating Literary Genres (20 Hours)**
Structures of Translation
Poetry and Translation
Translating Prose
Translating Dramatic Texts
Translating Theory and Critical texts

Unit 4 **Practice in Translation (15 Hours)**
Translating literary, scientific, critical and journalistic passages from Tamil to English

Unit 5 **Practice in Translation (15 Hours)**
Translating literary, scientific, critical and journalistic passages from English to Tamil

Textbooks

Basnett, Susan. *Translation Studies*. Routledge, 2002.
Catford, J.C. *A Linguistic Theory of Translation*. OUP, 1978.
Newmark, Peter. *A Textbook of Translation*. Prentice Hall, 1988.

References

Gupta, R.S. *Literary Translation*. Creative Books, 1999.
Kuhiwczak, Piotr and Karin Littau(eds). *A Companion to Translation Studies*. Orient BlackSwan, 2016.
Savory, Theodore. *The Art of Translation*. Cape, 1957.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	6
CO2		2	3	4	5	
CO3		2	3	4	5	6
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean: 3.9

PGE 4371 **English for Careers** **4 Hrs./3 Cr.**

Now more than ever, English proficiency is a necessity in the global work environment. Hence, this course proposes to teach the nuances of English Usage in a professional environment. It also intends to train the students to crack IELTS, TOEFL, and BEC, thereby enable them to pursue higher education abroad.

At the end of this course, students will be able to

i. identify the intricacies of basic communication in English,
ii. learn how to communicate in a business environment,
iii. explore the wide range of career opportunities in writing,
iv. solve the English language tests of various competitive exams efficiently and
v. crack international language tests with effective strategies.

Unit 1 **Basic communication skills (15 hours)**

Listening Comprehension Tasks
Speech Practice - Short conversations – formal and informal talks – lectures – TED talks
Reading Practice – Identifying main Idea – contextual clues – Skimming and Scanning – critical reading
Writing Tasks – develop and understand structure of paragraphs and essays – coherence – data interpretation – ideas to words

Unit 2 **Business Communication (15 hours)**

Business letters – report writing – group discussion –resume writing - interview skills – presentation skills – negotiation skills – telephonic conversation – writing minutes –

Unit 3 **Writing as a career (10 hours)**

Article writing – blogging – technical writing – content writing – travel writing - proof reading – feature writing – journalism

Unit 4 **English for competitive exams (10 hours)**

Error spotting – sentence completion – inferential comprehension – idioms and phrases – Reading comprehension – Cloze test – Para-jumble – analogy

Unit 5 **English for language specific exams (10 hours)**

Strategies to score high in IELTs, TOEFL, BEC through tasks

References

Kalkar, Anjali et al. *Textbook of Business Communication*. Orient Blackswan, 2010
Raman, Meenakshi, and Prakash Singh. *Business Communication*. Seconded. OUP, 2012.
Thorpe, Edgar and Showick Thorpe. *Objective English*, Pearson, 2012
Sharpe, Pamela J. *Barron's TOEFL iBT 15th* edn. Galgottia, 2017
Swan, Michael. *Practical English Usage. International Student's Edition.* OUP, 2000
Bhatnagar, R P. *English for Competitive Examinations*, 3rd edn. Macmillan publishers, 2011
Simon, Peter. *Communication Skills: the stepladders to success with effective communication.* Ramesh publishing house, 2013

Mapping of the course outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4	5	6
CO2		2	3	4	5	6
CO3		2	3	4	5	6
CO4		2	3	4		
CO5	1	2	3	4	5	6

Mean:3.7

PGE 4462 Modern Literary Theories I 6 Hrs./ 5Cr.

This course aims to introduce students to the emergence, the relevance and the use of theory in Literary Studies. It would enable students to enter critical debates in the twentieth century around the question of literature, art, language, author, text, and reader through key concepts and particular theoretical texts. Intending to trace the broad development of literary theory from the early twentieth century to the present, it would familiarize students with the polemics of literary theory.

At the end of the course students will be able to

i. define literature and theory, and differentiate between criticism and theory,
ii. justify the "beauty" of a literary work, recognize the function of the artist, the critic, and of criticism and theory itself from the Russian formalist and New Critical positions,
iii. discover and account for multiple interpretations of a text, interrelate the relationship between the content and the form of a literary work,
iv. evaluate the claims of Saussurean linguistics in literary studies and
v. examine the basic tenets of poststructuralism and deconstruct texts.

Unit 1 Defining Criticism, Theory, and Literature (18 Hours)

Jonathan Culler	"What is Theory?" (1-17) (SS)
Peter Barry	"Theory before 'theory' – Liberal Humanism" (11-35) (SS)
M.H. Abrams	"Orientation of Critical Theories" (3-7)

Unit 2 Russian Formalism and New Criticism (18 Hours)

Viktor Shlovsky	"Art as Technique"
Mikhail Bakhtin	"Heteroglossia in the Novel"
Cleanth Brooks	"The Formalist Critics"

Unit 3 Reader-Oriented Criticism (18 Hours)

Stanley Fish	"Is There a Text in Class?"
Wolfgang Iser	"Interaction between Text and Reader"
Roland Barthes	"The Death of an Author"

Unit 4 Structuralism (18 Hours)

Ferdinand de Saussure	from "A Course in General Linguistics" (Davis 265-279)
Roman Jakobson	"Two Aspects of Language and Two Types of Aphasic Disturbances"
Vladimir Propp	"The Method and the Material" from *Morphology of the Folktale*"

Unit 5 Post-structuralism and Deconstruction (18 Hours)

Jacques Derrida	"Structure, Sign and Play in the Discourse of Human Sciences"
Michel Foucault	"What is an Author?"
Paul de Man	"The Resistance to Theory"

References

Abrams, M. H. and Geoffrey Galt Harpham. *A Glossary of Literary Terms*, 10th edn. Wadsworth Cengage Learning, 2012.

---. *The Mirror and the Lamp: Romantic Theory and the Critical Tradition*. OUP, 1953.

Barry, Peter. *Beginning Theory: An Introduction to Literary and Cultural Theory*, 3rd edn. Viva Books, 2010.

Bressler, Charles, E. *Literary Criticism: An Introduction to Theory and Practice*. 5th edn. Pearson Prentice Hall.

Culler, Jonathan. *Literary Theory: A Very Short Introduction.* OUP, 1997.

Davis, Robert Con and Ronald Schleifer(eds.). *Contemporary Literary Criticism: Literary and Cultural Studies*, 4th edn. Longman,1998.

Dobbie, Ann B. Theory into Practice: An Introduction to Literary Criticism, 3rd edn. Wadsworth, 2012.
Eagleton, T. *Literary Theory: An Introduction, 2nd* edn. Blackwell,1996.
Leitch, Vincent B. (ed.). *The Norton Anthology of Theory and Criticism*. Norton & Company, 2001.
Lodge, David and Nigel Wood, eds. *Modern Criticism and Theory: A Reader*. 3rd edn. Pearson Longman, 2008.
Rivkin, J. and Ryan, M. ed. *Literary Theory: An Anthology*, 2nd edn. Blackwell, 2002.
Stott, Jon C., Raymond E. Jones, and Rick Bowers, eds. *The Harbrace Anthology of Short Fiction*. 4th edn. Nelson Thomson Learning, 2006.
Propp, Vladimir. *Morphology of the Folktale.* Trans. Laurence Scott. University of Texas Press. 2009.

Mapping of Course Outcome's with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	6
CO2		2	3	4	5	6
CO3		2	3	4	5	6
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean: 4

PGE 4364 **British Literature II** **5Hrs /3Cr.**

This course aims at familiarizing students with the dominant attitudes and various literary genres of the Romantic and Victorian periods. It will enable students identify the Romantic triumph of emotion over reason, and the presence of Victorian pessimism pervading human relationships, morality, justice and freedom.

At the end of the course, students will be able to

i. evaluate the spontaneity of emotions and feeling of the real world,
ii. appreciate the verbal embellishments and explore themes of religious scepticism through their distinct sensibility,
iii. examine the predominant themes and moods with the help prose writers,
iv. analyse the preference of emotion over intellect in the novel during the romantic period and
v. interpret the Victorian lifestyle in different perspective through fiction

Unit 1 **Poetry (16 Hours)**

John Keats	"Ode on a Grecian Urn"
P.B. Shelley	"Ode to the West Wind"
Lord Byron	"She walks in Beauty" (SS)
William Wordsworth	"Lines Written a Few Miles above Tintern Abbey"
S.T. Coleridge	"The Rime of the Ancient Mariner"

Unit 2 **Poetry II (12 Hours)**

Alfred Tennyson	"The Lotos-Eaters"
Matthew Arnold	"The Scholar Gypsy"
Robert Browning	"Andrea del Sarto"

Unit 3 **Prose (16 Hours)**

William Hazlitt	"On Going on a Journey" (SS)
Charles Lamb	"Detached Thoughts on Books and Reading"
Matthew Arnold	"The Study of Poetry"
Thomas Carlyle	"The Hero as a Poet: Dante, Shakespeare"

Unit 4 **Fiction I (18 Hours)**

Jane Austen	*Persuasion*
Walter Scott	*Kenilworth*

Unit 5 **Fiction II (13Hours)**

George Eliot	*The Middlemarch*
Charles Dickens	*Hard Times* (SS)

References

Tucker, Herbert. *A New Companion to Victorian Literature and Culture*. Wiley Blackwell, 2014.
Bevis, Matthew. *The Oxford Handbook of Victorian Poetry*. OUP, 2019.
Macmillan. *British Romantic Literature and the Emerging Modern Greek Nation*. Springer International, 2018.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	6
CO2		2	3	4	5	6
CO3		2	3	4	5	
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean – 3.9

PGE 4466 Structure of Modern English 6 Hrs./4Cr.

Students at the Master's level are expected to familiarize themselves with a proper synchronic perspective of the organization of Modern English in order to become better users/teachers of English as a language. The course focuses on the phonological, morphological, and syntactical aspects of Modern English, and alternative grammars like Phrase Structure Grammar, and TGG.

At the end of the course, students will be able to

i. produce pronunciation skills,
ii. apply supra-segmental features
iii. express their morphological knowledge,
iv. negotiate alternative theories of English such as IC Analysis and PS Grammar, and
v. design Transformational and Generative Grammars pedagogically

Unit 1 **Segmental Features (20 Hrs)**
Organs of speech, classifications of English consonants and vowels, English phonology, IPA, phone, phoneme, and allophone

Unit 2 **Supra-segmental features (10 Hours)**
Syllable and syllabification, word accent and sentence accent, rhythm and intonation, and, such as assimilation, elision, and liaison

Unit 3 **English Morphology (20 hours)**
Types of morphemes; inflectional morphology; derivational morphology (prefixation, suffixation, conversion, compounding)

Unit 4 **English Syntax (15 hours)**
IC Analysis and Phrase Structure Grammar

Unit 5 **English Syntax (15 Hours)**
Transformational and Generative Grammars

Textbooks

Lieber, Rochelle. 2009. *Introducing Morphology*. CUP.
Roach, Peter. 1997. *English Phonetics and Phonology: A self-Contained, comprehensive Pronunciation Course*. CUP.
Palmer, Frank. 1983. *Grammar*. Pelikan Books.

References

Brinton, Laurel J. 2000. *The Structure of Modern English*. John Benjamins
Chomsky, Noam. 1975. *Syntactic Structures*. Mouton.
O'Connor, J.D. 2000. *Better English Pronunciation*. CUP.
Plag, Ingo. 2002. *Word-formation in English*. CUP.
Yule, George.1996. *The Study of Language*. CUP

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4		
CO2	1		3	4	5	6
CO3			3	4	5	
CO4				4		6
CO5				4		6

Mean: 4.1

PGE 4468 **Indian Literature in English** **5 Hrs. / 4 Cr.**

As a sequel to Indian Literatures in Translation, this course aims at studying the development of various forms of Indian Literature written in the English Language. It will also familiarize students with literary techniques and debates, and reinterpret the contested sites of language, culture, history, memory and authenticity.

At the end of the course, students shall be able to:

i. analyse poetic techniques and themes in Indian English poetry,
ii. evaluate modern Indian Prose as representation of India's diversity and problematize Indian Literature as a category,
iii. distinguish techniques and themes in Indian English drama from western models,
iv. assess novel as a genre that narrates the nation with particular emphasis on postcolonial Indian experience of the nation, its history and politics, the role of memory and also estimate narrative strategies and
v. estimate novels on the basis of postcolonial issues.

Unit 1	**Poetry**	**10 Hours)**
	A.K. Ramanujan	"Love Poem for a Wife – I,"
		"Snakes,"
	Nissim Ezekiel	"Background Casually"
		"Enterprise"
		"The Patriot"
	Jayanta Mahapatra	"Grandfather"
		"The Abandoned British Cemetry at Balsore"
		"Hunger"
	Kamala Das	"An Introduction"
		"An Old Playhouse"
		"Dance of the Eunuchs" (SS)
Unit 2	**Prose**	**(8 Hours)**
	Aijaz Ahmad	"'Indian Literature': Notes towards the Definition of a Category" (from *In Theory: Classes, Nations, Literatures* 243-287*)*
	Shashi Tharoor	"A Myth and an Idea" (SS)
	Amartya Sen	"Tagore and His India"
	Romila Thapar	"Knowledge as Heritage"
Unit 3	**Drama**	**(15 Hours)**
	Mahesh Dattani	*Dance Like a Man*
	Manjula Padmanabhan	*Harvest*
Unit 4	**Novel-I**	**(21 Hours)**
	Amitav Gosh	*The Shadow Lines*
	Salman Rushdie	*Haroun and the Sea of Stories*
	Rohinton Mistry	"Lend me your Light" (SS)
Unit 5	**Novel-II**	**(21 Hours)**
	Shashi Deshpande	*The Binding Vine*
	Arundhati Roy	*The God of Small Things*
	Jhumpa Lahiri	"A Temporary Matter" (SS)

References

Bharat, Meenakshi (ed.). *Desert in Bloom: Contemporary Indian Women's Fiction in English.* Pencraft International, 2004.

De Souza, Eunice. *Talking Poems: Conversations with Poets*. OUP, 1999.

Khair, Tabish. *Babu Fictions: Alienation in Contemporary Indian English Novels*. OUP, 2001.

King, Bruce (ed.). *Modern Indian Poetry in English*. New Delhi: OUP, 2001.

Needham, Anuradha Dingwany. *Using Master's Tools: Resistance and the Literature of the African and South Asian Diasporas*. St. Martin's Press, 2000.

Mehrotra, Arvind Krishna (ed.). *An Illustrated History of Indian Literature in English.* Permanent Black, 2003.

Mukherjee, Meenakshi. *The Perishable Empire: Essays on Indian Writing in English*. OUP, 2000.

Sanga, Jaina C. *Salman Rushdie's Postcolonial Metaphors: Migration, Translation, Hybridity, Blasphemy, and Globalization.* Greenwood Press, 2001.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	6
CO2			3	4	5	6
CO3		2	3	4	5	6
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean: 4.43

PGE 4370 **Shakespearean Tragedy** **5 Hrs./3 Cr.**

This course aims to encourage reading Shakespeare in the light of genre, chronology, and region. It will train the students in traditional approaches to Shakespearean tragedies and their re-readings. In addition, the course will also focus on the versatile and universal values of Shakespearean tragedies through psychological, philosophical, moralistic interpretations.

At the end of the course, students will be able to

i. deduce different features of Shakespearean tragedy,
ii. connect Shakespearean theatre and language,
iii. critique the Elizabethan view of cosmic universe, man, history, nature, and supernatural elements,
iv. speculate how a classic work of art provides space for re-reading and
v. negotiate the psychological, philosophical, moralistic points of reference.

Unit 1 **Criticism** **(9 Hours)**
Construction in Shakespeare's Tragedies" Shakespearean Tragedy Lectures on Hamlet, Othello, King Lear and Macbeth. by A.C. Bradley. 22-59.
"Introduction by Harold Bloom" Bloom's Modern Critical Views: William Shakespeare: Tragedies" by Harold Bloom 1-38
"My Father as he slept: The Tragedy of order" Studies in Shakespearean Tragedy: F Fools of Time. By Northrop Frye. 3-42 (SS)

Unit 2 *Hamlet* **(18 Hours)**
Unit 3 *Othello* **(15 Hours)**
Unit 4 *King Lear* **(18 Hours)**
Unit 5 *Macbeth* **(15 Hours)** (SS)

References

Bloom, Harold. ed. *Bloom's Modern Critical Interpretations: William Shakespeare's Hamlet*- New Edition. Info base Publishing. 2009.
Bloom, Harold. ed. *Bloom's Modern Critical Interpretations: William Shakespeare: Tragedies* New Edition. Info base Publishing. 2010.
Bloom, Harold. ed. *Bloom's Modern Critical Interpretations: William Shakespeare's Macbeth*- New Edition. Info base Publishing. 2010.
Bradley, A.C. *Shakespearean Tragedy: Lectures on Hamlet, Othello, King Lear and Macbeth*. Macmillan and Co. 1919.
Frye, Northrop.*Fools of Time: Studies in Shakespearean Tragedy*. University of Toronto Press, 1967.
Raffel, Burton. *The Annotated Shakespeare: Othello*. Yale. 2005. University Press.
Raffel, Burton. *The Annotated Shakespeare: King Lear*. Yale University. 2007.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4		
CO2			3	4	5	
CO3			3	4	5	
CO4			3	4	5	
C05			3	4	5	

Mean: 3.8

PGE 4372 **Film Studies** **4 Hrs./3 Cr.**

The course aims at training students to decode the visual messages imparted by movies and amplify their impacts. It will also train them to view films that are aesthetic and politically motivated. With a panoramic view of World cinema, its aspects, genres and movements, the course also familiarizes students with a touchstone method to evaluate contemporary Indian main stream cinema alongside Indian Classics.

At the end of the course, students shall be able to

i. interpret various visual elements of cinema,
ii. appreciate the filmic aspect of verbalisation,
iii. integrate historical developments and types with visual language,
iv. develop an understanding of contemporary aesthetic trends in political, social, cultural and philosophical contexts; and
v. write critical reports on films.

Unit 1 **Introduction to Filmic Visual (10 Hours)**
Mise-en-Scene: Décor, Lighting, Costume, Location, Blocking, Coverage
Principles of Cinematography: Shot Sizes, Camera Angles, Camera Moves

Unit 2 **Screenwriting (10 Hours)**
One–Line, Plot, Characterization, One –line Scene Order & Treatment

Unit 3 **Film history and film genres (15 Hours)**
History: Origin and Development, Early American Cinema, Hollywood, Art & Dialect in Soviet Film, German Expressionism. Italian Neo-realism, Japanese Film, Indian cinema.
Genres: action, comedy, crime, drama, epic, horror, musical, romance, science fiction and war.

Unit 4 **Critical understanding of films (15 Hours)**
Auteurist, Formalist, Marxist, Feminist and Post-colonial perspectives

Unit 5 **Writing film reviews and criticisms (10 Hours)**
Theme, Plot, Dialogue, acting, direction, mise en scene, and social relevance

Recommended Viewing

Origin
One Minuters:
Lumiere Brothers *The Arrival of Train* and *Workers Leaving the Factory*

Twelve Minuters *The Waterer Watered*

Earliest Features: **Auteurism**
Porter *The Great Train Robbery*
Milieus *Voyage to the Moon*

Early Full-Length Feature Films in Silent Era
Film & Politics: Marxism
Sergei Eisenstein *The Battleship Potemkin*
Charlie Chaplin *Modern Times*

Flash back & Multiple Narratives
Film & Truth: Formalism

Akira Kurosowa	*Rashomon* (Japan)
Orson Wells	*Citizen Kane* (English)
S. Balachandar	*AndhaNaal* (Tamil)
Kamal Hasan	*Virumandi* (Tamil)

Film & Society: Neo- Realism

Vittoria De Sica	*Bicycle Thieves*

Film and Psychology: Psychoanalysis

Alfred Hitchcock	*Psycho*
Todd Phillips	*Joker*

Film and Gender: Feminist Approach

Rudhraiya	*AvalApdithaan* (Tamil)
K. Balachandar	*KalyanaAgadhikal* (Tamil)
Ram	*Tharamani* (Tamil)

Film and Collective Dream: Spaghatti Western & the Cowboy Myth

Sergio Leone	*The Good, the Bad, the Ugly*
Ronald Emmerich	*Independence Day*

Film and Epic

Cecil de Mille	*The Ten Commandments*

Film and History: New Historicism

Steven Spielberg	*Saving Private Ryan*
Oliver Stone	*Born on the Fourth of July*

Film and Literature

Roman Polanski	*Oliver Twist*

Film & Justice

Sidney Lumet	*Twelve Angry Men*

Film and the Underworld

Francis Ford Coppola	*The God Father*

Film and Children

Majit Majidhi	*The Colour of Paradise*
	The Children of Heaven
Janaki Viswanathan	*Kutti* (Tamil)

Film & Documentation: Non-Fictions

Flagherti	Nanook of the North
Micheal Moore	*Farenheit 9/11*
Barathi Krishna Kumar	*EnruThaniyum*
B. R Amuthan	*Pee*

Indian Panorama

Sathyajit Ray	*Charulatha*
Adoor Gopalakrishnan	*Madhilukal*
Blessy	*Pranayam*
S.K Sasidharan	*OruThivasathandeKazhi*
K. Balachander	*Avargal*

Mahendran	Udhiri-p-pookal
BaluMahendra	*Veedu*
Barathiraja	*Mudhalmariyadhai*
Bala	*Pidhamakan*
BalajiSakthivel	*Vazhaku En 18/9*
Manikandan	*KaakaaMuttai*
Sundar, C	*AnbeSivam*
Bhramma	*KutramKadidhal*
SanthanaBharathi	*Mahanadhi*

References

Barnow, Erik and Krishnaswamy, s. *Indian Film: A Reviewing*. OUP, 1980.
Beja, Morris. *Film and Literature: An Introduction*. Longman, 1997.
Bordwell, David and Thompson, Kristin, *Film Art: An Introduction*, 7th edn. McGraw-Hill Co., 2004.
Cook, David A., *A History of Narrative Film*, 4th edn. W.W. Norton & Co., 2004.
Ellis, Jack C. *A History of Film*. Allyn& Bacon, 1995.
Hayward, Susan. *Key Concepts in Cinema Studies*. Routledge, 2004
Kawin, Bruce, *How Movies Work.* University of California Press, 1992.
Monaco, James. *How to Read a Film.* OUP, 2009.
Nelken, Jill, *Introduction to Film Studies*, 5th edn. Routledge., 2011.
Robinson, David. *World Cinema: A Short History*. Eyer Methyen, 1981.
Field, Syd, *Screenplay: The Foundations of Screenwriting*. RHUS, 2005

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2		2	3	4	5	6
CO3		2	3	4	5	6
CO4		2	3	4	5	6
C05		2	3	4	5	6

Mean: 3.9

Value Added Courses

PGE 421V **Classical Mythology** **2Hrs./2 Cr.**

This course aims to expose students to Greek, Roman, Celtic, Norse mythologies. It deals with the supernatural beliefs of people and the intervention of divine forces in human life. It includes famous mythological characters, heroes and incidents, oracles and prophesies, dreams and omens that are frequently and copiously used in literature.

At the completion of the course, students will be able to

i. acquire knowledge of classical mythology,
ii. understand basic *isms* used in mythology,
iii. evaluate basic concepts,
iv. view the significance of the use of Greco-Roman mythological characters in literature and
v. examine the role of other mythic characters used in literary works.

Unit 1 **Introduction to Mythology (6 Hours)**
Definitions of mythology, religion, folklore, folktale and other such investigations related to mythology.

Unit 2 **Some basic *isms* (6 Hours)**
Polytheism, monotheism, animism, fetishism,

Unit 3 **Basic concepts (6 Hours)**
The nature of mythic law, evolution of the gods, paradise and punishment

Unit 4 **Prominent Greco-Roman mythic Characters I(6 Hours)**
Zeus, Apollo, HephÆstus, Hera, Athene

Unit 5 **Other Mythic Characters (6 Hours)**
Muses, Nymphs, Pandora, Paris, Pegasus

References

Spence, Lewis. *Introduction to Mythology*. Studio editions Ltd., 1994
Comte, Fernand. *The Wordsworth Dictionary of Mythology*. W&R Chambers Ltd., 1991
Cotterell, Arthur.*The Illustrated A-Z of Classic Mythology*. Anness Publishing Ltd.,2014

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	2					
CO2		3				
CO3				4		
CO4						6
CO5						6

Mean: 4.2

PGE 521V **Greek Tragedy** **2 Hrs/2 Cr.**

The course aims at introducing to learners the three major tragedians of Classical Greece. A representative work in translation from each of them has been chosen for the purpose.

At the end of the course, students will be able to:

i. identify Classical Greek tragedy as a cultural phenomenon,
ii. explain literary and technical elements in the given works,
iii. analyze the common motifs: *punishability of hubris*, *inexorability of fate*, and the *thin boundary between success and failure*,
iv. validate contemporary relevance of the Attic world invoked in the tragedies and
v. debate tragic theories toward understanding the plays and the authors better.

Unit 1 Introduction: Greek pessimism—Festivals of Dionysus—open-air theater and play contests--three tragedians--literary and technical elements in the plays **(6Hours)**

Unit 2 Aeschylus - *Prometheus Bound* **(6Hours)**

Unit 3 Sophocles - *Oedipus the King* **(6Hours)**

Unit 4 Euripides - Medea **(6Hours)**

Unit 5 Tragic Theory: Aristotle, Hegel and Nietzsche **(6Hours)**

References

Kaufmann, Walter. *Tragedy and Philosophy*. Princeton UP, 1992.
Kitto, H.D.F. *Greek Tragedy*. Routledge, 2011.
Rehm, Rush. *Greek Tragic Theatre*. Routlege,1992.
Styan, J.L. *The Elements of Drama*. CUP, 1960.
Wallace, Jennifer. *The Cambridge Introduction to Tragedy*. CUP, 2013.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4		
CO2		2	3	4		
CO3		2	3	4		
CO4		2	3	4	5	
CO5		2	3	4	5	6

Mean 3.2

POSTGRADUATE DEPARTMENT OF MATHEMATICS

Value Added Courses
w.e.f. 2020 – 2021

Sem	Course Code	Course Title	Hrs/Wk	Credits
I	PGM 421V	Pedagogy of Teaching Mathematics	2	2
III	PGM 521V	Hacks and Tips for National Eligibility Test - I	2	2
IV	PGM 522V	Hacks and Tips for National Eligibility Test - II	2	2

PGM 421V **Pedagogy of Teaching Mathematics** **2Hrs/2Cr**

The objective of the course is to expose the students to different Pedagogy of teaching Mathematics to a heterogeneous group of learners in terms of their learning capability and to create an enduring passion towards Mathematics teaching as a profession.

At the end of the course, students will be able to

i. understand objectives and values of teaching Mathematics.
ii. develop knowledge and skill of applying various strategies of teaching Mathematics.
iii. apply educational technologies in teaching Mathematics
iv. acquire the knowledge of different evaluation techniques in the assessment of Mathematics.
v. focus on understanding the nature of learners mathematical thinking and identifying the individual differences.

Unit 1: Objectives and values of teaching Mathematics: Objectives of teaching Mathematics - Bloom's Taxonomy of learning objectives – Framing instructional objectives of teaching Mathematics in behavioral terms - Values of teaching Mathematics - practical, social, cultural, disciplinary and recreational values of teaching Mathematics. **(5 hrs)**

Unit 2: Strategies of teaching Mathematics: Lecture cum demonstration method - Inductive method - Deductive Method - Analytic Method - Synthetic Method - Problem Solving Method - Computer Assisted Instruction (CAI) -Active Learning Method (ALM). **(7 hrs)**

Unit 3: Technology in teaching Mathematics: Instructional aids - Electronic media in Mathematics Education - Radio, TV, Computer and Internet, Programmed learning materials (PLM) - Power Point Presentation. **(6 hrs)**

Unit 4: Evaluation and Action Research: Evaluation – Definition - Diagnostic test and achievement test in Mathematics - Oral, written and performance tests - Different types of test items - objective type, short answer type, essay type -Action Research - Steps in action research. **(6 hrs)**

Unit 5: Provision for Individual Differences: Identification of the gifted in Mathematics - Characteristics of the mathematically gifted -Enrichment program for the gifted - Slow learners in Mathematics - Characteristics of the slow learners in Mathematics - Class room techniques for slow learners - Disability in Mathematics - Dyscalculia, Remedies, Developing speed, Accuracy, and Interest in Mathematics. **(6 hrs)**

References:

1. Anice James, Teaching of Mathematics, Hyderabad, Neelkamal Publications Pvt. Ltd., 2010.
2. Anice James and JeyanthiAlwan, Skills and strategies of teaching Mathematics, New Delhi: Neelkamal Publications Pvt. Ltd., 2012.
3. Glenda Anthony, Margaret Walshaw, Effective Pedagogy in Mathematics, International academy of Education, Educational Practices series, 2019.
4. Anice James, Techniques of teaching Mathematics, New Delhi, NeelkamalPublications Pvt. Ltd., 2011.
5. Aggarwal S.M, A course in teaching of Modern Mathematics, New Delhi, Dhanpat Rai Publishing Co,2001.
6. Sidhu K.S, The teaching of Mathematics, New Delhi, Sterling Publications, 2010.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2		4		
CO2			3	4		6
CO3	1		3			6
CO4		2	3		5	
CO5	1	2		4		6

Mean: 3.5

PGM 521V Hacks and Tips for National Eligibility Test - I 2Hrs/2Cr

This is a preparatory course for aspirants who wanted to clear National Eligibility Test in Mathematics. Subsequently they may be placed as Assistant Professors / Researchers at reputed Institutions like IITs, IISc, TIFR, HRI and other premier institutes and Universities. This course also help student to get qualified in lectureship examinations (NET/SET). The learner will gain confidence in clearing the examinations conducted by NBHM which ensures scholarship for further studies.

At the end of the course, the learner will be

i. reinforced with the concepts learnt in Real analysis and trained to tackle problems by applying and analyzing with the tools acquired.
ii. reinforced with the concepts learnt in Sequences and Series of functions and trained to tackle problems by applying and analyzing with the tools developed.
iii. reinforced with the concepts learnt in Abstract Algebra and trained to tackle problems with the knowledge they have gained.
iv. reinforced with the concepts learnt in Linear Algebra and trained to tackle problems with the knowledge they are exposed to.
v. reinforced with the concepts learnt in Discrete Mathematics and trained to tackle problems with the knowledge they have learnt.

Unit 1: Real Analysis: Elementary set theory, finite, countable and uncountable sets, Real number system as a complete ordered field, Archimedean property, supremum, infimum. Sequences and series, convergence, limsup, liminf. Metric spaces, compactness, connectedness. Normed linear Spaces.BolzanoWeierstrass theorem, Heine Boreltheorem.Continuity, uniform continuity, differentiability, mean value theorem. **(6 hrs)**

Unit 2:Sequence and Series: Sequences and series of functions, uniform convergence. Riemann sums and Riemann integral, Improper Integrals. Monotonic functions, types of discontinuity, functions of bounded variation, Lebesgue measure,Lebesgue integral.Functions of several variables, directional derivative, partial derivative, derivative as a linear Transformation, inverse and implicit function theorems. Spaces of continuous functions as examples. **(6 hrs)**

Unit 3:Abstract algebra: Groups, subgroups, normal subgroups, quotient groups, homomorphisms, cyclic groups, permutationgroups, Cayley's theorem, class equations, Sylow theorems. Rings, ideals, prime and maximal ideals, quotient rings, unique factorization domain, principal ideal domain, Euclidean domain. Polynomial rings and irreducibility criteria. Fields, finite fields, field extensions, Galois Theory. **(6 hrs)**

Unit 4: Linear Algebra: Vector spaces, subspaces, linear dependence, basis, dimension, algebra of linear transformations. Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Change of basis, canonical forms, diagonal forms, triangular forms, Jordan forms. Inner product spaces, orthonormal basis. Quadratic forms, reduction and classification of quadratic forms. **(6 hrs)**

Unit 5: Discrete Mathematics: Permutations, combinations, pigeon-hole principle, inclusion-exclusion principle, Derangements. Fundamental theorem of arithmetic, divisibility in Z, congruences, Chinese Remainder Theorem, Euler's Ø- function, primitive roots. **(6 hrs)**

References:

1. Walter Rudin, Principles of Mathematical Analysis, McGraw Hill, third edition 2013.
2. Herstein I. N, Topics in Algebra, Wiley student edition, second edition 2006.
3. Hoffman K and Kunze R, Linear algebra, Prentice Hall, 2000.
4. Balakrishnan V. K, Combinatorics, Schaums's out lines, McGraw Hill edition, 2020.
5. David M. Burton, Elementary Number Theory, McGraw Hill Indian edition, 2017.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	
CO2			3	4	5	
CO3			3	4	5	
CO4			3	4	5	
CO5		2	3	4		

Mean: 3.8

PGM 522V Hacks and Tips for National Eligibility Test – II 2Hrs/2Cr

This is a preparatory course for aspirants who wanted to clear National Eligibility Test in Mathematics. Subsequently they may be placed as Assistant Professors / Researchers at reputed Institutions like IITs, IISc, TIFR, HRI and other premier institutes and Universities. This course also help student to get qualified in lectureship examinations (NET/SET). The learner will gain confidence in clearing the examinations conducted by NBHM which ensures scholarship for further studies.

At the end of the course, students will be

i. reinforced with the concepts learnt in Complex analysis and trained to tackle problems with the knowledge they have gained.
ii. reinforced with the concepts learnt in Topology, Functional Analysis and trained to tackle problems with the tools acquired
iii. reinforced with the concepts learnt in Ordinary Differential Equations and trained to tackle problems with the knowledge they were exposed.
iv. reinforced with the concepts learnt in Partial Differential Equations and trained to tackle problems with the tools and techniques learnt.
v. reinforced with the concepts learnt in Classical Mechanics and trained to tackle problems with the knowledge they have gained.

Unit 1: Complex Analysis: Algebra of complex numbers, the complex plane, polynomials, power series, transcendental functions such as exponential, trigonometric and hyperbolic functions. Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy's theorem, Cauchy's integral formula, Liouville's theorem, Maximum modulus principle, Schwarz lemma, Open mapping theorem. Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations. **(6 hrs)**

Unit 2:Topology: Basis, dense sets, subspace and product topology, separation axioms, connectedness and Compactness.**Functional Analysis.** Normed linear spaces, Banach spaces, Hahn-Banach theorem,open mapping and closed graph theorems, principle of uniform boundedness; Inner-product spaces Hilbert spaces, orthonormal bases, projection theorem,Riesz representation theorem, spectral theorem for compact self-adjoint operators. **(6 hrs)**

Unit 3: Ordinary Differential Equations (ODEs): Existence and uniqueness of solutions of initial value problems for first order ordinary differential equations, singular solutions of first order ODEs, system of first order ODEs. General theory of homogenous and non-homogeneous linear ODEs, variation of parameters, Sturm-Liouville boundary value problem, Green's function. **(6 hrs)**

Unit 4: Partial Differential Equations (PDEs): Lagrange and Charpit methods for solving first order PDEs, Cauchy problem for first order PDEs.Classification of second order PDEs, General solution of higher order PDEswith constant Coefficients, Method of separation of variables for Laplace, Heat and Wave equations. **(6 hrs)**

Unit 5: Classical Mechanics: Generalized coordinates, Lagrange's equations, Hamilton's canonical equations, Hamilton's principle and principle of least action, Two-dimensional motion of rigid bodies, Euler's dynamical equations for the motion of a rigid body about an axis, theory of small oscillations. **(6 hrs)**

References:

1. Conway J. B, Functions of one complex variable, Narosa publishing house, 1973.
2. Munkres J. R,Topology, a first course, Prentice Hall of India, 1978
3. George F. Simmons, Introduction to Topology and Modern Analysis, McGraw Hill, Indian Edition, 2017.
4. Coddington E. A, An introduction to ordinary differential equations, Prentice Hall of India, 2004.
5. Sneddon IAN,Elements of Partial Differential Equations, McGraw Hill Book Company, New York 1957, Republished by Dover in 2006
6. Goldstein H, Classical Mechanics,Addison Wesley, Third edition, 2007.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	
CO2			3	4	5	
CO3			3	4	5	
CO4			3	4	5	
CO5		2	3	4		

Mean: 3.8

POST GRADUATE DEPARTMENT OF PHYSICS

Value Added Courses

w.e.f. 2020-2021

Semester	Course Code	Course Title	Hrs./Wk.	Credits
I	PGP421V	Electronic Workbook for Physics	2	2
II	PGP422V	X-ray Diffraction Techniques for Material Characterization	2	2
III	PGP521V	PYTHON for Physicists	2	2
IV	PGP522V	Practical Astronomy	2	2

PGP421V Electronic Workbook for Physics 2Hrs./ 2Cr.

This Course offers professional guidance to customize electronic worksheets to solve Physics problems. It also strengthens their problem solving, analyzing and synthesizing skills for Physics Problems.

At the end of the course, students will be able to

i. create and edit customized electronic worksheets.
ii. solve vector, matrix equations and use built-in functions.
iii. analyze physics problems using differential equations and optimization techniques.
iv. present and synthesize results in the graphical form.
v. analyze and synthesize using gallery of graphs.

Unit 1Create and Edit Worksheet

Building and Editing Expressions – Variables and Constants – Units and Dimensions

Unit 2Computational Features

Vectors and Matrices – Operators – Integrals – Built-in Functions – Statistical Functions

Unit 3Solving Equations

Differential equations – Matrix equations – Integral equations – Optimization Symbolic calculations

Unit 4Graphics Features

Creating a graph – Graphing functions, vectors – Formatting graphs -labelling Modifying graph perspective

Unit 5Graphics Analysis

Gallery of graphs – Polar plots – Surface plots – Contour plots - Bar charts – scatter plots – graphical analysis

Textbook

MathCAD - User's Guide – MathCAD 7 Professional, 2000, MathSoft, USA.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2			3	4		
CO3				4	5	
CO4			3	4	5	
CO5			3	4	5	

Mean : 7.5

PGP 422V X-ray Diffraction Techniques for Material Characterization 2Hrs./ 2Cr.

This course will enable the students to understand the fundamentals of X-ray Crystallography, experimental components and the basics of parameter determinations. This course will equip a student to handle X-ray information with ease. This course will enable a student familiarizing and handling related softwares.

This course will enable student to

i. understand the fundamentals of X-ray diffraction.
ii. students will be familiarized with hardwares involved in XRD.
iii. sample preparation will be mastered by the student
iv. basic parameter determinations will be known
v. research level softwares will be familiarized.

Unit 1 Fundamentals of X-ray diffraction 6 Hrs

Production and properties of X-ray, absorption of X-rays and filters, X-ray - diffraction directions, diffraction methods - X-ray-diffraction intensities,factors affecting intensity, structure factor calculations

Unit 2 X-ray Diffractometer 3 Hrs

Working principles of diffractometer, Powder XRD geometry, Single crystal X-ray diffractometer, Goniometer, counters and cameras

Unit 3Sample Preparation 3 Hrs

Powder sample preparation, Single crystal preparation, single crystal mount techniques

Unit 4Determination of basic parameters 10 Hrs

Understanding different formats of XRD data–PowderX software - Indexing of XRD patterns - Precise lattice parameter determination - Grain software - determination of particle size and micro/macro strains - Mercury software: Simulation of PXRD patterns, Crystal shape drawing.

Unit 5 Determination of crystal structure 8 Hrs

Jana2006 software – Preparing input data, Simple refinement of Single crystal XRD and Powder XRD patterns, Refinement of simple inorganic structure, Refinement of organic compound structure. Extracting parameters from output file.

Textbook

B.D.Cullity and S.R.Stock, "Elements of X-Ray Diffraction" Third edition, Prentice Hall,NJ , 2001.

References

http://www.ccp14.ac.uk/tutorial/powderx/runthr.htm
http://jana.fzu.cz/,http://jana.fzu.cz/workshops/Jana2006%20Cookbook.pdf
http://www.ccdc.cam.ac.uk/mercury/

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3	4		
CO4		2			5	
CO5			3			6

Mean : 4.6

PGP 521V PYTHON for Physicists 2Hrs./2Cr.

This Course introduces students to scientific computing using PYTHON. It also equips them with necessary skills to automate data collection and logging.

At the end of the course, students will be able to

i. understand and write basic python programs
ii. use scipy and numpy modules for scientific computing
iii. plot and analyze data using python
iv. apply their python skills in laboratory calculation
v. automate data collection from sensors using raspberry pi and python.

Unit 1Basics of Python

Installing python- integrated development environment (IDE) – native data types- for loops- if statements- simple math operations – while loops – functions, classessimple programs

Unit 2 Scientific computation with python

Importing modules(scipy, numpy, matplotlib and pandas)–numpy arrays– solving linear equations– nonlinear equations– numerical integration

Unit 3Visualize data with python

Matplotlib**–** Basic plotting– logarithmic plot–**c**ontourand vector field plots – threedimensional plots- curve fitting

Unit 4 Working with lab data (Photoluminescence Spectroscopy)

Reading data from csv files- plotting emission and excitation spectra for unknown molecule- kataura plot for carbon nanotubes – interpreting results

Unit 5Sense, log and display data using python

Raspberry pi- connecting sensor to i2cbus– reading analog data using ADCloggingand plotting data– plotting live data– scaling and calibrating data

Textbooks

1. Introduction to Python for Science and engineering- David J. pine, 2019, CRC press
2. Raspberry Pi Cookbook for Python Programmers- Tim Cox, 2014, Packt publishing.

References

1. “A Practical Introduction to Python Programming” by Heinold, Licensed under Creative Commons Attribution-Noncommercial.
2. “Learning SciPy for Numerical and Scientific Computing” by Sergio J. Rojas G., Erik A Christensen, Francisco J. Blanco-Silva, 2nd Edition.
3. “Hello Raspberry Pi! Python programming for kids and other beginners” by Ryan Heitz, Manning Publications (2016).

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3	4		
CO3			3	4		
CO4				4		
CO5			3	4	5	

Mean : 5.3

PGP522V **Practical Astronomy** **2Hrs. / 2Cr**

This course is for students who have the desire to become familiar with thenature and motions of celestial objects in the night sky and learn the techniques to observe them. It gives a foundation in the subject which would be a platform for the students seeking higher studies and research work in the subject. The course includes theory classes, practical/project sessions and virtual field trips to Astronomical Observatories.

After successful completion of the course, students will be able to

i. compare and contrast the different understanding of the universe
ii. identify important constellations – orient in space.
iii. have skills to construct refracting telescopes.
iv. do photometry of stars
v. use open source software in astronomy

Unit 1 Introduction to cosmos

Greek Astronomy and astronomy in the era of Copernicus, Tycho, Kepler and Galileo – Earth's rotation and other motions – Changing night sky - celestial sphere and the coordinate systems – Exploring Star charts and identifying constellations.

Unit 2 Observational tools

Designing of refractive optical telescopes - Light gathering - Magnifying – Resolving powers – Measurement of stellar distances. Radio Telescopes – radial velocity determination - Introduction to Astrophotography

Unit 3 The nature of stars

The spectrum from the stars - Sun as a star - Spectral types of the stars – The hydrogen spectrum The continuous spectrum The Hertzsprung-Russell diagram - photometry of stars – measurement of solar limb darkening.

Unit 4 Eclipses

Solar eclipses – total-partial and annular –totality of the solar eclipse- Baily'sbeads– Solar Eclipse Timer – Lunar eclipses –total, partial and penumbral – Eclipse calendar app.

Unit 5 Virtual Sky and analysis of astronomical data

Stellarium-Sky Map – star mapping –the positions of the Sun and Moon, planets and stars-solar system virtual tour- NASA's OWN remote observatory (https://mo-www.cfa.harvard.edu/OWN/index.html) data analysis – surface brightness profile (brightness vs distance from the center) of the galaxy (M31, M101, and M51).

Text Book

Cosmos: The Art and Science of the Universe, 2019 Roberta J.M. Olson and Jay M. Pasachoff

References

1. https://sites.williams.edu/eclipse/
2. http://stellarium.org/
3. https://www.solareclipsetimer.com/
4. https://openstax.org/books/astronomy/pages/1-introduction
5. http://va-iitk.vlabs.ac.in/
6. https://nineplanets.org/tour/

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2	3			
CO3				4		
CO4				4		
CO5					5	

Mean : 3.1

POSTGRADUATE DEPARTMENT OF CHEMISTRY
Value Added Courses

w.e.f. 2020-2021

Sem	Course code	Course Title	Hours	Credit	Marks
I	PGC 421V	Transport properties of Solids	2	2	20
II	PGC 422V	Computational Chemistry	2	2	20
III	PGC 521V	Nanomaterials	2	2	20
IV	PGC 522V	Green Techniques for Organic synthesis	2	2	20

C421V Transport Properties of Solids 2 Hours/2 Credits

Objective

This course highlights the electronic structure of solids, the types of solids based on electrical, thermal, magnetic, dielectric and optical properties. Property based applications of the solid materials will be discussed.

After completion of this course the students will be able to

i. Classify solids into metals, semiconductors and insulators
ii. Measure temperature using thermocouples
iii. Correlate structure of solids with magnetic property
iv. Analyze the uses of solids with dielectric and optical properties
v. Identify functional materials based on structure and properties

Unit 1: Electrical properties 6 hrs

Band theory – k space and Brillouin zones – band structure – types of solids – Hall effect – materials – applications

Unit 2: Thermoelectric properties 6 hrs

Definition – Types: Thomson effect, Peltier effect, Seebeck effect – theory – materials – applications – Demonstration of working of a Type-K thermocouple

Unit 3: Magnetic properties 6 hrs

Theory – types – materials: metals, alloys, metal oxides, spinels, garnets, ilmenites, perovskites, plumbites – applications: structure property correlation

Unit 4: Dielectric properties 6 hrs

Definition – types: Ferroelectricity, Pyroelectricity, Piezoelectricity – theory – materials - applications – virtual experiments on dielectric properties

Unit 5: Optical properties 6 hrs

Optical absorption – Non-linear optical materials – applications – Luminescence – LED – LCD –phosphorescence – phosphor materials – anti-stokes phosphors – Lasers – Ruby lasers – Neodymium lasers – semiconductor lasers

References

1. West A.R., Solid State Chemistry and its Applications, John Wiley and Sons, New York, 1984.
2. Arumugam M, Materials Science, Anuradha Publications, 3rd edition, 2007
3. Hannay N.B., Solid State Chemistry, Prentice Hall of India Private Limited, New Delhi, 1976.

Mapping of Bloom's Taxonomy with Course Outcome

PGC421V	K1	K2	K3	K4	K5
CO1				4	
CO2					5
CO3				4	
CO4				4	
CO5			3		

Mean 4.0

PGC 422V **Computational Chemistry** **2*hrs / 2 cr***

(Lab cum Theory)

Objective

This course is designed to give an overview of computational methods used in chemical research. The knowledge about the computational chemistry is essential to prepare and communicate research articles. This course addresses computer based calculations within chemistry and integrates theoretical aspects with the computational elements.

On successful completion of the course, the student will be able to

i. Construct chemical structures using Avogadro
ii. Describe and Analyze the various chemical properties using MOPAC
iii. Draw and Evaluate various energy parameters through Gaussian
iv. Prepare and analyses spectra and bonding analysis using Gaussian
v. Survey the research papers through software using Mendeley

Unit 1: AVOGADRO 6 Hrs
Introduction- Building Molecules - Tools - Display Types - Menus - Extension Menu - Optimizing Geometry - Introduction to Molecular Mechanics

Unit 2: MOPAC 6 Hrs
Introduction- Point Group Analysis- Heat of Formation -Vibrational Parameters (Rotational Constants, ZPE, Modes of Vibrations)- Bond Order Calculations- pka of an Acid - Calculations using Hamiltonian.

Unit 3: GAUSSVIEW and GAUSSIAN-I 6 Hrs
Introduction - Create Input Files - Submit Calculations - Visualize Output- Basis Sets – Single-Point Energy - Potential Energy Surface - Optimizing Molecule - Potential Energy Surface Scan, Transition States - Reaction Pathways - Thermodynamic Quantities - Relative Energies**.**

Unit 4: GAUSSIAN-II 6 Hrs
IR, Raman, NMR and UV Spectral Analysis - Natural Bond Orbitals - Molecular Orbitals - Molecular Electrostatic Potential Map- Contour Plot – Solvent Effect.

Unit 5: REFERENCE COLLECTION AND MANAGEMENT SOFTWARE 6 Hrs
Introduction to Online Chemical Database Search - Searching and Downloading Research Papers Using Keywords in Scopus - Science Direct - Google Scholar - Reaction Search - Product Search - Reactant Search - Structure Search Using Sci-Finder.
Introduction to Mendeleyand its Applications.

References:

1. Avogadro an open source molecular builder and visualization tool. http://avogadro.cc
2. M. D. Hanwell et al., Journal of Cheminformatics, 2012, 4, 17
3. MOPAC2016, James J. P. Stewart, Stewart Computational Chemistry, Colorado Springs, CO, USA http://OpenMOPAC.net
4. J. B. Foresman and A. Frisch, *Exploring Chemistry with Electronic Structure Methods*, 3rd ed., Gaussian, Inc.: Wallingford, CT, 2015.http://gaussian.com
5. http://endnote.com , http://mendeley.com, http://scifinder.cas.org, http://scholar.google.com

PGC422V	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3					5	
CO4			3			
CO5				4		

Mean 3.6

PGC 521V **Nanomaterials** **2 hr / 2 credit**

Objective

This course reflects the diversity of recent advances in nanomaterials, and nanochemistry with a broad perspective that will be useful for post graduate students. This course deals with new methods of synthesis to novel applications of existing methods to gain understanding of the material and/or structural behavior of advanced systems.

Upon completion of the course, the students will be able to

i. Explore the applications of biopolymers and biodegradable materials.
ii. Describe information on emerging technologies of manufacturing thin natural fibers based on the principle of electrospinning process.
iii. Develop new vapour deposition processes, treatments and coatings that can be combined to produce films with composition gradients or periodic multilayers.
iv. Relate the structure-directing role of nanoporous materials and their applications.
v. Construct a complementary image of the target functional molecule by polymerising monomers

Unit 1: Chitosan/Carbon Nanotube Composites **6 hrs**

Introduction on chitosan and carbon nanotube nanofluids – Preparation methods of Chitosan and carbon nanotube nano-composites – Properties and characterization of nanocomposites – Covalent modification of multi walled nano tubes (MWNT) and low molecular weight chitosan (LCMS) - Layer by layer self-assembly - Demonstration of preparation of nanomaterial.

Unit 2: Electrospun Biodegradable Nanofibers **6 hrs**

Electrospinning and Lamination process-Electrospinning set up – Parameters on electrospunnanofibres – solution properties –processing conditions for electrospinning – interpretation of electrospunfibres – virtual lab on electrospinning process

Unit 3: Nanostructured coatings **6 hrs**

Methodology for making superhard nanostructured coatings – Plasma activated chemical vapour deposition – Physical vapour by sputtering and cathodic arc – Physical vapour deposition by ion beam sputtering– Virtual lab on vapour deposition techniques

Unit 4: Nanoporous materials **6 hrs**

Methods of synthesis – Crystallization process of exemplified by zeolites – Role of inorganic cations and organic species – Organic species and template effect – Application of zeolitic materials – Characterization of mesoporous silica – Demonstration of template synthesis

Unit 5: Nanomolecular imprinting **6 hrs**

General principles of nanomolecular imprinting- Role of complexation sites during the imprinting process - Procedures and methods for molecular imprinting – Structure and properties of the polymer matrix – Applications of nanomolecular imprinting – virtual lab on nanomolecular imprinting

References:

1. Handbook of research on nanomaterials, Nanochemistry and smart materials, A. K. Hagi, G. E. Zaikov, *Nova Biomedical*, **2013**, Nova Science Publishers, Inc. New York.
2. Nanomaterials and Nanochemistry, C. Brechignac, P. Houdy, M. Lahmani, *Springer*, **2007**, Springer Berlin Heidelberg New York

PGC521V	K1	K2	K3	K4	K5	K6
CO1				4		
CO2		2				
CO3			3			
CO4			3			
CO5			3			

Mean 3.0

PGC522V Green Techniques for Organic synthesis 2 hr / 2 credit

Objective

The course deals with various Green techniques for organic synthesis. Each of the topics covered in this syllabus demonstrates not merely an advance in the discovery, demonstration, and development of a moleculeor synthetic pathways, but also an advance in the design thinking behind the chemistry.

At the end of the course, students will be able to:

i. Identify the alternative approaches to chemical media
ii. Analyze the processes with optimal environment effect
iii. Apply the techniques for reduction of hazardous waste
iv. Predict the greener alternative to solvents
v. Analyze the potential applications of various green synthetic technology and apply them in organic synthesis.

Unit1: Solvent free & Microwave-assisted synthesis 6 hrs

Introduction, Ball Milling, Types of Ball Mills, Kinetics and Thermodynamics of Solvent-Free Reactions, Hard-Soft Acid-Base Theory,Stereoselectivity, Catalysis, Isolation Techniques, Microwave-Assisted MCR Synthesis, Synthesis of Peptides, SiC Reactors and Continuous Flow Synthesis, Nanomaterial Synthesis

Unit2: Ultrasonic &Photochemical synthesis 6 hrs

Introduction, Cavitation principle in ultrasonic reactions, name reactions, Photochemical synthesis and Rearrangement of Open-Chain Compounds, Reactions of Olefins, Ar-H Functionalization, Synthesis of 3,4,5,6 & larger Membered Rings.

Unit3: Pot economy synthesis 6 hrs

Introduction, Multicomponent Reactions, Name Reaction, One-Pot and Multi-Step Reactions, Two, Three-Step Reaction Sequences, More Than Three-Step Reaction Sequences, One-Pot Asymmetric Synthesis, Transition-Metal Catalysis, Organocatalysis, Chiral Pool-Based One-Pot Synthesis

Unit4: Solid supported synthesis 6 hrs

Introduction, Techniques of Solid-Phase Supported Synthesis, Recent Advances in Linkers for Solid-Supported Synthesis, Solid-Phase Supported Synthesis of Natural Products, Solid-Supported Organometallic Chemistry, Solid-Phase Synthesis of Peptides, Solid-Phase Supported Stereoselective Synthesis, Microwave-Assisted Solid-Phase Synthesis, Solid-Phase Supported Reagents in Organic Synthesis.

Unit5: Light Fluorous synthesis 6 hrs

Introduction, "Heavy" Versus "Light" Fluorous Chemistry, The Green Chemistry Aspects of Fluorous Synthesis, Fluorous Solid-Phase Extraction (F-SPE) to ReduceWaste, Recycling Techniques, Monitoring Reactions, Fluorous Linker-Facilitated Synthesis, Fluorous Techniques for Discovery Chemistry, Fluorous Ligands for Metal Catalysis,FluorousOrganocatalysis, Fluorous Reagents, Fluorous Scavengers, Fluorous Linkers, Fluorous Mixture Synthesis (FMS).

References

1. Berkeley W Cue& Wei Zhang, Green techniques for organic synthesis and medicinal chemistry, Wiley publications, 2nd edition, 2018.
2. Roger Arthur Sheldon, Isabel Arends, Ulf Hanefeld, Green Chemistry and Catalysis, Wiley-VCHPublications, 2007.
3. James H. Clark, Duncan Macquarrie, Handbook Of Green Chemistry And Technology, Blackwell Publishing, 2002.
4. V. K. Ahluwalia, M. Kidwai, New Trends in Green Chemistry, Kluwer Academic Publications, 2004.
5. AlvisePerosa, FulvioZecchini, PietroTundo, Methods and Reagents for Green Chemistry, John Wiley & Sons, Inc., 2007.
6. Miguel De La Guardia & Salvador Garrigues, Handbook of Green Analytical Chemistry, John Wiley & Sons, Ltd. 2012.

PGC522V	K1	K2	K3	K4	K5	K6
CO1				4		
CO2			3			
CO3				4		
CO4				4		
CO5				4		

Mean 3.8

POSTGRADUATE DEPARTMENT OF BOTANY

Value Added courses
w.e.f. 2020-2021

Semester	Course code	Course Title	Hr.	credit
1	PGB421V	Algae and marine resource management	2	2
2	PGB422V	Nursery and Landscaping	2	2
3	PGB521V	Plant hybrid technology	2	2
4	PGB522V	Epidemiology and molecular diagnostics	2	2

PGB 421V Algae and Marine Resource Management 2 Hrs./2Cr.

PREAMBLE:
The course provides an overview of algal habitats with guidance for the scope of making collections subscribing to its commercial importance and utility in industry, agriculture and as food, feed and medicine. It offers the know-how on growing; multiplying effectively utilizing the given algal resource that approaches pursuing innovation to enhance the value of resource and providing for entrepreneurial ventures can be probed.

At the end of the course, the students will be able to

i. locate and collect algae from various types of habitatsand scientifically identify them,
ii. cultivate (indoor and outdoor) andselect and importantcommercialalgae**,**
iii. utilize algae as inputs for industrial and farm applications,
iv. recognize and realize the potential of biotechnological approaches, and
v. find solutions by using algae in dealing with energy, environment and food crisis.

Unit 1: Diversity and Distribution of Algae
Types of algal habitat- Thallus organization with reference to cell structure and reproduction in various groups – *Anabaena*, *Spirulina* and*Kappaphycus*as model experimental systems.

Unit 2: Algal Collection and Identification
Methods of collection of micro and macro algae and their preservation - recent developments in algal taxonomy - trends in molecular phylogeny and inter relationship of principal groups of algae: Cyanophyta, Chlorophyta, Phaeophyta and Rhodophyta - Centers pursuing algal research in India

Unit 3: Industrial Phycology
Evaluation of resource potential - Source of food, feed and fodder, agro inputs, pigments, fine chemicals, fuel - Distribution of economically important algae - Products, processes and applications of seaweeds polysaccharides: agar, carrageenanand alginates - Bioactive compounds and therapeutic principles of algae - commercial uses of the following: *Spirulina, Chlorella, Gracilaria, Gelidium, Gelidiella, Kappaphycus, Laminaria* and *Porphyra.*

Unit 4: Algal Biotechnology

Culturing techniques - cryopreservation - *In situ & Ex situ* aquaculture (micro and macro algae) - Algal immobilization and its applications - indoor cultivation methods and scaling up - Measurement of algal growth – Remote sensing tool to locate and identify the algal groups - Large-scale cultivation of algae – Phycoremediation - Role of algae in nanobiotechnology.

Unit 5: Environmental and agricultural significance

Algal biofuels – algal biodiesel, bio-ethanol - Biological nitrogen fixation and hydrogen production – Fermentation and formulation development –SLF and seaweed extract (*Rhodophyllum*, *Kappaphycusalvarezii*, *Gracilaria*) liquid, gel, WS powder as bio-fertilizer – Algae in global warming – carbon sequestration.

Textbooks:

1. Isabella A. Abbott, George J. and Hollenberg. 1993. Marine Algae of California. Stanford,University Press. USA.
2. Sahoo D. and Qasim S.Z. (Editors), 2002.Sustainable Aquaculture.APH Publishing Corporation, New Delhi, India.
3. South G.R. and Whittick A. 1987. Introduction to Phycology.Blackwell Scientific Publications. London.
4. BARSANTI, LAURA AND PAOLO GUALTIERI 2005 Algae-Anatomy, Biochemistry and Biotechnology.Taylor& Francis, London, New York.
5. BECKER, E.W. 1994 Microalgae-Biotechnology and microbiology.Cambridge University 8. Press. CHANDRAMOHAN, D. 2007.
6. Prospects of Biodiesel from marine microorganisms. Proceedings of the National Workshop on BIODIESEL, Organised by School of Energy, Environment & Natural.
7. Resources, Madurai Kamaraj University, Madurai and Ahimsa Agri division, Chennai, 17th and 18th October, 2007.
8. TRIVEDI, P.C. 2001 Algal Biotechnology. Pointer publishers, Jaipur, India.VENKATARAMAN, L.V. AND E.W. BECKER 1985.
9. Biotechnology and Utilization of Algae – The Indian Experience. Dept. Science and Technology, New Delhi and Central Food Research Institute, Mysore, India.

References:

1. Andersen R.A. 2005. Algal Culturing Techniques.Physiological Society of America.Elsevier Academic Press, USA.
2. Lee R.E. 2008. Phycology (4thed.). Cambridge University Press, Cambridge.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	4	5	4	3	0	0
CO2	4	4	4	2	2	0
CO3	4	4	5	3	3	3
CO4	4	4	4	4	4	4
CO5	4	4	5	4	4	4

Mean: 4.3

PGB 521V **Plant Hybrid Technology** **2 Hr./2 Cr.**

Preamble:
The course introduces the basic knowledge of plant breeding, principles pertaining to plant breeding and crop improvement. Pre and Post Mendelian Era, the idea of inheritance transfer from one to next generation till now that is applied to studies. Basics of plant breeding and traditional methods in crop improvement will be discussed citing regional examples. Students should be able to understand the science of inheritance of characters and reasons behind the variations noticed in the new varieties. He should be able to appreciate the importance of plant resources in breeding, need to develop new hybrid varieties and preserve the plant species for the future generation.

At the end of the semester, students will be able to

i. acquire basic knowledge of plant breeding from the age before and afterMendelian era.
ii. analyse various methods in breeding to produce hybrid varieties.
iii. impart knowledge about the techniques of plant breeding to improve crop varieties.
iv. apply the knowledge of various breeding techniques to develop mass cultivation and commercial exploitation.
v. know the importance of various research centers located in Tamilnadu and its research activities.

Unit 1: Introduction (6 hr)
Principles and objectives – Concepts (classical and Post Mendalian Era) – significance of cross fertilization and wide cross – Heterosis and characteristics of hybrids .

Unit 2: Conventional Plant Breeding Methods (6 hr)
Self pollinated crops - Cross pollinated crops – Selection - Hybridization types - Procedure of hybridization - hybrid vigour.

Unit 3:Trends and techniques in Plant Breeding (6 hr)
Anther culture and its role in plant breeding - Production of haploid plant - Germplasmpreservation and enrichment techniques for hybrids – Gynogenesis method- Induced mutation – Molecular breeding.

Unit 4: Application and Utilization: (6 hr)
Tomato(Delaying Fruit Ripening) - Potato (Host Plant Resistance to Insects and Viruses) Onion (homozygotic lines) - Asexually propagated crops (banana, sugar cane, mango, citrus) coconut(early yielding) – Terminator Seed Technology – GMOs – Hybrid seed technology.

Unit 5: Leading Research Centers and their Contribution (6 hr)
Cotton breeding institute (Coimbatore) –Centre for Plant breeding and genetics (Millet Breeding Station - Coimbatore) - Tamil Nadu Rice Research Institute (Tanjore) - Coconut Research Station (TNAU, Aliyarnagar) - Institute of Forest Genetics and Tree Breeding (Coimbatore) - National Research Centre for Banana (Assam).

Textbooks:

1. S.K. Gupta and S.K (2005) Practical plant Breeding, Agrobios, India ISBN 9788177542400
2.Chahal ,G. S.Gosal S.S.(2002) Principles and procedures of plant breeding.Alpha science International Lts. UK.ISBN 9780849313219.

References:

1. Hayward,M.D, Bosemark,N.O, Romagosa,T(eds) Plant Breeding Principles and prospects Springer publication. ISBN 9780412433900
2. George Acquaah, (2012) Principles of plant genetics and breeding.2 ndedition.Wiley Blackwell Publishers. ISBN 9781118313695

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	4	5	4	3	2	4
CO2	5	4	5	4	4	4
CO3	4	4	4	4	3	4
CO4	4	5	5	4	4	4
CO5	3	3	3	5	4	3

Mean: 3.9

POST GRADUATE & RESEARCH DEPARTMENT OF ZOOLOGY
Value Added Courses
w.e.f. 2020-2021

SEM	Course Code	Course Title	Hours	Credits	Marks
I	PGZ 421V	Vermiculture	2	2	
II	PGZ 422V	Health and Sanitation	2	2	
III	PGZ 521V	Sericulture	2	2	
IV	PGZ 522V	Vector Biology	2	2	

PGZ421V Vermiculture 2hrs / 2cr

The main objective of vermiculture course is to impart a detailed knowledge in vermicomposting technology and to produce nutrient rich compost fromthe available farm waste, agriculture wastes, and thereby to improve soil fertility. By vermicomposting these wastes, they are not only utilized efficiently but also help in creating self employment.

At the end of this course, the students will be able to:

i. Identify the Earthworm species and understand their role in vermicomposting.
ii. Gain Knowledge to compost in a limited space and decomposing process.
iii. Develop the better understanding on methods and manage vermicomposting unit.
iv. Carry out self employment and they can generate employments.
v. Appreciate the role of organic farming and help to maintain the environment pollution free circumstance.

Unit 1:Earthworm Biology 6 hrs.

Key to identify the species of earthworms - Ecological classification ofearthworms:Epigeic, Endogeic, Anecic with examples - Types of Earthworm- Exotic species & Indigenous species- Life history of *Eisenia foetida,Eudriluseugeniae.*

Unit 2: Vermicompost Methods: 6 hrs.

Objectives of Vermicomposting - Vermicompost Production: Establishment of Vermicomposting and Vermiwash unit - Different Methods of Vermicomposting: Small and large scale – Bed method, Pit method.

Unit 3: Vermicompost Harvesting & Properties 6 hrs.

Vermicompost collection, Earthworm separation, Air drying of vermicompost, sieving and storing - Vermiwash production techniques - Standardcomposition of Vermiwash- Physical, Chemical and Biological properties of vermicompost -Effectsof Vermicompost on soil properties.

Unit 4:Vermicompost Application 6 hrs.

Role of earthworms in agro-ecosystems - Land reclamation and sustainable soil fertility - Forest regeneration - Earthworms for management of municipal/selected biomedical solid wastes- Organic farming - Roof Gardening - Horticulture.

Unit 5:Vermicompost potential &Economics 6 hrs.

Vermicompost as organicmanure - good substitute of fertilizers - Influence of pests and microbes on Vermiculture and control measures - Problems & prospects of Vermicomposting in India - Marketing the products of Vermiculture: Quality control, market research; Marketing techniques - awareness ,demonstration, advertisements - Packaging and transport.

Textbook

Seethalakshmy(2012)A Text book of Vermitechnology. 3rd Edition, Saras Publications, Nagercoil.

References

Edwards, C.A. and Loft, J.R. (1977) Biology of Earthworms, 3rd Edition, Chapman Publications.

Chauhan, A. (2012) Vermitechnology, Vermiculture, Vermicompost and Earthworms: Vermiculture, Vermicomposting, Vermitechnology and Mirobes,Lambert Academic Publishing, Germany.

National Institute of Industrial Research, (2010) The Complete Technology Book on Vermiculture and Vermicompost, Published by National Institute of Industrial Research,Delhi-7, India.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4						6
CO5					5	

Mean: 3.8

PGZ 422V Health and Sanitation 2hrs / 2Cr

This course provides a general and basic understanding of health, hygiene, disease transmission and sanitary practices. It emphasizes the importance of nutritive values of food stuffs, occupational hazards, mental illness and their preventive measures. It also represents the significance of mother and child welfare. Sanitation approaches of Household and Public environment, Waste management, health care systems and programmes are also included.

Upon completion of this course, students will be able to:

i. Summarize the basic concepts of health, hygiene and epidemiology of disease transmission.
ii. Implement the nutritional requirements and occupational safety.
iii. Assess the mental health status and health care aspects during pregnancy and child welfare
iv. Judge various strategies of sanitation in household and public environment.
v. Analyzethe sanitary approaches, role of health agencies sand employ in health sector.

Unit 1:Concepts of Health and Diseases 6 hrs.

WHO definition- Determinants, Spectrum and key indicators of Health – Health care systems-Personal Health and hygiene Practices. Concept of Disease Causation – Spectrum and Iceberg of Diseases – Principles of Epidemiology – Communicable and Non-Communicable Diseases – Control and Preventive measures.

Unit 2:Nutritional and Occupation Health 6 hrs.

Nutrient Sources - Nutritive value of Food Stuffs – Balanced Diet – Nutritional Requirement (RDA) – Food Hygiene – Food Borne Disease. Ergonomics – occupational environment – hazards –diseases – sanitation problems – Measures of Control and Prevention – Legislation – ESI Act.

Unit 3:Mental, Reproductive and Child Health 6 hrs.

Characteristics of mentally healthy and weak persons – Types and causes of Mental illness - Alcoholism and Drug Dependence - Prevention and Rehabilitation. Caring of Mother – Antenatal and Postnatal period - Neonatal and infant healthcare – immunization – RCH programmes.

Unit 4:Environmental Sanitation 6 hrs.

Concept of sanitation – Health, Water and Sanitation Relationship – Safe disposal of Human Excreta - F diagram – Household sanitation – Surveillance of water quality and sanitation measures – WASH - Safe disposal of Household and Municipal Refuse – Waste management.

Unit 5:Sanitation Approaches and Health Administration 6 hrs.

Sanitation Marketing- Community health clubs – Low cost approaches – Role of Health sector – Public, Private and NGOs. Health Education approaches and Health Planning – Policies and Programme- Post COVID-19 sanitation measures -Hand wash, facemask -Health system in India.

Textbook

Park K. (2015), Park's Textbook of Preventive and Social Medicine, 23rd edition, Bhanot Publication.

References

Sri Lakshmi.B (2011), Nutrition Science, 5th Edition, New Age International Publishers, New Delhi- 110002,

Cairncross, S. and Feachem, R. (1993). Environmental Health Engineering in the Tropics, 2nd edn. John Wiley & Sons, New York.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4					5	
CO5					5	

Mean: 3.5

PGZ 521V **Sericulture** **2hrs / 2cr**

This course aimed to impart training to our students both on site and off site on the technique of silkworm rearing, cocoon production and silk reeling from sericulture. The course kindles the young minds to become self-employers and imparts knowledge on various aspects of sericulture

Upon completion of the course, students will be able to:

i. Explain the life cycle and distinguish the types of silkworm
ii. Outline the rearing and harvest methods
iii. Evaluate the methods of cultivating mulberry plant
iv. Recognize the pests of silkworm and mulberry plant
v. Assess the silk industry and by products of silk

Unit 1: Biology of Silk worm **6 hrs.**

Types of silkworms, distribution of races- exotic and indigenous races. Commercial races: Multivoltine, bivoltine and hybrid races used in India. Morphology and Life cycle of *Bombyx mori*. Structure of silk gland and secretion of silk -Chemical composition of silk.

Unit 2: Rearing of Silkworm **6 hrs.**

Rearing house - Early age rearing and Late age rearing. Appliances: Rearing trays, ant-wells, rearing stands and racks, paraffin papers, rubber foam pads, net, chopsticks, feathers. Types of mountages, Spinning, harvesting and storage of cocoons.

Unit 3: Mulberry Biology **6 hrs.**

Morphology, taxonomy of mulberry,Nutritional value of mulberry leaves. Planting system - irrigation - manuring - Weeding - inter alteration - Mulching - pruning and Harvesting - Propagation of mulberry.

Unit 4: Pests of silkworm and Mulberry plant **6 hrs.**

Uuzi fly, dermistid beetle-control and preventive measures. Silkworm diseases: protozoan, viral, fungal and bacterial diseases and their control and preventive methods. Pests of mulberry; Major and minor pests of mulberry, their management, Integrated pest management.

Unit 5: Sericulture organizations and byproducts **6 hrs.**

Silk Industry- commercial classification of silk and silk thread wastes and their marketing. By-products of sericulture used as compost, animal feed, in Biogas plants and in pharmaceutical product - Industrial visit.

Textbook

Ganga, G. and Sulochana Chetty, J. (2003). An Introduction to Sericulture (2nd Edition). Oxford and IBH Publishing co. Pvt-Ltd., New Delhi.

References

Dandin, S. B. Jayaswal J. and Giridhar K. (2003). Handbook of Sericulture Technologies. CSB, Bangalor.

Jolly, M.S. (Ed) Appropriate sericultural Techniques, CSR & TI, Mysore.

Krishnaswamy, (1986). Improved method of rearing young age silkworm: S. reprinted CSB, Bangalore.

Narasimhanna, M.N. (1988). Manual of silkworm egg production. CSB, Bangalore

Sengupta K. (1989). A guide for bivoltine sericulture:, Director , CSR & TI, Mysore

Shukla, G.S. and Upadhyay, V.B. (1997). Economic Zoology. Rastogi Publications, Meerut.

Tomar, B.S and N.Singh. (2007). A Text Book of Applied Zoology..Emkay publications. Delhi.

Ullal, S.R. and Narasimhanna, M.N. (1979). Hand book of Practical Sericulture. Central Silk Board, Bombay.

Wupang-chun and da-chung. 1988.Silkworm rearing, pub. By FAO, Rome

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3					5	
CO4			3			
CO5				4		

Mean = 3.4

PGZ 522V **Vector Biology** **2hrs / 2cr**

This course focuses on the basics of insect and other arthropod vectors. The course content differentiates disease carriers from biological vectors and gives insights in to the relationship of vectors with hosts and pathogen. The course gives extensive and essential knowledge about the bionomics of important vectors of public health disease and their specific control strategies.

Upon completion of the course, students will be able to:

i. Summarize about disease vectors and their relationships with hosts and pathogens
ii. Implement vector mosquito identification
iii. Carry out identification of vector insects of various orders
iv. Accomplish identification of ticks and mites that act as vector
v. Design vector control strategies as per requirement.

Unit 1: Introduction to vectors **5 hrs.**

Differentiation between carriers (physical) and vectors (biological) – Criteria for vector – Host-Vector-Pathogen relationship-life cycle of pathogens-protozoa (malaria) - nematode (filarial) – arbovirus (JEV, DENV).

Unit 2: Mosquito vectors **6 hrs.**

Anopheles species -Malarial parasite vector – *Aedes* species-Dengue virus vectors-Dengue and Dengue Haemorrhagic fever – Vishnui subgroup of *Culex*-Japanese encephalitis virus vectors – *Culex* and *Mansonia* species-Filariasis vectors – bionomics.

Unit 3: Other insect vectors **6 hrs.**

Sand fly-Leishmaniasis vector – Black fly-Onchocerciasis vector – Triatomine bugs-Chagas disease vector – Flea-Bubonic plague, Typhus fever vector – bionomics.

Unit 4: Other arthropod vectors **5 hrs.**

Tick- Kyasanur Forest Disease, Crimean Congo Haemorrhagic fever, Q fever vectors – Mite-Scrub typhus, scabies – bionomics.

Unit 5: Vector control **8 hrs.**

Physical methods-breeding source reduction & management – Chemical methods-larvicides-adulticides – Biological methods-microbial formulations (Bti)-predatory organisms (dragon flies, fishes) – Integrated vector management – Novel strategies (recent developments)

Text book

Service M. (2012). Medical Entomology for Students. 5thEdn. Cambridge University Press,UK.

References

Marquardt WC. (2004). Biology of Disease Vectors. 2ndEdn. Elsevier Academic Press. UK.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4			3			
CO5						6

Mean: 3.4

POSTGRADUATE DEPARTMENT OF ECONOMICS

Value Added Courses

w.e.f. 2020-2021

Course Code	Course Title	Contact Hours	Credits
PEC42IV	Economics of Education	**2**	**2**
PEC52IV	Export and Import Procedures	**2**	**2**

PEC421V Economics of Education 2Hrs/ 2 Cr

The course is meant to provide some insights into the application of economic theory in the design. It deals with the economics of education with special emphasis on educational planning, manpower balances and human resource development and implementation of public policy related to the management of one of the social sectors i.e., Education. The course finds roots in welfare economics, national income accounting, macroeconomic policies, and development.

At the end of the course encourages the students to probe into the plan or mean employed by the teacher to effectively impact while explain the subject to the students.

i. Understand the dimensions of economics, social benefits and human capital.
ii. Highlights distinguish ideas of Demand for Economic of Education.
iii. Apply the economic principles for New Organization.
iv. Invoke self introspection to evolve a mature policy making
v. Enrich the personality development and self employment in globalization.

Unit 1: Education and Human Capital Formation (6 hrs)

Forms of human capital - human capital and economics growth - measures of human capital - Education as an economic good - private and social benefit of education – contribution of education to economic development

Unit 2: Demand for Education (6 hrs)

Education and productivity – private and social demand for education- investment in education – private and social rates of return – limitations of rate of return approach – rate of return and earnings distribution – equity aspects.

Unit 3: Supply of Educational Facilities (6 hrs)

Components of educational supply – private and public facilities – pattern of organization and operation of education industry – organization and operation of different limitations of production function analysis.

Unit 4: Financing of Education (6 hrs)

Public and private resources in education and their limitations – rationale behind public involvement in education – forms of public financing – subsidization of education – The New Education Policy.

Unit 5: Education and Manpower Planning (6 hrs)

Importance of manpower planning – the operation of markets for unskilled and skilled labour – labour market and migration in India – on-the-job training and skill formation.

References:

1. Paul W. Grimes, (2019) Teaching College Economics, The International Library of Critical Writings in Economics series, Mississippi State University, US.
2. Geraint Johnes,(2017), Handbook of Contemporary Education Economics, University of Alcalá, Spain.
3. Franklin G. Mixon, (2014), New Developments in Economic Education, Jacksonville University, US.
4. Santosh Mehrotra, (2005), The Economics of Elementary Education in India, The Challenge of Public Finance, Private Provision and Household Costs, Jawaharlal Nehru University, New Delhi.
5. D. W. Livingstone, (1999),The Education-Jobs Gap: Underemployment or Economic Democracy, the University of Toronto.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1					6
CO2						6
CO3			3			6
CO4			3		5	
CO5			3			6

Mean:4.2

PEC 521V Export and Import Procedures 2 Hrs/ 2Cr

A thorough knowledge of the various facets of international business is important in the present global economic and trading environment. Intense competition in world markets, in particular, poses a challenge to executives engaged in export marketing pursuits. Unless they keep themselves abreast with the new developments, rapid changes in international business practices and innovative marketing strategies pursued by the competitors, export executives cannot effectively capitalize on the available or emerging market opportunities.

At the end of the course students will be able to

i. Deliver an overall perspective on the international business environment and economic relations
ii. Enhance analytical skills for identifying export opportunities
iii. Comprehend export procedures & documentation.
iv. Expose knowledge in the area of logistics.
v. Elucidate the benefits from exports by understanding foreign trade policy.

Unit 1: International Marketing Management (6 hrs)

Marketing of industrial and consumer products, identification of export markets, product development and adaptation, export pricing.

Unit 2: India's Foreign Trade and Policy (6 hrs)

India's foreign trade policy and its evolution, trends in India's foreign trade, institutional framework for export promotion, export incentives and facilities and concept of EPZ/FTZ

Unit 3: International Trade Logistics (6 hrs)

Micro-economic aspects of physical distribution with emphasis on international transport systems including legal aspects of transportation by sea, air and multi-modal transport

Unit 4: International Trade Operations and Documentation (6 hrs)

Regulatory Framework of Export Import, Export Sales Contract, Methods of Payment, Export-Import Documents

Unit 5: Global Business Environment (6 hrs)

Forces of Globalization and Patterns of Global Political Economy, Multilateral Framework of international Trade and its Evolution and Energy Security and the Environmental issues

References:

1. Handbook of Import-Export Procedures,(2018) Ministry of Commerce, Government of India, New Delhi.
2. Parasuram,(2017), Export: What?, Where? and How?, Anupam Publishers, Delhi.
3. Mahajan M.I (2015), Exports – Do it Yourself, Snow White Publications, New Delhi.
4. M. I. Mahajan,(2015), Import – Do it Yourself, Snow White Publications, New Delhi.
5. Sharan V,(2010), International Business, Concept, Environment and Strategy.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1	1				5	
CO 2		2			5	6
CO 3		2	3	4	5	6
CO 4			3			6
CO 5				4	5	6

Mean: 4.2

POSTGRADUATE DEPARTMENT OF COMMERCE

Value Added Courses

w.e.f. 2020-2021

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
I	PCO 421V	MSME Management	2	2
III	PCO 521V	Soft Skill Development	2	2

PCO 421V MSME MANAGEMENT 2 Hrs/2Cr

The objective of this course is to give awareness about the importance of MSME to the society. The students will understand the procedure to start a new venture. They get an in depth knowledge about the agencies supporting MSMEs.

At the end of the course, students will

i. Gain knowledge about MSME's
ii. Understand the procedure to start up a new venture
iii. Frame the finance strategy
iv. Analyze the role of supporting agencies
v. Develop independently a new Business Project Report

UNIT I

Micro, Small and Medium enterprises:Introduction- Definition - Characteristics - Role of MSME in Economic Development - Growth of MSME's in India - Opportunities and Challenges of MSME's- Global Opportunities: MSME's in International Business – Recent Trends in MSME's - Micro, Small and Medium Enterprises Development (MSMED)Act 2006.

UNIT II

Start up Venture: Setting up a New Venture – Deciding the Nature of Business-AnalyzingInternal and External Environment - Location Strategy – Choice of Plant and Machinery -Preliminary Registration with State Directorate of Industries.

PCO 2

UNIT III

Financing of Small Enterprises and Agencies: Need for Financial Planning – Sources of Capital –Types of Financial Assistances – Financial Institutions (SFC, IDBI, NSIC and SIDCO).

UNIT IV

Institutional Supporting Agencies: DIC –SISI –EDII –NEDB.

UNIT V

Preparation of Project Report for New Business Idea.

REFERENCE BOOKS

1. Mohinder Singh, Management of Micro, Small and Medium Enterprises (MSME'S), KK publications, 2014.
2. Jaynal UD- din Ahmed and Md Abdul Rashid, Micro, Small and Medium Enterprises (MSMEs) in India, New Century Publications, 2014
3. S.P.Singh, Guidelines for Micro, Small & Medium Enterprises (MSME) Development in India, Alfa Publications, 2018

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1		2				
CO 2			3			
CO 3					5	
CO 4		2				
CO 5						6

Mean3.6

PCO521V SOFT SKILL DEVELOPMENT 2 Hrs/2Cr

The objective of this course is to help the students groom their personality and prove themselves as good Samaritans of the society, through class presentations pertaining to the applications of concepts, theories or issues in human development.

On the successful completion of this course, the students will be able to;

i. Identify the factors influencing attitudes
ii. Apply the theories of personality in practice
iii. Create effective resumes
iv. Develop innovative stress management techniques
v. Create an effective team

UNIT I

Introduction- Foundation of Individual Behaviour- Causes of Human Behaviour – Attitude - Concept - Significance – Types - Factors affecting Attitude. Motivation- Concept – Need - Significance – Types-Factors affecting Motivation - Significant Theories of Motivation **(8 Hours)**

UNIT II

Personality: Definition – Determinants – Types of Personality - Personality Traits. Personality Development – Meaning – Need- Importance - Theories of Personality **(5 Hours)**

UNIT III

Interview- Meaning – Types - Mock Interview Sessions- Resume Building - The Art of Participating in Group Discussion - Psychometric Analysis **(6Hours)**

UNIT IV

Development Techniques: Body Language – Developing Good Manners and Etiquette – Problem Solving - Conflict and Stress Management – Decision Making Skills - Time Management - Work Ethics **(5 Hours)**

UNIT V

Team Building: Meaning – Types of Teams – Importance of Team Building- Creating Effective Team. Leadership – Definition – Leadership Style - Theories of Leadership – Qualities of an Effective Leader. **(6 Hours)**

PCO 4

REFERENCE BOOKS

1. Hurlock, E.B, Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill, 2016

2. Stephan P.Robbins, Organisational Behaviour, Tenth Edition, Prentice Hall of India Private Limited, New Delhi,2016

3. Jit S. Chandan, Oragnisational Behaviour, Third Edition, Vikas Publishing House Private Limited, 2018

4. Dr.K.K. Ramachandran and Dr.K.K. Karthick, From Campus to Corporate, Macmillan Publishers India Limited, New Delhi, 2016

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1		2				
CO 2			3			
CO 3			3			
CO 4		2				
CO 5				4		

Mean : 2.8

DEPARTMENT OF MASTER OF COMPUTER APPLICATION

w.e.f. 2020-2021

ELIGIBILITY:

1. A pass with minimum percentage of marks in Part III as per the Government norms in

   a) B.Sc degree in Computer Science / IT / IT and Management / Software / Mathematics / Statistics / Physics/Chemistry/Applied Science/Electronics

   b) BCA, B.Com / B.Com with CA, B.Com with IT, BBA with Mathematics, BA with Mathematics at the HSS / Degree Level.

   c) BE / BTech

2. Entrance Test : As per the Government norms

3. Reservation : As per the Government norms

4. Minimum marks : As per the Government norms

SCHEME OF EXAMINATION FOR THEORY CUM LAB COURSES:

For courses having both theory and practical's there will be two tests, one on theory and the other on practical's which will be taken as Test 1 and Test 2. Assignment and Quiz will be only on theory. The final examination will be only on Theory and will be of 3 hours duration with a course maximum of 100 marks.

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

SEMESTER 1			
Course Code	**Course Title**	**Hrs / Crs**	**Marks**
MCA 4655	Mathematical Foundation for Computer Application -I	6	120
MCA 4457	Advanced Programming in C	4	80
MCA 4459	Digital Principles and Computer Organization	4	80
MCA 4661	Operating System (TL)	4 + 2	120
MCA 4663	Web Programming (TL)	4 + 2	120
MCA 4465	LAB 1 – CProgramming	4	80
SEMESTER 2			
Course Code	**Course Title**	**Hrs / Crs**	**Marks**
MCA 4656	Mathematical Foundation for Computer Application -II	6	120
MCA 4458	Design and Analysis of Algorithm using C++	4	120
MCA 4660	Advanced DBMS (TL)	4 + 2	120
MCA 4462	Embedded System (TL)	2 + 2	80
MCA 4664	OOAD & UML (TL)	4 + 2	120
MCA 4466	LAB 2 –Computer Algorithms using C++	4	80
SEMESTER 3			
Course Code	**Course Title**	**Hrs / Crs**	**Marks**
MCA 5655	Data Science using Python (TL)	4 + 2	120
MCA 5557	Advanced Software Engineering	5	100
MCA 5559	Advanced Java Programming	5	100
MCA 5661	Computer Networks (TL)	4 +2	100
	Elective I	4	80
MCA 5463	LAB 3 – Java Programming	4	100

SEMESTER 4			
Course Code	**Course Title**	**Hrs / Crs**	**Marks**
MCA 5456	Dot Net Programming	4	120
MCA 5558	Data Mining and Warehousing	5	100
MCA 5460	Soft Computing	4	100
	Elective II	4	80
MCA 5462	LAB 4 – Dot net Programming	4	80
MCA 5964	Project – Viva Voce	9	180

ELECTIVE COURSES

Course Code	Course Title	Hrs / Crs	Marks
MCA 0440	Android Programming (TL)	2+2	80
MCA 0441	Artificial Intelligence	4	80
MCA 0442	Computer Graphics (TL)	2+2	80
MCA 0443	Big Data Analytics	4	80
MCA 0444	Biometrics	4	80
MCA0445	Compiler Design	4	80
MCA 0446	Multimedia and Applications (TL)	2+2	80
MCA 0447	Parallel Computing	4	80

Value Added Courses
w.e.f 2020-2021

Sem.	Course Code	Course Title	Hrs	Crs
I	MCA 421V	Essentials of Management	2	2
III	MCA 521V	Business Communication	2	2
V	MCA 621V	Data Science	2	2

PROGRAMME SPECIFIED OUTCOMES (PSOs):

MCA programme has been designed to prepare graduates for attaining the following program outcomes:

1. An ability to apply knowledge of mathematics, computer science and management in practice
2. An ability to identify, critically analyse, formulate and develop computer applications
3. An ability to select modern computing tools and techniques and use them with dexterity
4. An ability to design a computing system to meet desired needs
5. An ability to make realistic constraints such as safety, security and applicability
6. An ability to devise and conduct experiments, interpret data and provide well informed conclusions
7. An ability to understand the impact of system solutions in a contemporary, global, economical, environmental, and societal context for sustainable development
8. An ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude
9. An ability to communicate effectively
10. An ability to appreciate the importance of goal setting and to recognize the need for life-long learning.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
MCA 4655	✓	✓	✓	✓		✓	✓			
MCA 4457	✓	✓	✓	✓	✓	✓				
MCA 4459	✓	✓	✓	✓	✓			✓		
MCA 4661	✓	✓		✓	✓		✓		✓	
MCA 4663	✓	✓	✓	✓	✓				✓	
MCA 4465	✓	✓	✓	✓	✓	✓		✓		
MCA 4656	✓	✓	✓	✓		✓	✓			
MCA 4658	✓	✓	✓	✓		✓	✓			
MCA 4660	✓	✓	✓	✓	✓	✓				
MCA 4462	✓	✓	✓	✓	✓	✓				
MCA 4464	✓	✓	✓	✓		✓	✓			
MCA 4466	✓	✓	✓	✓	✓			✓		
MCA 5655	✓	✓	✓	✓	✓			✓		
MCA 5557	✓	✓	✓	✓		✓	✓	✓		
MCA 5559	✓	✓	✓	✓	✓			✓	✓	✓
MCA 5561	✓	✓		✓	✓		✓			
MCA 5563	✓	✓	✓	✓	✓	✓		✓		
MCA 5456	✓	✓	✓	✓	✓	✓				
MCA 5458	✓	✓	✓	✓	✓	✓				
MCA 5460	✓	✓	✓	✓	✓		✓	✓	✓	
MCA 5462	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MCA 5464	✓	✓	✓	✓	✓	✓				
MCA 0440	✓	✓	✓	✓		✓	✓			
MCA 0441	✓	✓	✓		✓	✓	✓			
MCA 0442	✓	✓	✓	✓	✓	✓			✓	
MCA 0443	✓	✓	✓	✓		✓	✓			
MCA 0444	✓	✓		✓	✓		✓		✓	
MCA 0445	✓	✓	✓	✓	✓	✓				
MCA 0446	✓	✓	✓	✓	✓	✓			✓	
MCA 0447	✓	✓	✓	✓	✓	✓			✓	

Mapping Programme Outcome (POs) for Post graduation with MCA (PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PSO 1		✓								
PSO 2		✓								
PSO 3					✓					
PSO 4									✓	
PSO 5					✓					
PSO 6	✓		✓							
PSO 7	✓							✓		
PSO 8	✓						✓		✓	✓
PSO 9						✓				
PSO 10				✓						

MCA 4655 Mathematical Foundation for Computer Applications - 1 6Hrs / 6 Cr

This course will enable the students to know the logic and relation, graph theory and automata. Theorems are discussed with examples. This course explores various techniques in numerical methods for solving different mathematical models such as linear and non-linear equations.

Upon completing the course students will be able to

i. Natural language encoded to proposition calculus and model design by relation.
ii. Real world problem describe by diagram by means of vertex and edges and analyze the properties
iii. Analyze abstract machines and automata, as well as the computational problems that can be solved using them.
iv. Find the solution for algebraic and transcendental and system of equations
v. Find the unknown values from known values

Unit 1: Logic 10hrs

LOGIC-Connectives –Normal Form - Rules of Inference Theory in Statement Calculus - Relation – Equivalence Relation- Partial Order Relation - Relational Matrix - Relational Graph

Unit 2: Graph 14hrs

GRAPH – Walk – Path – Tree - Binary Tree - Kruskal Algorithm - Prims Algorithm – Connectivity- Planner Graph –Colouring.

Unit 3: Automata 12hrs

Finite Automata – Deterministic Finite Automata – Non-deterministic Finite Automata - Languages – Grammars - Push Down Automata.

Unit 4: Linear Equations 12hrs

Methods for finding roots of linear and non-Linear equations - Bisection Method- False Position Method Newton - Raphson Method – System of linear equations - Gauss-Elimination Method, Gauss - seidel.

Unit 5: Interpolation 12hrs

Interpolation – Newton Forward and Backward differences interpolation methods – Lagrange Interpolation – – Numerical Differentiation – Integration - Solving first order ordinary differential equations using R-K method.

Textbook

1. Tremblay JP, Manohar R, “Discrete Mathematical Structures with application to Computer Science”, McGraw HillPublication, 2018.

References

1. Narsingh Deo, “Graph Theory with applications to Engineering and Computer Science”, Prentice Hall India, 2012.
2. HopcroftJEullman, JD, “Introduction to Automata Theory, Languages and Computation”, Narosa Publishing House, 2013
3. M.K.Jain, S.R.K. Iyengar, R.K. Jain, “Numerical Methods Problems and Solutions”, New Age International, 2008.
4. EBalagurasamy, “Numerical Methods”, Tata McGraw Hill, 2012.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean : 3

MCA 4457 Advanced Programming in C 4 Hrs/4cr

This course introduces programming concepts and helps them to write programs in an advanced level. It introduces control structures, arrays, functions, pointers, file handling. Also, gives Introduction to TSRs programs and interfaces programming using C.

Upon completing the course students will be able to

i. Classify data types, operators and Functions.
ii. Build code using Pointers and Arrays.
iii. Discover the role of pointers in DMA and examine its usage in OOP.
iv. Implements Structure and Data Files.
v. Categorize BIOS functions and examines network and low level programming.

Unit 1: C Introduction 12hrs

C introduction – Operators and expressions – Data types – Arithmetic expressions - I/O statements – Control statements – Looping statements – Arrays – Strings and string functions – Procedures – Functions – User defined functions – Built-in-functions including all graphics commands.

Unit 2: Pointers Arrays and Functions 10hrs

Introduction to pointers – Operators - expressions, passing on addressing to a function, function returning pointers. Pointers and Arrays – Passing an array element to a function – Multidimensional Arrays - array of pointers.

Unit 3: Pointers and Strings 14hrs

Pointers and strings – Strings – Standard library functions - array of pointers to string - limitation of array of pointers - Pointers and structures – array of structure -structure pointer - dynamic memory allocations - Pointers and miscellaneous – Pointers to function - Command line arguments – Near, far and huge pointers.

Unit 4: Structures 14hrs

Structure definition - processing a structure, user defined data types –typedef array of structures – Self referential structures – More about structures – Union – Files – C pre-processor

Unit 5: Low Level Programming 10hrs

Advanced concepts – pointers and type casting - ROM-BIOS Functions –Basics of TSR – Introduction to Network programming and Interface – introduction to Low level programming

Textbook

1. Yashwant Kanetkar, “Understanding C pointers”, BPB Publications, New Delhi, 2009.

References

1. Henry Mullish Herbert L. Cooper, “The Spirit of C”, Jaico Publishing House, 1987.
2. Les Han Cock, Morris Kriger, “C primer”, 3rd Edition, Tata McGraw Hill, 1991.
3. Yashwant Kanetkar, “Writing TSRs through C”, BPB Publications, 1995.
4. Barry Nance, “Network Programming in C”, PHI, New Delhi, 2002.

BloomsTaxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3		2				
CO4			3		5	
CO5				4		6

Mean : 3.3

MCA 4459 Digital Principles and Computer Organization 4Hrs/4cr

This course aims to give the students basic ideas regarding digital hardware components at the level of Gate and realization of sequential circuits and combinatorial circuits. Also will enable the students to design digital systems employing the techniques and give better insights into the basic digital hardware building blocks.

Upon completion of this course students will be able to:

i. Understand the need for digital system and Perform conversion, arithmetic calculations on number system
ii. Gain Knowledge to apply digital principles to create and synthesize combinatorial logic circuits and simplify problems using Boolean algebra and K map.
iii. Evaluate and design the data processing circuits and various types of flip flops
iv. Design and synthesize the sequential logic circuits
v. Acquire knowledge on memory subsystem organization and different types of memory

Unit 1: Digital System Concepts 10hrs

Introduction to digital systems and computers – Applications of digital systems Number systems and Codes - Conversion Binary to Decimal – Hexadecimal – octal – Representation of Negative Numbers, Complements in other Number systems 1's Complement – 2's Complement _ BCD Representation. ASCII, Excess_3, Gray, Weighted and unweighted codes.

Unit 2: Basic Building Blocks 10hrs

Introduction to logic circuits – Basic building blocks - Boolean algebra - Universal gates - De Morgan's Law - Truth tables - Boolean Expressions –Sum of products - Products of sum methods - Karnaugh map – Don't care conditions

Unit 3: Data Processing Circuits and Sequential Logic Circuits 15hrs

Multiplexers – De_Multiplexers - Decoder- Encoder - Introduction to Flip Flops -RS Flip-flop - Clocked Flip Flop – D Flip Flop - JK Flip Flop -JK Master -Slave Flip Flop.

Unit 4: Memory Element and Basic Computer Organization 15hrs

Introduction to Registers -Types of Registers - Introduction to Counters – Counter Design - Basic computer Organization – System buses – instruction cycles. CPU Organization .

Unit 5: Memory Subsystem Organization 10hrs

Memory subsystem organization – Types of memory – memory subsystem configuration – I/O Subsystem Organization

Textbooks

1. Malvino AP & Leach DP, "Digital Principles and Applications", Tata McGraw Hill Publications, 6th Edition 2002.
2. John D Carpinelli, Computer systems Organization & Architecture, Pearson Education, 1st Edition, 2012

References

1. TC Bartee, "Digital Computer Fundamentals", Tata McGraw Hill, 6th Edition, 2011.
2. Morris Mano, "Digital Design", Prentice Hall of India Pvt. Ltd, 2012.
3. John P. Hayes, Computer Architecture and Organization, Tata McGraw Hill, 2nd Edition, 2013.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	1				
CO2			2	2	2	2
CO3			3	3		
CO4		4	4	4		
CO5		5				

Mean : 2.8

MCA 4661 Operating System (TL)(4+2) 6Hrs /6Cr

This course aims at to teach the students about the evolution of Operating systems and to understand the organization and strategies of the Operating Systems. This course makes the student to create an environment in which a user can execute programs in a convenient manner.

Upon completing the course students will be able to

i. Understand the structure and functions of OS.
ii. Learn about processes and threads.
iii. Implementing the principles of concurrency scheduling algorithms and deadlocks.
iv. Learn and Implement the different memory management schemes.
v. Understand and Implement the different Input, Output and file management schemes.

Unit 1: Introduction 15hrs

Architecture of OS (Ex. Monolithic, Microkernel, Layered, Exokernel) - Virtual Computers, Interaction of O. S. & hardware architecture - Evolution of operating systems, Batch, multiprogramming. Multitasking - Multiuser, parallel, distributed & real –time O.S. Computers and Software – Operating System Strategies – The abstract model of computing- resources – processes – threads – Operating System Organization – Device Management – Process Management – Storage Management-Scheduling-Computing Environment-Mobile Operating system.

Unit 2: Processes and Threads 20hrs

Basic Synchronization principles – Interacting and Coordinating Processes, Semaphores - High-level synchronization – Monitors – Interprocess Communication – Deadlock – Memory Management – Virtual Memory – Paging, Segmentation and algorithms - Operating System Services- Operating System Structure-System calls and its types- Operating System Design and Implementation-Virtual Machines- Operating System Generation-System Boot.

Unit 3: Concurrency and Scheduling 15hrs

Threads-Multithreads-Thread Libraries-Models File Management – Protection and Security – Remote Files – Distributed Computing-CPU Scheduling-Deadlocks-Three Memory Management (Main Memory, Virtual Memory, Secondary Memory) - Storage Management.

Unit 4: Memory Input/Output and File Systems 20hrs

Introduction to UNIX and the Shell – UNIX Directories and Pathnames - Working with UNIX files – Shell Programming -User and system administration – pipelining – Communicating with other user and systems – Accessing other Unix systems on the network or Internet – Accessing Unix from windows – Unix and the internet-Production and Security(Cryptography, Firewall)-Distributed File System-Seven Special-Purpose Systems(Real Time and Multimedia)

Unit 5: Case Studies **20hrs**

Case Studies on LINUX, WINDOWS, MAC-OS, ANDROID and IOS- protection and security.

Textbook

1. Gary Nutt, “Operating Systems a Modern Perspective”, Pearson Education Asia, 2010.

References

1. Deital&Deital , “Operating Systems”, Addison Wesley publications, 2013.
2. Milan Milenkovic, “Operating Systems”, Tata McGraw Hill, 2012.
3. Tanenbaum, “Operating systems”, Tata McGraw Hill, 2011.
4. W. Richard stevens, Stephen A. Rago – “Advanced programming in the Unix environments”, second Edition – Addison Wesley publication, 2013.
5. Steart E. Madnick, John J. Donovan – “Operating Systems” – Tata McGraw-Hill-2009 edition.

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		**6**
CO5					**5**	

Mean : 3.5

MCA 4663 Web Programming (TL)(4+2) 6 Hrs/6 Cr

This course aims at preparing the students to gain theoretical skills and practical experience required for designing web pages and use variety of latest technologies to create responsive websites.

Upon completing the course students will be able to

i. Recall Web Basics, history of Internet and use HTML tags, attributes and write simple web pages
ii. Apply DHTML to web pages and make it dynamic
iii. Compare XML with HTML and develop xml documents.
iv. Build interactive web pages using Java Script.
v. Define PHP commands, write programs and establish database connectivity in Mysql.

Unit 1: Web Basics and HTML 20hrs

Introduction, Concept of Internet- History of Internet, Protocols of Internet, World Wide Web, URL, Web Server, Web Browser. Introduction, History of HTML, Structure of HTML Document: Text Basics, Structure of HTML Document: Images and Multimedia, Links and webs, Document Layout, Cascading Style Sheet- HTML 4 style sheet features, Creating Forms, Frames and Tables.

Unit 2: Dynamic HTML 15hrs

Introduction of DHTML- HTML vs. DHTML, Advantages of DHTML, CSS of DHTML, Event Handling, Data Binding, Browser Object Models.

Unit 3: XML 15hrs

Introduction of XML- Some current applications of XML, Features of XML, Anatomy of XML document, The XML Declaration, Element Tags- Nesting and structure, XML text and text formatting element, Table element, Mark-up Element and Attributes, Document Type Definition (DTD), types.

Unit 4: Javascript 20hrs

JAVA SCRIPT – Introduction – Usage of variables – operations – control structures – looping structures – predefined keywords – arrays – predefined functions – user defined functions – arrays and functions – mathematical functions – string functions – objects – expressions –pattern matching using RegEXp Class – String Class – Exception Handling – Built–in objects – Bgcolor/Fgcolor – Date Object – Events and Event Handling – Validations – Window – Confirmation, alert message.

Unit 5: PHP and MySQL **20hrs**

Introduction and basic syntax of PHP, decision and looping with examples, PHP and HTML, Arrays, Functions, Browser control and detection, string, Form processing, Files, Advance Features: Cookies and Sessions, Object Oriented Programming with PHP. Basic commands with PHP examples, Connection to server, creating database, selecting a database, listing database, listing table names, creating a table, inserting data, altering tables, queries, deleting database, deleting data and tables, PHPMyAdmin and database bugs.

Textbook

1. "HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, Ajax, PHP and Jquery", Kogent Learning Solutions Inc 2016.

References

1. EckyPutrady, "Practical Web Development with Haskell: Master the essential skills to build fast and scalable web applications", !st edition , Apress, 2018
2. Danny Goodman, "Dynamic HTML" 3rd Edition, O'reilly, 2006.
3. Media Paul Colton, R Allen Wyke, Richard Wagner, "JavaScript Unleashed", Sams Publication, 3rd Edition, 2000.
4. Eric. C Richardson, "Programming web server", Galgotia Publications, 1996.
5. Joe Fawcett, Danny Ayers, Liam R.E Quin, "Beginning XML", 5th Edition, Wrox, 2012
6. Jon Duckett, "PHP & MYSQL Server side development", 1st edition 2019.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3				4		
CO4			3			
CO5					5	

Mean : 3

MCA 4465 **Lab 1 - C Programming** **4 Hrs / 4Cr**

The course aims at training the students in the developing the following programs and enable them to develop a mini project.

Upon completing the course students will be able to

i. Apply different types of User Defined Functions and Arrays.
ii. Summarize application software using pointers on different Data Types.
iii. Create code using Structure and Union.
iv. Solve problems using File Handling Techniques.
v. Design TSR and simple Network Programs.

Lab Cycle

1. I/O Statements and Control Structures
2. Arrays and strings
3. Functions
   i) Call by Value
   ii) Call by Reference
   iii) User defined
   iv) Built-in
4. Pointers
   i) Operators & expressions
   ii) Pointers and arrays
   iii) Pointers and strings
   iv) Pointers and structures
   v) Pointers to function
5. Structures and Unions
6. C Preprocessors, Command line arguments
9. File Handling
10. TSR programs
11. Simple network programming
12. Program to implement Client / Server concepts
13. Interface programming

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2	1	2				
CO3		2	3			
CO4				4		
CO5						6

Mean : 2.7

MCA4656 Mathematical Foundation for Computer Application -II 6Hrs / 6 Cr

This course aims to solve the various statistical methods such as Distribution of Random variables, Distributions and analyse sample using different method. Solve the Linear programming problem, transportation problem and assignment problem and also help to understand network modeling for planning and scheduling the project activities and different models on queuing theory

Upon completing the course students will be able to

i. Illustrate the characterization of probability density functions
ii. Test and analyses mean and variance of small and large samples
iii. Management problems convert to L.P.P and find the optimum solution for it.
iv. Find the solution for transportation problem and Assignment problem and construct network diagram and obtain critical path and project length.
v. Identify and analyze queue model and find the different values.

Unit 1: Mathematical Expectations 15hrs

Distributions of Random Variables – probability set function – Distribution function – probability models – mathematical expectations – Some special mathematical Expectations – Conditional probability -marginal and conditional distributions.

Unit 2: Sampling Theory 20hrs

Sampling theory - confidence intervals for means – confidence intervals for difference of variance – Hypothesis – Examples and Definitions – T_Tests – Chi_square Tests – F_Test – The Analysis of Variance.

Unit 3: Simplex Method 20hrs

Mathematical Formulation - Graphical Solution of linear programming models – Simplex method –Artificial variable Techniques- Two Phase Method.

Unit 4: Transportation Problem 15hrs

Transportation problem- assignment problem-Network Construction – Critical Path Method – Project Evaluation and Review Technique – Resource Analysis in Network Scheduling

Unit 5: Queuing Models 20hrs

Characteristics of Queuing Models – Poisson Queues - (M / M / 1) : (FIFO / ∞ /∞), (M / M / 1) : (FIFO/ N / ∞), (M / M / C) : (FIFO / ∞ / ∞), (M / M / C) : (FIFO / N / ∞) models.

Textbooks

1. Freund, "Mathematical Statistics", 5th Edition, Prentice Hall India, 1997.
2. Taha H.A., "Operations Research: An Introduction", 8th Edition, Pearson Education, 2008

References

1. S.C. Gupta & VK Kapoor Sultan Chand, "Elements of Mathematical Statistics", New Delhi, 1992
2. A.M.Natarajan, P.Balasubramani, A.Tamilarasi, "Operations Research", Pearson Education, Asia, 2005

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3		2	3			
CO4				4	5	
CO5						6

Mean : 3.3

MCA4658 Design and Analysis of Algorithm using C++ 4hrs/4cr

The aim of this course is to enable the student to understand and apply OOP features to solve different computer algorithms. This course also aims at making the student to implement and analyse the basic operations of data structures and the programming techniques such as Divide and Conquer, Greedy method, Dynamic programming, Graph Algorithms and Back Tracking.

Course Outcomes

i. Understand Object Oriented Programming and its features
ii. Advanced features of OOP
iii. Understand the concepts of data types, data structures and linear structures analyse linear data sorting
iv. Sort and Searching algorithms.
v. Greedy Method and Dynamic Programming.

Unit 1: OOPS 16hrs

Introduction – Programming Paradigms –Advantages and Features of OOP – objects - classes- Data Abstraction-User Defined Types – Namespace -Abstract Types- Inline Functions - Friend function-Virtual Functions - Constructor and destructor functions – Overloading Functions - Passing objects and returning objects in functions – Using pointers to objects – the this pointer – Using new and delete functions.

Unit 2: Additional Features in OOPS 14hrs

Operator overloading – Inheritance –Types of inheritance –Virtual base classes - Pointers to derived classes – Virtual functions - Applying polymorphism + File Handling in C++ -Templates and exception handling - class templates-function templates.

Unit 3: Data Structures 15hrs

Computer Algorithms - Introduction – Algorithm as technology – Designing an algorithm - Analysing an algorithm — Asymptotic notations – Standard notations and common functions - Elementary Data Structures – Types – Implementation Examples - Implementing pointers and objects - Trees – Hashing – Types of Sorting – Examples.

Unit 4: Sorting and Searching 14hrs

Divide and Conquer-Merge sort – Quick Sort – performance of quick sort – randomized version of quick sort - Binary Search Tree – Insertion and deletion in Binary Search Tree – Red Black Trees – Implementations.

Unit 5: Greedy Method and Dynamic Programming **16hrs**

Greedy Method- Optimal Storage on Tapes – Knapsack Problem – Minimum Spanning Trees – Single Source Shortest Path- Bellman-Ford algorithm – Dijkstra's algorithm. Dynamic Programming - General Method – Multistage Graphs – Optimal Binary Search Trees – 0/1 Knapsack – Reliability Design – Travelling Sales Man Problem --Eight queen problem-backtracking.

Textbook

1. Herbert Schildt, "C++ Complete reference, Osborne McGraw Hill", 2ndEdition, 2012.
2. Thomas H Cormen, Charles E Leiserson, Ronald L Rivest, Clifford Stein, "Introduction to algorithms ", 2nd edition,PHI,2011.

References

1. Robert Latfore, "Object Oriented Programming in Microsoft C++", Galgotia publication, 2009.
2. E Balagurusamy, "Object Oriented programming with C++", PHI 6th Edition
3. Debasish Jana, "C++ and Object Oriented Programming Paradigm", PHI, NewDelhi, 2010.
4. Ellis Horowitz, SartajSahni, "Fundamentals of Computer Algorithms", Galgotia Publications, 2010.
5. Donald E Knuth, "Fundamental algorithms -The art of computer programming", PearsonEducation, 3rd Edition, 2002.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2	3			
CO3			3			
CO4				4		
CO5					5	

Mean : 3.3

MCA 4660 Advanced Database Management Systems (TL)(4+2) 6 Hrs/ 6Cr

This course aims to train the students to design databases in an efficient manner. In these course fundamental concepts in DBMS, Data models, and relational algebra concepts are discussed. Hands on training is given using ORACLE.

Upon completion of this course students will be able to

i. Obtain basic knowledge on database, relational database, data Models and ER model.
ii. Demonstrate the DDL, DML, TCL using SQL constructs.
iii. Apply PL/SQL using Programming language constructs.
iv. Understand the Data Management concepts to organize the data.
v. Understand and Design Advanced Databases systems.

Unit 1: Introduction to DBMS 15hrs

Introduction to DBMS – Data Models – Database Languages – Database System Structures – ER Model – Relational Model

Unit 2: Introduction to RDBMS 20hrs

Introduction to RDBMS-SQL – Introduction to ORACLE – Data types - DDL – DML – TCL – QBE. Sub queries – Functions and Procedures – Triggers.

Unit 3: PL/SQL 20hrs

Packages - Types – Objects – Methods – Collectors – PL/SQL – Built in Functions – Programming constructs – Cursors – Error Handling-normalization.

Unit 4: Data Management 20hrs

Data Storage and Indexing – File Organizations – Query Optimization – Security -Transaction Management – Concurrency Control – Crash Recovery.

Unit 5: Introduction to Advanced Database Systems 15hrs

Introduction to: Parallel and Distributed Databases – Internet Databases – Decision Support - Data Mining – Object Database Systems – ORDBMS – OODBMS.

Textbook

1. Silberschatz, Sudharshan and Koth, “Database System Concepts”, McGraw Hill Publications, 6th Edition, 2010.

References

1. Ramakrishnan and Gehrke, “Database Management Systems”, McGrawHill, 3rd Edition, 2012.
2. Loney and Koch, “ORACLE 9i - The Complete Reference”, Tata McGraw Hill Edition, 2010.
3. Urman, “ORACLE PL/SQL programming”, Tata McGraw Hill, 1997.
4. McFadden, Hoffer and Prescott, “Modern Database Management”, Pearson Education, 5th Edition, 2001.
5. Nilesh Shah , Database Management Systems using Oracle, Pearson Education, 2015.
6. Arun Majumdar &Pritimoy Bhattacharya, Database Management systems, TMH publications,2007.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2	1	2				
CO3		2	3			
CO4			3	4		
CO5					5	

Mean : 2.6

MCA 4462 Embedded System (TL)(2+2) 4 Hrs/4cr

This course facilitates to gain an understanding of the overall system architecture involving hardware and software components as well as of its complex communication structures, enabling them to understand the underpinnings of modern design methodology.

Upon completing the course students will be able to

i. Understanding the concepts and development of microprocessor
ii. Exploring the TASM / MASM / NASM
iii. To know Microcontroller based system design and applications
iv. Exploring advanced micro processor
v. Knowledge upgradation on recent trends in digital design for embedded systems

Unit 1: Microcomputer Architecture 15hrs

Microcomputer architecture- The IntelCPU's-8086/8088 CPU components: Bus interface unit-execution unit - 8086 CPU registers- instruction set: addressing modes. Programmable peripheral Interface-8279 Programmable keyboard / display interface-8254 Timer – 8251A Communications interface-DMA – Interrupts - A Simple Micro Controller – Parallel I/O Ports – Serial I/O Interface – Counter Timer – Interrupt Control Mechanism - Assembly Language Programming For Micro Controllers - Micro Controllers For Embedded Systems.

Unit 2: Assembly Language 10hrs

Assembly language fundamentals: segment and end directives—data definition directives – the assume directives - Input/output services - interrupts – Dos function calls - Assembly language program development tools - editor – assembler (MASM/TASM) – linker – loader – debugger - simple assembly programs - Interfacing Assembly Language Routines to High Level Language Programmes.

Unit 3: Processor 15hrs

Introduction to ES-What is ES, Examples of ES-Inside ES : processor, memory, peripherals, software.- Embedded Processors , Memories &Peripherals ,Microcontrollers 8051 -Discrete processors : 8-bit architecture, 16/32 bit CISC, RISC, DSP-Integrated processors : ARM RISC-Choosing a processor-Memory systems : types (SRAM, DRAM, FLASH), organization, access-time, validating the contents of memory-Basic peripherals : parallel ports, timers, clocks

Unit 4: Microprocessor and Controller **10hrs**

Advanced Microprocessors - EDA tools – Coprocessors: Math Coprocessor (8087) – Microcontrollers: introduction – architecture – addressing modes. Case study: X86 compatibleVIA C7, Via Nano, AMD's Geode, Athlon Neo, Intel Atom.

Unit 5: Case Study **10hrs**

Case study on strain sensors, Temperature sensors, Pressure sensors, Humidity sensors, Accelerometers, Gyroscopes, RF MEMS Switch, phase shifter and smart sensors. Case study of MEMS pressure sensor Packaging – real time interfacing with raspberrypi -arduino board.

Textbook

1. Barry B Brey, "The Intel Microprocessor 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium and Pentium Pro Processor: Architecture, programming and Interfacing", 4th Edition, Prentice Hall of India 2011.

References

1. Carl Hamacher, ZvonkoVranesic, SafwatZaky , "Computer Organization", McGraw Hill Higher Education, Fifth Edition, 2013.
2. Douglas V Hall, "Microprocessor and Interfacing – Programming and Hardware", McGraw-Hill, 2011.
3. Muhammad Ali Mazidi, Janice GillispieMazidi, "The 8051 Micro controller and Embedded systems", Pearson Education Asia, 2002.
4. Christian Hill, Learning Scientific Programming with Python, Cambridge university press, 2016.
5. Internet Sites: www.chips.ibm.com, www.intel.com, www.nexgen.co

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3		2				
CO4			3			
CO5			3	4		6

Mean : 3

MCA 4464 OOAD and UML (TL)(4+2) 4 Hrs/4cr

This course is to enable the students to understand the existing system and to provide practical guidance on construction of Object-Oriented Systems. Here the basic concepts in systems analysis and design are introduced with emphasis to Object-Oriented Analysis and Design. UML is used for the realization of OOAD. In UML the basic structural, behavioural and architectural modellings are discussed.

Upon completion of this course students will be able to

i. Understand and apply the software development life cycle concepts.
ii. Design and Analyze systems using the design principles.
iii. Understand and Design using the Object Oriented Methodology.
iv. Understand and Apply UML for visualizing, specifying, constructing, and documenting information about software – intensive systems.
v. Model the structure of the run-time system and their physical hardware elements.

Unit 1: Introduction to Systems 15hrs

Systems - Role of System Analyst - SDLC – Feasibility Analysis – Fact Finding Techniques – SSAD - ER Diagrams – DFD – Decision Table – Decision Trees – Structured English.

Unit 2: System Design 15hrs

System Design - Application Architecture and Modelling – Database Design - Input and Output Design - User Interface Design – System Construction and Implementation – System Operations and Support.

Unit 3: System Modelling 10hrs

OOAD - Comparison of SSAD and OOAD - Modelling as a Design Technique – Object Modelling – Dynamic Modelling - Functional Modelling – Object Design – OOD Design Process.

Unit 4: Introduction to UML 10hrs

Introduction to UML – Basic Structural Modelling – Classes – Relationships Common Mechanisms – Class Diagrams – Behavioural Modelling – Interaction – Uses cases - Architectural Modelling.

Unit 5: UML Diagrams 10hrs

Component Diagrams – Deployment Diagrams – Collaboration - Case Study.

Textbook

1. Sen, “System Analysis and Design”, Tata McGraw Hill, 1989.

References

1. Jeffrey, “Structured System Analysis and Design”, Tata McGraw Hill 2002.
2. Rumbaugh, Blaha, Premerlani, Eddy and Lorensen, “Object-Oriented Modeling and Design”, PHI, 1997.
3. Booch, Rumbaugh and Jacobson, “The Unified Modeling Language User Guide”, Pearson Education, 2003.
4. Jason, “UML - A Beginners Guide”, Tata McGraw Hill, 2003.
5. Yourdon, “Object-Oriented Analysis”, Pearson Education, 2nd Edition, 2001.
6. Object- Oriented Analysis and Design with Applications, Addison-Wesley Professional, 2nd Edition, 2007.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	1	3	4	5	6
CO2		2	3	4		6
CO3		2	3			6
CO4		2	3	4		6
CO5		2	3	4		6

Mean : 3.6

MCA 4466 Lab 2- Computer Algorithms using C++ 4 hrs/4cr

This course aims at training the student to implement the following problems which includes the important Computer Algorithms.

Upon completing the course students will be able to

i. Explain different types of User Defined Functions through OOP.
ii. Create code using Reusability Techniques.
iii. Categorize different types of Polymorphism.
iv. Solve problems using different Data Structures.
v. Implement different problem solving techniques such as Divide and Conquer, Greedy Method and Dynamic Programming.

Lab cycle Objectives:

1. Different User Defined Functions.
2. Function Overloading
3. Functions with default arguments
4. Constructors and Destructor
5. Passing objects to functions
    a. By Value and By Reference
    b. Friend functions and Inline functions
    c. Call by Reference and Return by Reference
6. Operator overloading
7. Virtual Function
8. Inheritance Types
9. Function and Class Templates
10. Implementations of linear Data Structures.
11. Implementations of nonlinear Data Structures.
12. Sorting Techniques
13. Implementation of Divide and Conquer method.
14. Implementation of Greedy method.
15. Implementation of Dynamic Programming approach.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2	1	2				
CO3		2	3			
CO4				4		
CO5						6

Mean : 2.7

MCA5655 Data Science using Python (TL)(4+2) 6hrs / 6crs

This course is to enable the students to learn program and concepts acquiring programming skills in python. To Train the students to analysis and visualize the different type on Data.

Upon completing the course students will be able to

i. Built-in Data Types, introduces you to Python built-in data types
ii. Explain the modules and its features.
iii. Illustrate different type of analytic
iv. Ability to done testing ,GUI and script
v. Describe the Data Science by analysis and visualize

Unit 1: Python Basics 15hrs

Introduction to Python — Built-in data types -Control Statements-Iterations – Conditional Programming – Looping - Functions

Unit 2: Modules 20hrs

Modules- Importing module -Math module - Random module Packages – Composition-Testing – Profiling – Dealing with Exceptions – GUIs and Scripts

Unit 3: Data Science Skills 15hrs

Skills required for Data Science – Deep Dive of Analytics – Descriptive Analytics – Diagnostic Analytics – Predictive Analytics – Prescriptive Analytics – Classification – Forecasting – Recommendations – Optimization – Simulation

Unit 4: Python 20hrs

Hands on Data Analysis with Python – Manipulating Data Streams - Working with flat files - Working with unstructured files - Interacting with relational databases – Interacting with web-based data

Unit 5: Data Analysis 20hrs

Exploratory Data Analysis and Visualization with Python – Creating basic graph – Adding measurements – Graph with styles and color – Graph with annotations and legends

Textbook

1. Introduction to Computing and Problem Solving Using Python, Balagurusamy,McGraw Hill Education India Private Limited; First edition ,2017

References

1. Python for Data Science for Dummies – by Luca Massaron and John Paul Mueller

2. Think Python: How to Think Like a Computer Scientist, Allen B. Downey, Updated for Python 3, Shroff/O'Reilly Publishers,2nd edition, 2016.
3. Core Python Programming , R. NageswaraRao ,Dreamtech Press,2016
4. An Introduction to Python – Revised and updated for Python 3.2, Guido van Rossum and Fred L. Drake Jr, Network Theory Ltd., 2011

Websites

1. www.learnpython.org
2. www.codecademy.com/learn/learn-python

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		6
CO5					5	

Mean : 3.5

MCA 5557 Advanced Software Engineering 5 Hrs/5crs

This course aims to equip the students to analyse, estimate and design new software with quality standards. In this course the Essentials in Software Engineering, software processes and the various software engineering paradigms are introduced. Software testing methods and quality maintenance strategies are included.

Upon completion of this course students will be able to

i. Define diverse software application domains with different process models used in software development.
ii. Elucidate the need for software specifications and requirements with their gathering techniques.
iii. Transform requirements model into design model and demonstrate software and UI design principles.
iv. Differentiate SCM and SQA models, classify testing strategies and tactics and evaluate them.
v. Generate project schedule and construct, design and develop network diagrams for different types of Projects.

Unit 1: Introduction to Software and Software Engineering 15hrs

The Nature of Software – The Unique Nature of WebApps – Software Engineering - The Software Process- Software Engineering Practice – Software Myths – Process Models: A Generic process Model – Process Assessment and improvement - Prescriptive process Models – Specialized Process Models- Unified process - personal and team process models.

Unit 2: Modelling: Principles that guide practice 15hrs

Software Engineering Knowledge – Core Principles – Principles that guide Each Framework Activity. Understanding Requirements: Requirements engineering Establishing the Groundwork – Eliciting Requirements – Requirements Modelling: Scenarios, Information, and analysis Classes: Requirements Analysis- Scenario-Based Modelling - UML Models that supplement that use case – Data Modelling Concepts– Class-Based Modelling.

Unit 3: Design Concepts 15hrs

Design with the Context of software Engineering – The Design Process – Design Concepts – The design Model. Architecture Design: Software Architecture- Architecture Genres – Architecture Styles - Architecture Design. QUALITY MANAGEMENT: Quality Concepts: What is quality? – Software Quality –The Software Quality Dilemma – Achieving Software Quality.

Unit 4: Software Testing Strategies **15hrs**

A Strategic Approach to Software Testing- Strategic Issues – Test Strategies for Conventional Software – Validation Testing – System Testing – Testing Conventional Applications - Software TestingFundamentals – Internal and External Views of Testing – White Box Testing – Basis Path Testing – Control Structure Testing - Black Box Testing.

Unit 5: Managing Software Products **15hrs**

Project Management Concepts: - The Management Spectrum – People – The Product –The Process – The Project – The W5HH Principle – Critical Practices. Project Scheduling: Basic Concepts - Project Scheduling – Scheduling. Risk Management: Reactive versus Proactive Risk Strategies - Software Risks – Risk Identification - Risk Projection – Risk Refinement.

Textbook

1. "Software Engineering a Practitioner's Approach", Roger S. Pressman, McGraw – Hill International Edition, Seventh Edition 2013.

References

1. Roger S Pressman, " Software Engineering -A Practical Approach" Tata McGraw Hill, 7th Edition, 2013
2. Stephen R Schach, " Object Oriented and Classical Software Engineering", Tata McGraw Hill, 8th Edition,2010
3. Watts S Humphrey, "A Discipline for Software Engineering", Pearson Education, 2001.
4. Boriz and Beizer, "Software Testing Techniques", DreamTech, 2nd Edition, 2000.
5. "Software Engineering", Ian Sommer Ville, Pearson Education, Nineth Edition, 2011.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2	3			
CO2		2	3	4	5	6
CO3			3	4	5	6
CO4		2	3	4		
CO5	1	2	3	4	5	

Mean : 3.4

MCA 5559 Advanced Java Programming 5hrs/5cr

This course aims at developing the students to understand the power of Java and make them develop Web Applications using Java Servlet, JSP and create J2EE applications and also create database connectivity using JDBC.

Upon completion of this course students will be able to

i. Develop simple java programs to demonstrate OOPs concepts.
ii. Define Web Basics and Java Servlets
iii. Explain Java Server Page features & database connectivity using JDBC
iv. Analyze Enterprise architecture
v. Create Java Applications using the features learnt.

Unit 1: Core Java 15hrs

Introduction -Genesis of Java- Types of Java applications – Java Virtual Machine - Data types, Variables - Control statements - Arrays – String – Classes and Objects - Methods – Constructors - Inheritance - Interfaces - Packages – Exception Handling - to AWT - Java Applets- Life Cycle of An Applet – AWT controls **-:** Introduction to Java Foundation Classes(JFC) – Swings.

Unit 2: Introduction to Java Servlets 15hrs

Java Server Technologies - Basics of Web Application, Architecture and challenges of Web Application, Introduction to servlet, Servlet life cycle, Developing and Deploying Servlets, Exploring Deployment , Descriptor (web.xml), Handling Request and Response Tracking Session.

Unit 3: JSP & Database Connectivity 15hrs

JSP Architecture ,JSP Standard / Implicit Objects, JSP Page Implementation Class, JSP Basics & Syntax, JSP Directive Tags, JSP Action Tags, JSP Script related Tags, Using Java Beans from JSP, UseBean Tag, setProperty Tag, getProperty Tag, JSP Custom Tag Library. Database Programming using JDBC Introduction to JDBC, JDBC Drivers & Architecture, CURD operation Using JDBC, Connecting to non-conventional Databases.

Unit 4: J2EE Architecture 15hrs

J2EE Platform Introduction -Enterprise Architecture Styles - J2EE Architecture - J2EE Technologies -Developing J2EE Applications - Naming and directory services - Application Servers - Implementing the J2EE Specifications - J2EE packaging and Deployment - J2EE packaging overview - Configuring J2EE packages.

Unit 5: Struts **15hrs**

Basics of Struts, Core Components, Struts Action, Struts Configuration, Interceptors, Struts Validation, Aware Interfaces, Zero Configuration, Struts with Tiles2, Hibernate with Struts, spring with Struts, Project Development in Struts.

Textbooks

1. Patrick Naoghton and Herbert Schidt, “The Complete Reference - JAVA” 9th Edition Tata McGraw Hill, 2014.
2. John Hunt and Chris Loftus, “Guide to J2EE: Enterprise Java”, 2nd Edition, Springer, 2012

References

1. Santosh Kumar K., Kogent Solutions Inc., Santosh Kumar K. And Kogent Solutions Inc, “Jdbc Servlets, And Jsp Black Book,” New Edition (With Cd) ,Dreamtech Press, 2008
2. Bryan Basham, Kathy Sierra, Bert Bates, “Head First Sevlets and JSP: Passing the Sun Cetified Web Component”, 2nd edition, O'Reilly Media, 2008
3. Kogent Solutions Inc, “JAVA SERVER PROGRAMMING , JAVA EE5”, 1st edition, Dreamtech Press, 2008.
4. Ted Husted Cedric Dumoulin, “Struts in Action”, 1st edition, Manning – Dreamtech Press, 2007.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5						6

Mean : 3.2

MCA 5661 Computer Networks(TL)(4+2) 6hrs/6cr

In order to play role in this era network-based computing, student must have a thorough understanding of these emerging networking technologies and applications.

Upon completion of this course students will be able to

i. Basic Networking Concepts
ii. Fundamental Radio Propagation Waves
iii. Basic wireless networking concepts: Wifi, MAC protocols, mobile networking, 5G MILLI METER WAVES, ULTRA DENSE NETWORKS.
iv. Network function virtualization and software defined networking
v. Machine Learning Assisted Networking.

Unit 1: OSI Model 20hrs

Uses of computer networks – Network hardware – Network software – Reference models – The OSI Reference models – The TCP / IP Reference– A comparison of the OSI and TCP Reference models – Example networks – Novell NetWare, The ARPANET – NSFNET – The Internet – X.25 networks – network standardization.

Unit 2: Application Layer 15hrs

Fourier analysis – Bandwidth limited signals – The maximum data rate of a channel – Transmission media –Wireless transmission – The telephone system – Structure of the telephone system – The local loop – Cellular radio – Communication Satellites.

Unit 3: Network Layer 20hrs

The channel allocation problem – Multiple accesses protocols – IEEE standard for LANS and MANS – Bridges – High speed LANS – Satellite networks - Data link layer design issues – error detection and correction elementary data link protocols. Network layer design issues – Routing algorithms –congestion control algorithms-internetworking- Internet layer in the internet.

Unit 4: Transport Layer 15hrs

The transport – The transport service – Elements of transport protocols – A simple transport protocol - Network security – Domain Name system – Electronic Mail – USENET NEWS – The World Wide Web – Multimedia - Distributed processing

Unit 5: Data Link Layer 20hrs

Connectivity of vehicles : protocols AND frameworks – Security trust safety and privacy - Information Security –homomarphic encryption for cloud computing – Adhoc and deterministic network for mobility challenges and limitations relating to VANET and MANET- Sensor technologies and networks – ambient Intelligence in the network.

Textbook

1. Andrew S Tanenbaum, “Computer Networks”, Prentice Hall of India private Ltd., New Delhi 3rd edition, 2013

References

1. John Freer Pitman, “Computer Communication and Network”, Computer system series, 2010.
2. Sitnie, “Computer Network (TCP/IP), Tata McGraw Hill, 2011.
3. Willams Stallings, “Data & computer communications”, Pearson Education Asia, Sixth Edition, 2012.
4. RS Rajesh, KS Easwarakumar, R Balasubramanian, “Computer Networks-Fundamentals and Applications”, 12th Edition, Vikas Publications, NewDelhi, 2012.

Lab Exercises

1. Implementing a simple client/server application using sockets and TCP/IP
2. Using of open SSH
3. Port forwarding
4. Sniffing
5. Proactive filtering of weak pass words and salting passwords
6. Using open SSH for communication confidentiality and integrity
7. Using open SSL to set up a simple certifying authority
8. Issuing and verifying certificates to avoid MITM attacks
9. Setting up of a firewall
10. Setting up of IP Sec virtual private network (VPN)
11. Packet capturing and packet replay attack
12. ARP spoof, DNS spoof attacks- man in the middle attacks demonstration
13. Logic for brute force attacks
14. Program that using hashing technique. Encryption and Decryption of file program.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean : 3

MCA 5463 Lab -3 Java Programming 4 hrs/4 crs

This course is to train the student to develop problem solving abilities and facilitate them to build the necessary skill set and analytical abilities for developing java based software for real life problems.

Upon completion of this course students will be able to

i. Develop simple java servlets to handle forms, session and Cookies.
ii. Construct programs using JSP, create user defined tags and bean applications
iii. Establish database connectivity and perform DDL, DML operations.
iv. Understand Enterprise architecture and create ee applications
v. Write programs using Struts.

Lab Components

1. Implementation of Array and flow control statement.
2. Write a Java program to count the letters, spaces, numbers and other characters of an input string.
3. Demonstrate the use of constructor or destructor.
4. Implementation of forms using servlet.
5. Develop Session handling using 4 different methods (Cookies, Hidden form field, URL rewriting and HttpSession
6. Demonstrate the advantages of JSP over Servlets.
7. Form handling in JSP
8. Create user defined Tags and demonstrate the same.
9. Write Java bean applications.
10. Create Java database connectivity
11. Perform DDL operations.
12. Perform DML Operations.
13. Develop applications – J2EE, J2ME and JNDI.
14. Design applications using Struts

Bloom Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3		5	
CO2				4		6
CO3		2				6
CO4					5	6
CO5						6

Mean : 4.8

MCA 5456 Dot Net Programming 4hrs/4cr

The aim of the course is to understand the fundamental concepts of .NET framework and its merits over other programming languages, it will enable the students to develop desktop applications and web applications.

Upon completion of this course students will be able to

i. Define .net technology and its salient features
ii. Explain the attributes of vb.net and write programs.
iii. Perform database connectivity with vb.net and ado.net
iv. Compare the properties of C# with vb.net and C++.
v. Create simple application systems using .net.

Unit 1: Dot Net Technology 10hrs

Introduction - .Net revolution - Building blocks of .Net, overview of .Net applications .Net framework and its architecture Intermediate Language(IL), Common Language Runtime (CLR), JIT Compilation, Common Type System (CTS), Common Language System (CLS), Assemblies –Components of Assembly – DLL hell and Assembly Versioning

Unit 2: VB.NET 15hrs

Introduction to VB.Net – and features of VB.NET- Arrays - procedures –scope – built-in functions – classes and objects – features of oops –constructors and destructors – creating property procedures – creating events – namespaces – import keyword - Inheritance, Polymorphism and Interfaces – overriding methods and properties – MyBase Keyword – MyClass Keyword – Abstract Base Classes – Shared members.

Unit 3: ADO.NET 10hrs

Working with forms – Inheritance in windows forms – loading and showing forms –visual inheritance – adding controls – layout enhancement properties of controls – working with simple controls – adding menus – context menus - delegates -overview of ADO.Net – ADO.NET Architecture – ADO.NET Components – Using ADO.NET – Data form wizard Components and Interoperability.

Unit 4: C#.NET 10hrs

Overview to C# - C # Compilation and Execution Process – C# Fundamentals (Data types, Operators, Programming constructs) –Inheritance –Sealed Classes – Interface - Polymorphism – Method Hiding – C# Property –Exception Handling.

Unit 5: ASP.NET **15hrs**

ASP.Net- IIS - ASP.Net Page Life Cycle – ASP Vs ASP.Net - HTML Controls Vs Server side Controls –Validation Controls – Data binding in ASP.Net – Caching – Configuration in ASP.Net (web.config) –Session management – View State in ASP.Net.

Textbook

1. Kogent Learning Solutions Inc., ".NET 4.5 Programming 6-in-1, Black Book", 1 st edition, Dreamtech Press, 2013.

Reference

1. EvangelosPetroutsos, "Mastering Visual Basic .NET" 3d Edition, SYBEX, 2006
2. Bill Hamilton, "ADO.NET 3.5 Cookbook: Building Data Centic .net Applications", 2nd edition , O'Reilly, 2008.
3. Joseph Albahari, Ben Albahari, "C# 7.0 in a nutshell: The Definitive Reference", 1st edition, O'Reilly Media, 2017.
4. Dino Esposito, "Programming ASP.NET Core (Developer Reference)", 1st edition, Microsoft Press, 2018.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	6

Mean : 3.6

MCA 5558 Data Mining and Warehousing 5 Hrs/5cr

The aim of the course is to enable the students to understand the basic concepts of data mining and its classification along with its applications. It introduces data mining and data warehousing and its architectures, Tasks under data mining, Association Rules, Classifications of data mining and Application in data mining.

Upon completion of this course students will be able to

i. Understand the basic functionalities and concepts of data mining and data warehousing.
ii. Analyse the need for data pre-processing and various steps involved in it.
iii. Categorize the methodologies and algorithms and be familiar with association rule mining techniques and constraint based association mining.
iv. Analyse the usages of Decision tree Algorithm, Bayesian Classification and Back Propagation techniques.
v. Understand Clustering and Outline the applications and trends in Data mining.

Unit 1: Introduction to Data Mining and Data Warehousing 15hrs

Introduction – Data mining – Data mining functionalities – kinds of patterns can be mined – classification – major issues. Data warehouse – A multidimensional data model – Data warehouse architecture – Data warehouse implementation – From data warehouse to data mining

Unit 2: Data Pre-Processing 15hrs

Data pre-processing – Data cleaning – Data Integration and Transformation – Data Reduction – Discretization and concept hierarchy generation – Data mining primitives – Data mining Task – A data mining query language - Architecture of Data mining systems – Characterization and comparison

Unit 3: Association Rule Mining 15hrs

Association Rule Mining – Mining single dimensional Boolean association rules from transactional databases – mining multilevel association rules from transaction databases- mining multidimensional association rules from Relational databases and Data warehouses – From association mining to correlation analysis

Unit 4: Classification and Prediction 15hrs

Classification and prediction – Issues regarding classification and prediction – classification by decision Tree Induction – Bayesian Classification – Classification by Back propagation – classification based on concepts from association rule mining – prediction – classifier accuracy.

Unit 5: Clustering and Trends in Data Mining 15hrs

Clustering – Introduction to types of Clustering - Applications and Trends in Data Mining – Data mining system products and Research prototypes – Additional themes on Data mining – Social Impacts of Data Mining – Trends in Data mining.

Textbook

1. Jiawei Han, MichelienKamber, “Data Mining Concepts and Techniques”, 3rd Edition, 2014.

References

1. Arun K. Pujari, “Data Mining Techniques”, Universities Press (India) Limited,2 nd Edition, 2013.
2. Alex Berson, Stephen j Smith , Data Warehousing ,Data mining and OLAP (Data warehousing / Data Management) , McGraw Hill 2012.
3. George M Marakas, Modern Data warehousing, Mining and Visualization: core concepts, PrienticeHall , First Edition, 2002
4. John Wang, Encyclopaedia of Data warehousing and Mining, Idea Group Publishing, 2009.
5. Shawkat Ali A B M, Saleh A. Wasimi, “Data Mining: Methods and Techniques ,Third Indian Reprint, Cengage Learning, 2010.
6. Soman K. P., ShyamDiwakar, Ajay V. “Insight into Data Mining Theory and Practice” , Fifth Printing, PHI Learning, 2011.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3	4		
CO3		2	3	4		
CO4			3	4		
CO5			3	4		6

Mean : 3.2

MCA 5460 Soft Computing 4 Hrs/4cr

The aim of this course is to provide the basic idea about Fuzzy sets and fuzzy logics. It also discusses the operations and applications of fuzzy logics. Introduces various ANN structures such as feed forward with back propagation, Counter propagation networks, Hopfield nets, BAM structure and ART architecture.

Upon completion of this course students will be able to

i. Recall the difference between Crisp and Fuzzy sets and recognize Fuzzy Operations.
ii. Design Fuzzy Based Applications.
iii. Compare and contrast Biological and Artificial Neurons and explain the basic ANN algorithm.
iv. Assess different ANN training algorithms
v. Design Recurrent Networks and Elaborate ART architecture

Unit 1: Introduction to Soft Computing 10hrs

Soft Computing: Meaning and Features - Introduction to Fuzzy Logic - Fuzzy set – Fuzzy Set versus Crisp set – Operation on Fuzzy Sets – Fuzzy Arithmetic - Fuzzy relations.

Unit 2: Fuzzy Set 10hrs

Constructing Fuzzy Sets and Operations on Fuzzy Set – Fuzzy rule based system: Fuzzy propositions – formation - decomposition& aggregation of fuzzy rules, fuzzy reasoning, fuzzy inference systems, fuzzy decision making & Applications of fuzzy logic.

Unit 3: Neural Networks 15hrs

Why Neural Networks? - Characteristics of ANN – Training of ANN – Activation function – Multilayer networks - Back Propagation – The training algorithm, Forward pass, reverse pass, Adjusting weights – Advanced Algorithms – Applications.

Unit 4: Propagation 15hrs

Counter Propagation Networks – Network Structure – Kohonen layer – Training, Interpolative Mode - The Grossberg Layer – An Application. Statistical methods – Training applications - Boltzmann Training - Cauchy Training.

Unit 5: Art 10hrs

Hopfield Nets – Recurrent Network Configuration, Stability, Associative Memory BAM - Adaptive Resonance Theory – ART Architecture

Textbook

1. Phillip D Wasserman – Neural Computing Theory and Practice – Van Nostrand Reinhold Publications, Newyork, 1989.

References

1. Valluru Rao, Haya Griva Rao and Valluru B Rao – C++ Neural Networks and Fuzzy Logic – Addison Wesley, 1999.
2. Stamastios V Kartalopoulos – Understanding Neural Networks and Fuzzy Logic Basic Concepts and Applications – IEEE press, PHI publications, 1996.
3. Klir, GJ, Youan Bo, "Fuzzy Sets and Fuzzy Logic", Prentice Hall, 2012.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2						6
CO3		2				
CO4					5	6
CO5						

Mean : 4

MCA 5462 Lab -4 Dot Net Programming 4hrs/4cr

This course aims at training the students to develop simple desktop and web applications using Dot Net Technology.

Upon completion of this course students will be able to

i. Recall simple programs and write programs on various concepts of VB.NET
ii. Restate VB.NET forms
iii. Apply ADO.NET on VBNET forms
iv. Illustrate OOPS concepts in C#.net
v. Design web pages in ASP.NET

Lab Exercises

1. Create Simple application using web controls
2. Use of calendar control, Tree view control & Validation controls
3. Query textbox and Displaying records & Display records by using database
4. Implement Single Inheritance and Overloading and Overriding
5. Explore the use of MyBase and MyClass
6. Data binding using data list control.
7. Data binding using data grid & Data grid control template
8. Inserting record into a database & Deleting record from a database
9. Create a complete system for student database
10. Implement Inheritance, Polymorphism in C#.NET
11. Implement Operator Overloading using C#.NET
12. Design a simple web page
13. Create an Digital Advertisement
14. Implement Data Connectivity in a web page
15. Handle Validation Operations in ASP.NET.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3			
CO3			3	4		
CO4				4	5	
CO5					5	6

Mean : 3.5

MCA 5964 Project Viva Voce 9hrs/4cr

This course is to encourage the students to develop a Real Time Application for client with the guidance of internal and external faculty.

Upon successful completion of the course the students will be able to

i. Identify the company's software technology and methodologies
ii. Develop the software projects by understanding the client requirement
iii. Evaluate and analyse the SDLC, understand software design, coding techniques and software testing principle
iv. Analyse a given problem and develop an algorithm to solve the problem
v. Implement the various programming languages like C, C++, VB. Net, Java Construct in the right way

Evaluation Pattern

Internal (3 Presentations) -75 marks
External (Final Presentation and Viva Voce) - 25 marks

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2						6
CO3					5	
CO4			3			
CO5						6

Mean : 4.2

MCA 0440 Android programming (TL) (2+2) 4hrs/4cr

The aim of this course is to understand the theory as well as practical knowledge of mobile computing using android.

Upon completion of this course students will be able to

i. Describe the features of the WAP
ii. Discuss the Introduction to Android
iii. Construct the different buttons and menus
iv. Illustrate different types of layout
v. Creating different type of view

Unit 1: Wap Overview 15hrs

Overview of the WAP – Components of WAP standard – WAP architecture – Design principles- Design

Unit 2: Android Architecture 10hrs

Introduction to Android – Android Architecture –Features – Applications - Versions – Flavours - Building the project.

Unit 3: Controls 10hrs

User Interface Architecture –Activity life cycle - Intents – Services – Content providers - UI Widgets – Text controls –Button controls – Toggle buttons – Menus – Options menu – Context menu – popup menu.

Unit 4: Layout 10hrs

Layout manager – Relative layout – Linear layout - Table layout – Grid layout – Adaptor – Array adaptor – ArrayList adaptor – Base adaptor – Lists.

Unit 5: Viewing 15hrs

View – Grid view – Web view – Scroll view – Search view – Dynamic list view – Expanded list view – Working with data storage – Shared preferences – Preferences activity – Files access – database connectivity using SQLite. App Development.

Textbook

1. Learning Android, Marko Gargenta, Masumi Nakamura, O'Reilly, 2nd edition, 2014.

References

1. Principles of Mobile Computing, UweHansmann, LotharMerk, Martin S.Nicklous and Thomas Stober , Springer Professional Computing, 2nd Edition, 2008.
2. Mobile Computing Theory and Practice, KumKumGarg, Pearson Education, illustrated edition, 2010.
3. Mobile Computing and Wireless Communications, Amjad Umar, NGE Solutions, 2004.

Websites

1. www.edunotes.in/mobile-computing
2. www.tutorialspoint.com/android.
3. www.javapoint.com/android.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4		
CO4					5	
CO5						

Mean : 3

MCA 0441 Artificial Intelligence 4 hrs/4cr

The primary objective of this course is to introduce the basic principles, techniques, and applications of Artificial Intelligence. Emphasis will be placed on the teaching of these fundamentals, not on providing a mastery of specific software tools or programming environments.

Upon completion of this course students will be able to

i. Formulate the AI problem using strategies
ii. To solve different problems using AI algorithm
iii. Formulate a given problem in the language/framework of different AI methods.
iv. Illustrate knowledge base system
v. Classify the expert systems

Unit 1: Introduction to AI 12hrs

Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics - Specialized production system.

Unit 2: AI Algorithms 13hrs

Problem solving methods – Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breath first, Constraints satisfaction – Related algorithms, Measure of performance and analysis of search algorithms

Unit 3: Knowledge Representation 13hrs

Game playing – Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

Unit 4: Rules of Inference 11hrs

Knowledge representation -Production based system, Frame based system. Inference – Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning – Certainty factors, Bayesian Theory-Bayesian Network- Dempster – Shafer theory.

Unit 5: Expert Systems 11hrs

Expert systems – Architecture of expert systems, Roles of expert systems – Knowledge Acquisition – Meta knowledge, Heuristics. Typical expert systems – MYCIN, DART, XOON, Expert systems shells. Introduction to Deep Leaning.

Textbook

1. Stuart Russel and Peter Norvig, "Artificial Intelligence – A Modern Approach", Pearson Education, 2010.

References

1. David W. Rolston, "Principles of Artificial Intelligence and Expert System Development", McGraw Hill Book Company, 1988.
2. Elaine rich, Kevin Knight, "Artificial Intelligence", Tata McGraw Hill.
3. Carl Townsend, "Introduction to Turbo Prolog", 2nd Edition, Sybex Inc, 1987.
4. Stamations V. Kartalopous, "Understanding Neural Networks and Fuzzy Logic", Wiley Press, 1995.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	6

Mean : 3.5

MCA 0442 Computer Graphics (TL)(2+2) 4hrs/4cr

The course aims to provide knowledge and understanding in the fundamental principles of Computer Graphics and Mathematical concepts related to Computer graphical operations. To provide in-depth knowledge of display systems, image synthesis and shape modeling of 3D applications.

Upon completion of this course students will be able to

i. Recall display devices, Line and circle drawing algorithms
ii. Interpret 2d transformations and clipping on images
iii. Apply 3D concept on objects and surface.
iv. Analyse 3D transformation and Projection
v. Create a real life picture with fractals

Unit 1: Computer Graphics Algorithms 10hrs

Introduction to Computer Graphics: Display devices - Hard copy devices – Interactive input devices Graphics System, Application of computer graphics - Line Drawing Algorithms- Circle Generating Algorithms- ellipse generating -Scan-Line Polygon

Unit 2: 2D Transformations and Clipping 15hrs

Two dimensional Geometric Transformations - Composite Transformations -Transformations between Coordinate Systems Raster methods for Transformations- Two Dimension Viewing. TWO-Dimension Viewing- Clipping- Line Clipping- Polygon Clipping – Text Clipping.

Unit 3: 3D Representation 15hrs

Three Dimensional Concepts- Three Dimensional Display Methods viewing – Three Dimensional Object Representations – Polygon Surfaces- Polygon Tables-Polygon Meshes- Bezier Curves - Bezier Surfaces- Sub Division Method – Octrees - BSP Trees.

Unit 4: Projections 10hrs

Three Dimensional Transformations – Projection - Parallel Projection - Perspective Projection Hidden Surface and Hidden – Line Removal-Classification of Algorithms – Back Face Removal – Depth Buffer Method – Scans Line Method

Unit 5: Fractals 10hrs

Fractals : Fractals and Self similarity – Peano curves – Creating image by iterated functions – Mandelbrot sets – Julia Sets – Random Fractals – Overview of Ray Tracing – Intersecting rays with other primitives – Adding Surface texture – Reflections and Transparency – Boolean operations on Objects

Textbook

1. Computer Graphics by Donald Hearn and M Pauline Baker PHI Publications 2013.

References

1. Principles of Interactive computer graphics – William M. Newman & F Sproull.
2. Steven Harrington. Computer Graphics McGraw Hill International Edition 2nd Edition, 1987.
3. Edward Angel, DaveShreiner, "Interactive Computer Graphics: A Top Down Approach with Webgl", 7th Edition, Pearson, 2014
4. Steven J Gortler, "Foundations of 3D Computer Graphics", 1st edition, MIT Press 2012

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean : 3

MCA 0443 BIG DATA ANALYTICS 4Hrs/4cr

The aim of the course is to explore the fundamental concepts of Big Data Analytics, and analyse the big data using intelligent techniques, and facilitate them to understand various search methods and visualization techniques, and help them to employ the various techniques for mining data stream, and understand the applications using analytics tools to solve big data problems.

Upon completion of this course students will be able to

i. Explain the challenging nature of big data and differentiate it with existing technologies.
ii. Design strategies to collect, manage, store, query, and analyze various datasets.
iii. Develop hands-on experience on large-scale analytics tools to solve big data problems.
iv. Understand the impact of big data in business decisions and strategy designing.
v. Exhibit New skills in Big data analytics

Unit 1: Big Data in the Enterprise 10hrs

Big Data in the Enterprise: Search at Scale- Multimedia Content-Sentiment Analysis- Enriching and Contextualizing Data- Data Discovery or Exploratory Analytics- Operational Analytics or Embedded Analytics- Realizing Opportunities from Big Data- Taming the “Big Data”. The New Information Management Paradigm: What Is Enterprise Information Management?- New Approach to Enterprise Information Management for Big Data- Implications of Big Data to Enterprise IT.

Unit 2: Big Data implications for Industry 10hrs

Big Data Implications for Industry: The Opportunity- Big Data Use Cases by Industry Vertical. Emerging Database Landscape: The Database Evolution- TheScale-Out architecture Database Workloads- Database Technologies for Managing the Workloads- Columnar Databases- Requirements for the Next Generation Data Warehouses- Polyglot Persistence: The Next Generation Database Architecture.

Unit 3: Architecture for Big Data and Analytics 15hrs

Application Architectures for Big Data and Analytics: Big Data Warehouse and Analytics- Big Data Warehouse System Requirements and Hybrid Architetures-Enterprise Data Platform Ecosystem- BDW and EDW- How Does Traditional Data Warehouse processes map to tools in Hadoop Environment- How Hadoop Works- The Hadoop Suitability Works- Additional Considerations for Big Data Warehouse- Big Data and Master Data Management- Data quality Implications for Big Data- Putting it all Together- A Conceptual BDW Architecture.Data Modelling Approaches for Big Data and Analytics Solutions: Understanding Data Integration Patterns- Big Data Workload Design Approaches- Map-Reduce Patterns, Algorithms, and Use Cases- No SQL Data Modelling Techniques.

Unit 4: Big Data Analytics Methodology **15hrs**

Big Data Analytics Methodology: Challenges in Big Data Analysis- Big Data Analytics Methodology- Analyze and Evaluate Business Use Case- Develop Business Hypotheses. Extracting Value from Big Data: In Memory Solutions, Real Time Analytics, And Recommendation Systems: Building a Recommendation System.

Unit 5: Data Scientist **10hrs**

Data Scientist: The New Skill: Data Scientist- The Big Data Workflow- Design Principles for Contextualizing Big Data- A Day in the Life of a Data Scientist.

Textbooks

1. "Big Data Principles and best practices of scalable real time data systems" Nathan Marz, James Warren Dreamtech Press Edition, 2015.
2. "Big Data Analytics: Disruptive Technologies for Changing the game", Dr. Arvind Sathi, Elsevier, 2013, ISBN 978-1-58347-380-1.

References

1. Michael Berthold, David J. Hand, "Intelligent Data Analysis", Springer, 2007.
2. Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, "Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data", 1st Edition, Tata McGrawHill, 2012.
3. Anand Rajaraman, Jeffrey David Ullman, "Mining of Massive Datasets", Cambridge University Press, 2012.
4. Bill Franks, "Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics", John Wiley & sons, 2012.
5. Glenn J. Myatt, "Making Sense of Data", John Wiley & Sons, 2007.
6. Pete Warden, "Big Data Glossary", O'Reilly, 2011.
7. Da Ruan, Guoquing Chen, Etienne E.Kerre, Geert Wets, "Intelligent Data Mining", Springer, 2007.
8. Michael Minelli (Author), Michele Chambers (Author), Ambiga Dhiraj (Author), Big Data, "Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley Publications, 2013.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**	**2**				
CO2	**1**	**2**	**3**			
CO3		**2**	**3**	**4**		**6**
CO4		**2**	**3**	**4**	**5**	
CO5			**3**			**6**

Mean : 3.1

MCA 0444 Biometrics 4 Hrs/4cr

The aim of this course is to enable the student to understand the security and authentication methods available in biometrics techniques such as finger prints, hand print, face, Iris, Retina, and voice recognition and the technology behind them.

Upon completion of this course students will be able to

i. Exploring the biological characteristics
ii. Individual physically and behaviourally distinctive in a number of ways
iii. Making them to understand technology uses and applications
iv. Exploring with the scientific basis of biometrics
v. Enhancing the security by combining more than one

Unit 1: Introduction 10hrs

Biometrics – Introduction- Verification vs Identification – Applications – Facts other common Biometric characteristics. Finger print technology - Technical Description – Finger print security characteristics – Technology uses and applications increased or decreased costs.

Unit 2: Face Recognition 15hrs

Face Technology – Technical Description – Face Recognition security characteristics – Face Technology uses - Face Technology considerations – Network product commonalities. Iris and Retina Vascular Pattern Technology – Technical Description- Technology uses and applications- Implementation criteria – Increased or Decreased costs – Sample product.

Unit 3: Signature 10hrs

Other Physical Biometrics – Hand Scan Geometry – Hand Print Biometrics – DNA Biometrics – Signature And Hand Writing Technology – Technical Description – Classification – Technology Uses And Applications.

Unit 4: Voice Recognition 15hrs

Voice Recognition – The speaking voice and factors to consider – How vowels are formed – Rules for modifying vowels – Spectral Analysis – Factors influencing fundamental frequency – Voice qualities and Recognizing Distinctiveness.

Unit 5: Authentication 10hrs

Multi-biometrics and Two factor authentication – Executive decision – Establish goals – Need analysis – Selection criteria – Ripple security logic – Selection process – Implementation Plan.

Textbook

1. John D Woodward Jr, Nicholos M Orlans and Peter T Higgins, “Biometrics”, Osborne Publications, 2003.

References

1. Julian Ashbourn, “Practical Biometrics: From Aspiration to Implementation”, Springer Professional Computing, 2001.
2. RundBolleJohnathan, H. Connell, Nalini K Ratha, “Guide to Biometrics” Springer Professional Publications, 2000.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean : 3

MCA0445 Compiler Design 4 Hrs /4cr

This course is to enable the students to understand the basic concepts in compiler construction. Fundamental concepts in compilers, structure of the compiler and the tools to write compilers are introduced. Internal process mechanism in a compiler is included. Parsing techniques and Translation schemes are introduced.

Upon completion of this course students will be able to

i. Understand the different phases of compiler.
ii. Design a lexical analyzer for a sample language.
iii. Apply different parsing algorithms to develop the parsers for a given grammar.
iv. Describe syntax-directed translation and run-time environment.
v. Discuss to implement code optimization techniques and a simple code generator.

Unit 1: Introduction 15hrs

Introduction To Compilers – Structure of a compiler – Lexical Analysis – Role of Lexical Analyzer – Input Buffering – Specification of Tokens – Recognition of Tokens – Lex –Finite Automata – Regular Expressions to Automata – Minimizing DFA.

Unit 2: Parsers 15hrs

Parsers – Shift-reduce parsing – Operator-precedence parsing – Top-down parsing – Predictive parsers – LR Parsers – The canonical collection of LR (0) items- Constructing SLR parsing tables – Constructing canonical LR parsing tables – Constructing LALR parsing tables – Using ambiguous grammars – An automatic parser generator – Implementation of LR parsing tables – Constructing LALR sets of items.

Unit 3: Syntax 10 hrs

Syntax-directed translation schemes – Implementation of syntax-directed translators – Intermediate code – Postfix notation

Unit 4: Symbol 10 hrs

Three-addresses code, quadruples and triples – Postfix translations – The contents of a symbol table – Data structures for symbol tables – Representing scope information.

Unit 5: Lexical and Semantic 10hrs

Errors – Lexical-phase errors – Syntactic-phase errors – Semantic errors – The principal sources of optimisation – Loop optimization – The DAG representation of basic blocks – Object programs – Problems in code generation – A simple code generator – peephole optimization.

Textbook

1. Aho AV, Ullman JD, Principles of Compiler Design, Narosha Publications, 1999.

References

1. William A Bar, RM Bates, DA Gustaf, John D. Couch, “Compiler Construction”, Galgotia Publications 2000
2. V. Raghavan, Principles of Compiler Design‖, Tata McGraw Hill Education Publishers, 2010

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3				4		
CO4			3			
CO5					5	

Mean : 3

MCA 0446 Multimedia and Applications (TL)(2+2) 4Hrs/4cr

This course gives a detailed study of the multimedia systems and the technologies that support the components of multimedia. Hands on training will be given on multimedia applications with the help of Sound Forge, Movie Maker and macro media FlashMX. Advanced concepts of action script in flash will be implemented.

Upon completion of this course students will be able to

i. Recall Distributed Multimedia Systems and the components of Multimedia.
ii. Summarize the need and requirements of Continuous Multimedia Systems.
iii. Develop Audio and Video applications using Authoring Tools.
iv. Create interactive media applications using basic animation techniques in Flash.
v. Build interactive Forms using Action Script and the Objects in Flash.

Unit 1: Introduction 14hrs

Uses of multimedia information – Architectures and issues for distributed multimedia systems – Digital Audio representation and processing - Video Technology - Digital video and Image Compression - Time based media representation and delivery.

Unit 2: Middleware 12 hrs

Operating System support for continuous media applications – Middleware system services - Architecture - Multimedia file systems and information models - Multimedia services over the public network – Knowledge based Multimedia systems.

Unit 3: Audio 14hrs

Introduction to Sound Forge - Non-linear editing: meaning and process -sequencing -Audio Editing Tools - Process of equalization -Applying effects to sound - Audio Mixing - Introduction to Movie maker- Design, create and edit a movie using Movie maker - import audio clips into Movie Maker.

Unit 4: Flash 10hrs

Introduction to Flash MX - Animation Techniques in Flash MX - Action Scripts - constructs – Functions - Objects – Understanding Text usage - Predefined objects.

Unit 5: Forms 10hrs

Using and building Components – Data driven Flash solutions – scrolling, dragging, making menus, dynamic drawing, Using Forms.

Textbook

1. John F Koegel Buford, “Muiltimedia Systems”, Pearson Education, 2001.

References

1. James E Shuman, “Multimedia in Action”, Vikas Publications, 2001.
2. Robert Reinhardt and Joey Lott, “Flash Action Script Programming Bible”, John Willey Dream Tech Publications, 2002.
3. “Macro Media Director 8.5 Shockwave studio user manual”, Macromedia Publications, 2002.
4. Derek Franklin and Jobe Makar, “Flash MX Action scripting training from the source”, Macromedia Press, 2003.
5. Colin Moock, “Action Script for Flash MX”, Oreilly publications 2nd Edition, 2002.
6. Gary Rosenweig, “Special Edition Using Macromedia Director MX”, QUE Publications, 2003.

Blooms Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4						**6**
CO5						**6**

Mean : 3.6

MCA0447 Parallel computing 4Hrs/4cr

The aim of the course is to enable the students to understand OpenCL standard for programming heterogeneous computers built from CPUs, GPUs and other processors. Using OpenCL to write task-based and data-parallel programs to realize the advantage of these different types of processors in a single system.

Upon completion of this course students will be able to

i. Exploring the parallel computing knowledge
ii. Making them to design software using suitable searching technique.
iii. Exploring Graph algorithm to speed up the processing.
iv. Students to develop program compatible to any gadgets.
v. Develop to optimize the memory usage

Unit 1: Introduction 10hrs

Introduction - Need for Parallel Computing - Scope of Parallel Computing – Issues in Parallel Computing - Models of Parallel Computing - Taxonomy of Parallel Architectures - Dynamic Interconnection Networks - Static Interconnection Networks - Message Transfer - Reduction, Parallel Prefix - GPU thread model

Unit 2: Modelling 15hrs

Performance Modelling - Metrics - Granularity - Scalability – Overhead - Isoefficiency - Matrix Algorithms - Matrix Partitioning - Matrix Transposition - Matrix Vector Multiply - Matrix Multiply - CUDA, vector add, matrix multiply, sequence alignment -Linear Equations - LU(P) Decomposition-Searching and Optimization - The knapsack problem -Branch and Bound - Dynamic Programming -Sorting - Types of sorters -Sorting networks - Radix / Bucket sorts

Unit 3: Graph 10hrs

Graph algorithms -Minimum Spanning Tree - Single Source Shortest Paths -All Pairs Shortest Paths - Fast Fourier Transforms - Fourier Series, basis functions, Euler - Discrete and Fast Fourier Transforms - Convolution, roots of unity, divide and conquer - Evaluation and Interpolation -Recursive, bit reversal, iterative Cooley - Tukey FFT - Pease FFT, locality.

Unit 4: Open CL 15hrs

Introduction to OpenCL - OpenCL Architecture - Programming Model - Getting Started - Software Development Environment and Tools - Debugging tools -Getting into OpenCL Details OpenCL Kernel Programming - Data Types and Type Checking-GPU - specific Features-Advanced OpenCL - Developing applications on Heterogeneous devices - OpenCL Images - API Features – Graphics API Bindings.

Unit 5: Applications **10hrs**

Generic Application tuning - Evaluating Application Performance - Performance Tuning Tips - Optimizations on Multi - Core CPUs-Optimization on Many - Core Architectures - GPU architectures - GPU Threading Concepts - GPU Memory Hierarchy - ATI GPU Architecture - Nvidia GPU Architecture.

Textbook

1. Kai Hwang and Zhi.WeiXu, “Scalable Parallel Computing”, Tata McGraw-Hill, New Delhi, 2003

References

1. David E. Culler &Jaswinder Pal Singh, “Parallel Computing Architecture: A Hardware/Software Approach”, Morgan Kaufman Publishers, 1999.
2. Michael J. Quinn, “Parallel Programming in C with MPI &OpenMP”, Tata McGraw-Hill, New Delhi, 2003.
3. Kai Hwang, “Advanced Computer Architecture” Tata McGraw-Hill, New Delhi, 2003.
4. David B. Kirk, Wen-mei W. Hwu. Programming Massively Parallel Processors: A Hands-on Approach. Morgan Kaufmann, 2010.
5. http://amd.developers.opencl/

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean : 3

MCA 421V Essentials of Management 4Hrs /4Cr

The aim of this course is to introduce the basic Management processes in organizations. It introduces students to the environment of management and covers the basic management Functions like planning, organizing, leading and controlling. Further, it develops an Understanding of the development of management thoughts ages and its applications. This course intends to familiarise the students with the theories and practices of management so as to develop basic managerial way of thinking.

Upon completing the course students will be able to

i. Comprehend the crux of management and the importance of a manager in an enterprise.
ii. Plan viably to keep the goals achieved.
iii. Assimilate Organizing capacity.
iv. Develop communication skills and be an Effective Manager
v. Exercise effective control over the situations.

Unit 1: Introduction to Management and Organizations 15hrs

Definition of Management – Science or Art – Manager Vs Entrepreneur – types of managers – managerial roles and skills – Evolution of Management – Scientific, human relations, system and contingency approaches – Types of Business organization – Sole proprietorship, partnership, company-public and private sector enterprises – Organization culture and Environment – Current trends and issues in Management.

Unit 2: Planning 10hrs

Nature and purpose of planning – planning process – types of planning – objectives – setting objectives – policies – Planning premises – Strategic Management – Planning Tools and Techniques – Decision making steps and process.

Unit 3: Organizing 15hrs

Nature and purpose – Formal and informal organization – organization chart – organization structure – types – Line and staff authority – departmentalization – delegation of authority – centralization and decentralization – Job Design – Human Resource Management – HR Planning, Recruitment, selection, Training and Development, Performance Management, Career planning and management.

Unit 4: Directing **10hrs**

Foundations of individual and group behaviour – motivation – motivation theories – motivational techniques – job satisfaction – job enrichment – leadership – types and theories of leadership – communication – process of communication – barrier in communication – effective communication –communication and IT.

Unit 5: Controlling **10hrs**

System and process of controlling – budgetary and non-budgetary control techniques – use of computers and IT in Management control – Productivity problems and management – control and performance – direct and preventive control – reporting.

Textbook

1. K Natarajan & K P Ganesan, "Principles of Management", Himalaya Publishing House Pvt. Ltd., 2018

References

1. Koontz and Weihrich, “Essentials of Management: An International perspective”, 7th Edition, Tata McgrawHill Publications, 2007.
2. Koontz and O Donnel, “Management – A Global Perspective”, 10th Edition, Tata McgrawHill Publications.
3. Drucker, “Management Challenges for the 21stcentury”, Utterworth-Heinemann Ltd, 2ndEdition, 2007.
4. Stephen P Robbins, Mary Coulter, “Management”, Prentice Hall, 2009.
5. Andrew J Dubrin, “Essentials of Management”, Thomson South Western, 2010.
6. VSP Rao and VH Krishna, “Management”, Excel Books, 2008.
7. Harold and HeinezWeihrich, “Essentials of Management”, Tata McGraw Hill, 2009.
8. Joseph and Massie, “Essentials of Management”, Prentice Hall, 2009.

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
C01	1					
CO2		2				
CO3		2	3			
CO4			3	4		
CO5				4	5	

Mean : 3

MCA521V **Business Communication** **2Hrs/2Crs**

Communication is an important skill for computer professionals. This course begins with a quick review of the essentials of English grammar and enables the learners to communicate in real life situations. Special training will be offered to students to strengthen their life skills, employability skills and corporate skills. An hour of Language Lab Training will concentrate on listening, pronunciation, accent neutralization, practice, interactive speaking, reading activities, presentations, blogging and voice resume.

At the end of the course, students will be able to communicate confidently with

i. Tense, Verb, Subject and Vocabulary.
ii. Comprehensive reading and writing.
iii. Soft skills
iv. Time and Stress Management
v. Make Presentation, Prepare Resume.

UNIT I : Grammar **(6)**

Tenses – Prepositions – Articles - Phrasal Verbs – Interrogation - Models - Conditionals - Subject- Verb Concord - Errors In Usage - Vocabulary

UNIT II : Comprehension **(6)**

Listening Comprehension - Reading with effect - Writing CV and resume -Speech Practice

UNIT III : Soft Skill **(6)**

Soft skills - Life skills: Attitude - Emotional Intelligence - Interpersonal Skills - Self Development.

UNIT IV : Employability Skills **(6)**

Employability Skills - Interview skills - Group Discussion - Corporate Skills: Mass line Communication - Negotiation skills - Time Management - Stress Management

UNIT V : Presentation **(6)**

Self-introduction - Micro presentation - Presentation using PPT - Presentation using Flash - Blogging on a theme - Model content for web pages - Voice Resume(AV)

REFERENCE:

1. Chapelle, Carol A, “English Language Learning and Technology”, John Benjamin Publishing Company, 2003.
2. Hariharan S. and Et.Al, “Soft skills”, MJP Publishers, 2010.
3. Mohan, Krishna and Meera Banerji, “Developing Communication Skills”, New Delhi, Macmillan India Ltd, 1990.
4. Sasikumar V Et Al, “Course in Listening and Speaking Vol I and II”, New Delhi: Foundation Books, 2005.
5. Dhanavel S.P., “English and Soft skills”, Orient Blackswan Private Limited, 2010.

6. Murphy, Raymond, “Essential Grammar in Use”, Cambridge University Press, 2012 .

Mapping of Course Outcomes with Bloom’s Taxonomy

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2		2	3			
CO3		2	3			
CO4		2	3			
CO5		2	3			

Mean : 2.5

MCA621V Data Science 2hrs/2cr

The objective of this course provides an outline of data science. It gives the overview of computer data, structure, introduction about data science and processes. On successful completion of this course the student will have knowledge about the data science and its application.

At the end of the course, students will be able to

i. Understand the fundamental concepts of computer data and its types.
ii. Identify the process of data science.
iii. Determine the goal of data process.
iv. Analyse various data cleaning methods to clean collected data.
v. Summarize data models to suitable problem and findings.

Unit I: Types of Data (6)

Introduction – fact of data - Structured data - Unstructured data- Natural language - Machine-generated data - Graph-based or Network data - Audio, image, and video - Streaming data

Unit II: Data Science process (6)

The data science process - Setting the research goal - Retrieving data - Data preparation - Data exploration- Data modelling or model building- Presentation and automation

Unit III: Process goal (6)

Defining research goals and creating a project charter- Spend time understanding the goals and context of your research - Create a project charter - Retrieving data - Retrieving data - Don't be afraid to shop around - Do data quality checks now to prevent problems later

Unit IV: Cleaning data (6)

Cleansing, Integrating, and Transforming data - Cleansing data - Correct errors as early as possible - Combining data from different data sources - Transforming data

Unit V: Building model (6)

Exploratory data analysis - Build the models- Model and variable selection - Model execution - Model diagnostics and model comparison -Presenting findings and building applications on top of them

Textbook:

1. Davy Cielen, Arno D. B. Meysman, Mohamed Ali, "Introducing Data Science", Manning Publications Co, 2016.

References :

1. Annalyn Ng, "Data Science for the Layman", Shroff Publishers; First edition, 2018.
2. Dinesh Kumar. U, "Business Analytics: The Science of Data-Drive Decision Making", Wiley, 2017.

Mapping of Course Outcomes with Bloom's Taxonomy

Blooms Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2	1					
CO3			3			
CO4	1					
CO5		2				

Mean : 3.3

POSTGRADUATE DEPARTMENT OF DATA SCIENCE
w.e.f. 2020-2021

Vision

Academic excellence- setting new technological trends in the realm of Data Science

Mission

As a Department, we are committed to

• Develop the skills and knowledge to analyze data in many forms and disseminate the insights.

• Enable to understand the disruption of technological change in the light of prevailing practices.

• Equip with technical skills to understand, manage and store large data sets for recent trends.

• Promote quality and professional ethics among the students.

• Equip an interdisciplinary skill set and knowing how to handle and analyze large amount of data.

ELIGIBILITY:

1. A pass with minimum percentage of marks in Part III as per the Government norms in
   a) B.Sc degree in Computer Science / IT / IT and Management/Software/Mathematics/ Statistics/Physics/Chemistry/Applied Science/Electronics
   b) Any Degree with PGDCA
      B.Com, B.Com with CA, B.Com with IT, B.B.A with Mathematics at the HSS/Degree level B.E/B.Tech
2. Reservation : As per the Government norms
3. Minimum marks : As per the Government norms

SCHEME OF EXAMINATION FOR THEORY CUM LAB COURSES:

For courses having both theory and practical's there will be two tests, one on theory and the other on practical's which will be taken as Test 1 and Test 2. Assignment and Quiz will be only on theory. The final examination will be only on Theory and will be of 3 hours duration with a course maximum of 100 marks.

Proposed PG Grid for Batch 2020 – 2021 onwards

Sem.	Course Code	Course Title	Hr.	Cr.	Mark
I	PDS 4501	Concepts of Data Science	5	5	75
	PDS 4503	Data Analytics (T+L)	6	5	75
	PDS 4505	Artificial Intelligence	5	5	75
	PDS 4607	Python Programming	5	6	80
	PDS 4409	Python Programming Lab	4	4	60
	PDS 4511	Probability and Statistics	5	5	75
	Total		**30**	**30**	**420**
II	PDS 4502	Data Mining and Warehousing	5	5	60
	PDS 4404	Big Data Analytics	4	4	60
	PDS 4406	Big Data Analytics Lab	4	4	80
	PDS 4408	Machine Learning	4	4	60
	PDS 4410	Computer Vision	4	4	80
	PDS 4512	Linear Algebra	5	5	80
	PDS XXXX	Elective I	4	4	60
	Total		**30**	**30**	**420**
III	PDS 5501	Natural Language Processing (T + L)	5	5	60
	PDS 5403	Deep Learning	4	4	80
	PDS 5405	Reinforcement learning	4	4	80
	PDS 5507	Operation Research	5	5	80
	PDS 5409	Effective Communications	4	4	80
	PDS 5411	Elective II	4	4	60
	PDS 5413	Mini Project Lab	4	4	40
	Total		**30**	**30**	**480**
IV	PDS 5302	Industry Project		30	200
	Total			**30**	**200**
	GRAND TOTAL		**90**	**120**	**1520**

Elective - I

II	PDS 4414	Digital Principles and Applications	4	4	60
II	PDS 4416	Social Media Analytics	4	4	60

Elective - II

III	PDS 5415	Software Engineering	4	4	60
III	PDS 5417	Parallel and Distributed Computing	4	4	60

Value Added Course

I	PDS 421V	Data Analysis using Tableau	2	2	30

Program Specific Outcomes (PSOs) for M.Sc. Data Science

On successful completion of the M.Sc program, Students will be able to

PSO1: Engage in continuous reflective learning in the context of technology and scientific advancement.

PSO 2: Identify the need and scope of the Interdisciplinary research.

PSO 3: Enhance research culture and upload the scientific integrity and Objectivity.

PSO 4: Understand the professional, ethical and Social Responsibilities.

PSO 5: Understand the importance and the judicious use of technology for the sustainability of the environment.

PSO 6: Enhance disciplinary competency, employability and leadership skills.

PSO 7: Apply knowledge of mathematics, computer science and in practice.

PSO 8: Devise and conduct experiments, interpret data and provide well informed decisions.

PSO 9: Function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude.

PSO 10: Identify, critically analyse, formulate and develop computer applications

Program Outcomes for M.Sc (Data Science)

PO 1: Abstract Thinking: Ability to understand the abstract concepts that lead to various data science theories in Mathematics, Statistics and Computer Science.

PO 2: Problem Analysis and Design: Ability to identify analyze and design solutions for data science problems using fundamental principles of mathematics, statistics, computing sciences, and relevant domain disciplines.

PO 3: Modern Software Tool Usage: Acquire the skills in handling data science programming tools towards problem solving and solution analysis for domain specific problems.

PO 4: Innovation and Entrepreneurship: Produce innovative IT solutions and services based on global needs and trends.

PO 5: Societal and Environmental Concern: Utilize the data science theories for societal and environmental concerns.

PO 6: Professional Ethics: Understand and Commit to professional ethics and cyber regulations, responsibilities and norms of processional computing practices.

PO 7: Conduct Investigations and Complex Computing Problems: Use research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.

PO 8: Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO 9: Applications in Multi-disciplinary domains: Understand the role of statistical approaches and apply the same to solve the real life problems in the fields of data science.

PO 10: Project Management: Apply the research based knowledge to analyze and solve advanced problems in data science.

Mapping of Courses Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
PDS 4501	✓	✓	✓							
PDS 4503			✓	✓					✓	
PDS 4505					✓		✓		✓	
PDS 4607		✓	✓		✓		✓			
PDS 4409	✓								✓	
PDS 4511		✓		✓			✓			✓
PDS 4502			✓	✓			✓	✓		✓
PDS 4404			✓		✓					
PDS 4406		✓		✓	✓	✓		✓		✓
PDS 4408						✓				✓
PDS 4410			✓							
PDS 4512		✓		✓						
PDS 4414			✓		✓	✓		✓		
PDS 4416		✓	✓							

Mapping of Program Specific Outcomes (PSOs) with Program outcomes (PO)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓	✓		✓	✓		✓	✓		
PSO2	✓	✓		✓			✓			✓
PSO3	✓	✓			✓		✓			
PSO4		✓		✓			✓		✓	
PSO5		✓		✓	✓	✓			✓	
PSO6				✓				✓		
PSO7					✓	✓			✓	
PSO8										
PSO9	✓	✓		✓	✓					
PSO10	✓	✓		✓	✓				✓	✓

PDS 4501 Concepts of Data Science 5hrs/5cr

This course aims to understand the fundamental concepts of data science and acquire the overview of data science eco system. It inculcates the importance of Machine Learning, Big Data, NoSQL, Text Analytics and visualization techniques which are used in data science domain. On successful completion of this course the student will have knowledge to apply programming libraries and tools on data science.

On the successful completion of the course, students will be able to

i. Explore the fundamental steps and eco system of data science.
ii. Apply machine learning used to data processing.
iii. Identify the usage of Big Data and NoSQL to data science domain.
iv. Utilize text analysis techniques on data processing.
v. Understand to use data visualization to the end user.

Unit 1: Introduction (15 hrs)

Benefits and uses of data science - Facets of data - The big data ecosystem and data science - data science process.

Unit 2: Machine Learning (15 hrs)

What is machine learning and why should you care about it? - The modeling process - Types of machine learning. Handling large data on a single computer: General techniques for handling large volumes of data - General programming tips for dealing with large data sets - Case study 1: Predicting malicious URLs.

Unit 3: Big Data (15 hrs)

Distributing data storage and processing with frameworks - Case study: Assessing risk when loaning money - Introduction to NoSQL - Case study: What disease is that? - Introducing connected data and graph databases - Connected data example: a recipe recommendation engine.

Unit 4: Text mining and text analytics (15 hrs)

Text mining in the real world - Text mining techniques: Bag of words - Stemming and lemmatization - Decision tree classifier - Case study: Classifying Reddit posts

Unit 5: Data visualization to the end user (15 hrs)

Data visualization options - Crossfilter, the JavaScript MapReduce library - Creating an interactive dashboard with dc.js - Dashboard development tools

References:

1. Davy Cielen, Arno D. B. Meysman, Mohamed Ali, Introducing Data Science, Manning Publications Co, 2016.

2. John D. Kelleher and Brendan Tierney, "Data Science", First Edition, The MIT Press, London, 2018.

3. Lillian Pierson, "Data Science for Dummies", 2nd Edition, John Wiley & Sons publications, 2017.

4. EMC Education Services, Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, John Wiley & Sons, Inc, 2015.

5. Trevor Hastie, Robert Tibshirani, Jerome Friedman, The Elements of Statistical Learning Data Mining, Inference, and Prediction, Second Edition, Springer, 2017.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3		2				
CO4		4		4		
CO5			3			

Mean = 3.2

PDS 4503 Data Analytics (T+L) 6hrs/5cr

This course aims to understand the lifecycle of the data analytics and various algorithms and methods which are used analytics. It gives the insights of Statistical methods for analytics, Supervised and Un-Supervised Learning, Time Series Analysis and Text Analysis.

On the successful completion of the course, students will be able to

i. Understand the life cycle of data analytics.
ii. Use statistical methods on data analytics.
iii. Use algorithms to Time Series and Text Analysis.
iv. Utilize regression, correlation and knowledge discovery of the data.
v. Analyse the data and carry out Supervised, Un-Supervised Learning processes.

Unit 1: Data Analytics Overview (12 hrs)

Introduction – Importance- Types of Data Analytics – data analytics life style: overview – discovery- data preparation – model planning – model building – communicate result - Operationalize. Case study: Global Innovation Network and Analysis (GINA).

Unit 2: Statistics for Analytics (12 hrs)

Statistical Methods for Evaluation: Hypothesis Testing - Difference of Means- Wilcoxon Rank-Sum Test - Type I and Type II Errors – Power and Sample Size – ANOVA

Unit 3: Time Series & Text Analysis (12 hrs)

Overview of Time Series Analysis: - Box-Jenkins Methodology - ARIMA Model - Additional Methods. Text Analysis: Text Analysis Steps – A Text Analysis Example - Collecting Raw Text - Representing Text - Term Frequency-Inverse Document Frequency (TFIDF - Categorizing Documents by Topics - Determining Sentiments - Gaining Insights.

Unit 4: Supervised Learning (12 hrs)

Introduction - Variable Types and Terminology - Least Squares and Nearest Neighbors - Statistical Decision Theory - Structured Regression Models - Classes of Restricted Estimators. Support Vector Machines and Flexible Discriminants: The Support Vector Classifier - Support Vector Machines and Kernels. Prototype Methods and Nearest-Neighbors: Prototype Methods

Unit 5: Unsupervised Learning **(12 hrs)**

Introduction - Association Rules - Cluster Analysis - Random Forests: Definition of Random Forests - Details of Random Forests - Analysis of Random Forests - Undirected Graphical Models - Markov Graphs and Their Properties - Undirected Graphical Models for Continuous Variables - Undirected Graphical Models for Discrete Variables.

Textbooks

1. EMC Education Services, Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, John Wiley & Sons, Inc, 2015.
2. Trevor Hastie, Robert Tibshirani, Jerome Friedman, The Elements of Statistical Learning Data Mining, Inference, and Prediction, Second Edition, Springer, 2017.

Uint I (Text Book 1): Chapter 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8,

Unit II (Text Book 1): Chapter 3.3.

Unit III (Text Book 1): Chapter 8.1, 8.2, 8.3, 9.1 – 9.8.

Unit IV (Text Book 2): Chapter 2.1, 2.2, 2.3, 2.4, 2.7, 2.8, 12.2, 12.3, 13.2.

Unit V (Text Book 2): 14.1, 14.2, 14.3, 15.2, 15.3, 15.4, 17.2, 17.3, 17.4

References:

1. Anil Maheshwari, Data Analytics**,** McGraw Hill Education; First edition, 2017.
2. Annalyn Ng, Data Science for the Layman, Shroff Publishers; First edition, 2018.
3. Ramesh Sharda, Dursun Delen, Efraim Turban, Business Intelligence, Analytics, and Data Science: A Managerial Perspective, Pearson Education, Fourth edition, 2019.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2			3			
CO3		2				
CO4		4		4		
CO5			3		5	

Mean =4.4

PDS 4505 Artificial Intelligence 5hrs/5cr

This course aims to give an overview of artificial intelligence (AI) principles and develop a basic understanding of the building blocks of AI. It acquire the knowledge about the Search, Knowledge representation, inference, logic, reasoning and learning.

i. Explain the key characteristics of intelligent agents -Understand
ii. Describe the pre-processing methods for Information Retrieval - Understand
iii. Apply the suitable search strategy to solve the search problems - Apply
iv. Apply adversarial search to find the optimal move for a given game - Apply
v. Construct a plan graph for the given problem like Constraints satisfaction problems and STRIPS problems - Apply

Unit 1: INTRODUCTION (15 hrs)

The foundations of AI - The History of AI- Intelligent agents- Agent based system. PROBLEM SOLVING: Searching for solution- Uninformed/Blind search - Informed/ Heuristic search - A* search - Hill-climbing search -Constraint satisfaction problem.

Unit 2: KNOWLEDGE REPRESENTATION AND PLANNING (15 hrs)

Logics – First order logic, Inference in first order logic, Knowledge representation. PLANNING: The planning problem - Planning with state space search - Partial order search - Planning with proportional logic - Planning and acting in the real world. Adversarial planning.

Unit 3: UNCERTAIN KNOWLEDGE AND PROBABILISTIC REASONING: (15 hrs)

Uncertainty- Probabilistic reasoning - Semantics of Bayesian network -Approximate inference in Bayesian network, exact inference in Bayesian network - Probabilistic reasoning over time.

Unit 4: LEARNING (15 hrs)

Learning from observation - Knowledge in learning -Statistical learning methods - Reinforcement learning

Unit 5: DECISION-MAKING (15 hrs)

Basics of utility theory, decision theory, sequential decision problems, elementary game theory, sample applications. ROBOTICS: Introduction

References:

1. Stuart Russell and Peter Norvig, ―Artificial Intelligence: A Modern Approach‖, Pearson Education, 2018.

2. David Pool, Alan Mackworth, ―Artificial Intelligence: Foundations of Computational agents, Cambridge University, 2015.

3. Nils J. Nilsson, ―The Quest for Artificial Intelligence: A History of Ideas and achievements, Cambridge University Press, 2010.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		1				
CO2			1			
CO3		2			4	
CO4			3			
CO5				4		

Mean = 3.0

PDS 4607 Python Programming for Data Science 5hrs/6cr

This course aims to learn program in python. It covers basic syntax, List, Tuples, Dictionaries, File Handling and Regular Expressions, Database Connectivity and Object Oriented Programming. It acquires programming skills in core Python, skills of designing Graphical user Interfaces, ability to write database applications in Python.

Upon successful completion of the course the students will be able to

i. To describe the Fundamentals of Python and Functions
ii. Demonstrate the basic concepts of Python Strings and List
iii. Gain knowledge about Tuples, Sets and Dictionaries
iv. To implement Files and data base connectivity
v. To develop Web applications using python and learn basic of Python Classes and Objects

Unit 1 – Introduction to Python, Functions (15 hrs)

Introduction – Python History – Python Installation and Execution – Variables, Expressions and Statements: Values and types, Variables, Variable names and keywords, Statements, Operators and operands, Expressions, Order of operations, String operations, User input, Comments - Decision Statements – Loop Control Statements.

Conditional Execution: Modulus Operator, Boolean expressions, Logical operators, Conditional execution, Alternative execution, Chained conditionals, Nested conditionals, Functions – Syntax – Use of a Function – Parameters and Arguments - Recursion, Return Values.

Unit 2 : String, List, List Processing (15 hrs)

Strings: A string is a sequence, Getting the length of a string using len, Traversal through a string with a loop, String slices, Strings are immutable, Searching, Looping and counting, The in operator, String comparison, String methods, Format operator.

Lists: A list is a sequence, Lists are mutable, Traversing a list, List operations, List slices, List methods, Deleting elements, Lists and functions, Lists and strings, Objects and values, Aliasing, List Comprehension, List arguments, Passing List to a function, List Processing.

Unit 3: Tuples, Sets and Dictionaries (15 hrs)

Tuples: Tuples are immutable, Tuple Assignment, Tuple as Return value, Variable length argument tuples, List and Tuples, Comparing tuples, Indexing and Slicing, Sort Tuple, Tuple assignment, Dictionaries and tuples, Multiple assignments with dictionaries.

Sets: Creating sets, Set in and not in operator, Set operations.

Dictionaries: Need, Dictionary as a set of counters, Looping and dictionaries, Reverse Lookup, Dictionaries and lists, Formatting Dictionaries, Deleting Items, Global Variables,

Unit 4: – File Handling, Exceptions, Database Connectivity (15 hrs)

Files: Persistence, Opening files, Reading and Writing files, Format Operator, File names and Paths, Searching through a file, Letting the user choose the file name, Exceptions: Errors in a Python Program, Exceptions, Exception Handling, Types of Exceptions, -The Except Block, The assert Statement, User-Defined Exceptions

Python's Database Connectivity: Types of Databases Used with Python, Working with MySQL Database, Using MySQL from Python, Retrieving All Rows from a Table, Inserting Rows into a Table, Deleting Rows from a Table, Updating Rows in a Table, Creating Database Tables through Python

Unit 5: Classes and Objects, GUI Programming (15 hrs)

Classes and Objects: User-defined types, Attributes, Rectangles, Instances as return values, Objects are mutable, Copying. Classes and Functions: Time, Pure functions, Modifiers, Prototyping development versus planning. Classes and Methods: Object-oriented features, Printing objects, The init method, Operator overloading, Polymorphism

GUI: Buttons and Callbacks, Canvas Widgets, Coordinate Sequence, More Widgets, Packing Widgets, Menus and Callbacks, Binding

Reference Books:

1. Ashok Namdev Kamthane, Amit Ashok Kamthane, "Programming and Problem Solving with Python", McGraw Hill Education India, 2018.
2. James Tudor, "Python Programming For Beginners: Learn The Basics Of Python Programming", Amazon Digital Services LLC - KDP Print US, 2019.
3. Think Python: How to Think Like a Computer Scientist, Allen B. Downey, Updated for Python 3, Shroff/O'Reilly Publishers,2nd edition, 2016.
4. Howard Hayes, "Python Programming: The Ultimate Crash Course for Beginners with All the Tools and Tricks to Learn Coding with Python", Amazon Digital Services LLC - KDP Print US, 2019.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		1				
CO2			1			
CO3		2			4	
CO4			3			
CO5				4		

Mean = 3.0

PDS 4409 Python Programming for Data Science Lab 4 hrs / 4Cr

1. Classification and tabulation of data and Graphical and diagrammatic presentation of data.
2. Perform calculations that measure the central tendency and dispersion of data and Implementation of measures of Skewness, moments and kurtosis.
3. Determination of point and interval estimates.
4. Solving linear regression, polynomial regression and non-linear regression based problems and solving multiple regression and correlation analysis based problems.
5. Solving the problems based on Time series analysis and forecasting and implementing statistical quality control charts.

PDS 4511 Probability and Statistics 5hrs/5cr

This course aims to learn and demonstrate the concept of testing of hypothesis for small and large samples by using various tests like t-test, F-test, z-test and chi-square test and acquire the knowledge of Multiple regression and correlation.

On the successful completion of the course, students will be able to

i. Learn the basic concepts of distributions, charts and various types of measures.
ii. Apply the concepts of estimation and its type in mean, proportion and variance.
iii. Demonstrate the concept of testing of hypothesis for small and large samples by using various tests like t-test, F-test, z-test and chi-square test
iv. Apply the concept of Correlation and regressions to engineering problems Apply least square method in fitting linear and non linear regression curves.
v. Apply Multiple regression and correlation analysis, Inferences about population parameters and Modeling techniques.

Unit 1: DESCRIPTIVE STATISTICS: (15 hrs)

Frequency distribution – Bar graphs and Pie charts –Histogram- Ogive – Simpson‟s paradox – Measures of Location – Measures of Variability – Measures of distribution shape, relative location and detecting outliers – Exploratory Data analysis, Stem-and-leaf display – Measures of Association between two variables.

Unit 2: STATISTICAL INFERENCE: (15 hrs)

Sampling distribution - Estimation: Point estimation, interval estimation - Criteria of a good estimator – Interval estimation of mean, proportion, and variance (single sample and two samples) - Maximum likelihood estimator.

Unit 3: HYPOTHESIS TESTING: (15 hrs)

General concepts - Errors in Hypothesis testing - One-and two-tailed tests - Tests concerning mean, proportion, and variance - Tests for Goodness of fit and independence of attributes.

Unit 4: CORRELATION AND REGRESSION: (15 hrs)

Introduction - Estimation using the regression line - Correlation analysis -Limitations, errors, and caveats of using regression and correlation Analyzes - Multiple regression and correlation analysis - Inferences about population parameters – Modeling techniques.

Unit 5: ANALYSIS OF VARIANCE: (15 hrs)

Introduction to design of experiments, Analysis of variance - Completely Randomized Design and Randomized Block Design.

References:

1. Richard I. Levin. David S. Rubin, ―Statistics for Management‖, Pearson Education, 2014.

Unit I Chapter 2,3

Unit II Chapter 6,7

Unit III Chapter 8,9

Unit IV Chapter 12 , 13

Unit V chapter 11

2. Ronald E. Walpole, Raymond H. Meyers and Sharon L. Meyers, ―Probability and Statistics for Engineers and Scientists‖, Pearson Education, 2014.

3. Jay L. Devore, ―Probability and Statistics for Engineering and Sciences‖, Cengage Learning, 2015.

4. Anderson, Sweeney and Williams ―Statistics for business and economics‖, Cengage Learning, 2014.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			3			
CO2				4		
CO3				4		
CO4		2				
CO5			3			

Mean = 3.2

PDS 4502 Data Mining and Warehousing 5 hrs / 5Cr

The aim of the course is to help the students to understand the basic concepts of data mining and its classification along with its applications. This course introduces data mining and data warehousing and its architectures, Tasks under data mining, Association Rules, Classifications of data mining and Application in data mining.

Upon completion of this course students will be able to:

I. Understand the basic functionalities and concepts of data mining and data warehousing.
II. Analyse the need for data pre-processing and various steps involved in it.
III. Categorize the methodologies and algorithms and be familiar with association rule mining techniques and constraint based association mining.
IV. Analyse the usages of Decision tree Algorithm, Bayesian Classification and Back Propagation techniques.
V. Understand Clustering and Outline the applications and trends in Data mining.

Unit 1: Introduction to Data mining & Data warehousing (15hrs)

Introduction – Data mining – Data mining functionalities – kinds of patterns can be mined – classification – major issues. Data warehouse – A multidimensional data model – Data warehouse architecture – Data warehouse implementation – From data warehouse to data mining

Unit 2: Data pre-processing (15hrs)

Data pre-processing – Data cleaning – Data Integration and Transformation – Data Reduction – Discretization and concept hierarchy generation – Data mining primitives – Data mining Task – A data mining query language - Architecture of Data mining systems – Characterization and comparison

Unit 3: Association Rule Mining (15hrs)

Association Rule Mining – Mining single dimensional Boolean association rules from transactional databases – mining multilevel association rules from transaction databases- mining multidimensional association rules from Relational databases and Data warehouses – From association mining to correlation analysis

Unit 4: Classification and prediction (15hrs)

Classification and prediction – Issues regarding classification and prediction – classification by decision Tree Induction – Bayesian Classification – Classification by Back propagation –classification based on concepts from association rule mining – prediction – classifier accuracy

Unit 5: Clustering & Trends in Data Mining (15hrs)

Clustering – Introduction to types of Clustering - Applications and Trends in Data Mining – Data mining system products and Research prototypes – Additional themes on Data mining – Social Impacts of Data Mining – Trends in Data mining

Textbook:

1. Jiawei Han, Michelien Kamber, "Data Mining Concepts and Techniques", 3rd Edition, 2014.

References

1. Arun K. Pujari, "Data Mining Techniques", Universities Press (India) Limited,2 nd Edition, 2013.
2. Alex Berson, Stephen j Smith , Data Warehousing ,Data mining and OLAP (Data warehousing / Data Management) , McGraw Hill 2012.
3. George M Marakas, Modern Data warehousing, Mining and Visualization: core concepts, Prientice Hall , First Edition, 2002
4. John Wang, Encyclopaedia of Data warehousing and Mining, Idea Group Publishing, 2009.
5. Shawkat Ali A B M, Saleh A. Wasimi, "Data Mining: Methods and Techniques ,Third Indian Reprint, Cengage Learning, 2010.
6. Soman K. P., ShyamDiwakar, Ajay V. "Insight into Data Mining Theory and Practice", Fifth Printing, PHI Learning, 2011.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3		2				
CO4				4		
CO5			3			

Mean = 3.0

PDS 4404 Big Data Analytics 4 hrs / 4Cr

This course aims to Big Data Analytics largely involves collecting data from different sources, Optimize and create advantage with Big Data analytics. It optimizes business decisions and explores the fundamental concepts of big data analytics.

Upon successful completion of the course the students will be able to

I. Identify the knowledge of big data analytics
II. Understand the tool R Language and Hadoop for handling Big data
III. List the components of Hadoop and Hadoop Eco-System
IV. Apply technical skills to Integrate R and Hadoop
V. Develop various tools like PIG, HIVE, HIVEQL, HBASE

Unit 1 : INTRODUCTION TO BIG DATA (12 hrs)

Big Data Analytics - What is Big Data – Meaning – Building Blocks of Big Data Analytics – Types of Big Data – Sources of Big Data – 4Vs of Big Data –Selection of Hardware Stack – Selection of Software Stack - Big data analytics – Components of Analytics Toolkit - Big data applications

Unit 2 : INTRODUCTION TO R, HADOOP (12 hrs)

Installing R, RStudio – Features of R Language – Data Operations – Data Modelling in R – Installing Hadoop – Hadoop Modes – Hadoop Features – Understanding HDFS – Characteristics of HDFS – Understanding MapReduce – HDFS and MapReduce Architecture- HDFS, MapReduce Components – Hadoop MapReduce scenario

Unit 3: HADOOP ECOSYSTEM AND YARN (12 hrs)

Hadoop and its Ecosystem – Hadoop Core components – Hadoop Ecosystem Components – Schedulers - Hadoop Pipes – Hadoop Distributed File System – Hadoop MapReduce Framework – MapReduce Programming model – Hadoop Yarn – Running MRv1 in YARN - Hadoop Ecosysems Tools

Unit 4: INTEGRATING R AND HADOOP (12 hrs)

Introducing RHIPE – Installing RHIPE – Architecture of RHIPE – Introduction of RHadoop – Architecture – Hadoop Streaming – Hadoop Streaming with R – Data Analytics Project Cycle - Data Analytics Problems

Unit5 : PIG, HIVE AND HIVEQL, HBASE (12 hrs)

PIG – Installing and Running PIG, Comparison with Database, PIG Latin – Hive – Installing HIVE, Running HIVE, Comparison with Traditional Database, HiveQL - Querying Data HBase – Hbasics, Concepts, HBase Versus RDBMS, Zookeeper – Zookeeper Services.

References:

1. Nataraj Dasgupta, "Practical Big Data Analytics: Hands-on techniques to implement enterprise analytics and machine learning using Hadoop, Spark, NoSQL and R", 2018 Packt Publishing. [Unit I]

2. Vignesh Prajapati, "Big Data Analytics with R and Haoop", Packet Publishing 2013 [Unit II, IV]

3. Raj Kamal, Preeti Saxena, "BIG DATA ANALYTICS: Introduction to Hadoop, Spark, and Machine-Learning", McGraw-Hill Education, 2019. [Unit III]

4. Tom White, "HADOOP: The definitive Guide", O Reilly 2012. [Pages: 365 – 388, 411 – 426, 441 – 447, 457 – 459, 477 – 479, 497 – 509] Unit V

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		2				
CO2			3			
CO3		2			4	
CO4			3			
CO5				4		

Mean = 3.6

PDS 4406 Big Data Analytics Lab 4 hrs / 4Cr

1. Applications of Data mining tool WEKA and Statistical package R
2. Classification rules using Decision Tree classifier
3. Implementation of Clustering Algorithms
4. Analyzing data with log liner models and graphical models using R and Handling massive data using map reduce.
5. Distribution of Databases and Paralleling Operations
6. Implementation of No-SQL databases
7. DynamoDB, MongoDB, Google"s BigTable, DBo4, Neo4J,
8. Implementation of Map-Reduce on Big Data (Hadoop) and Data Integration from heterogeneous Databases

PDS 4408 Machine Learning 4 hrs / 4Cr

The course aims to provide an understanding of machine learning‘s role in data-driven modeling, prediction, and decision-making. It acquires the knowledge about the Neural Network.

i. Gain knowledge about basic concepts of Machine Learning develop an appreciation for what is involved in learning from data.
ii. Develop learning algorithms based on logistic regression, Support Vector Machines to predict discrete-valued output given a training data comprising of features and corresponding class labels.
iii. Design and implement machine learning solutions to classification, regression, and clustering problems; and be able to evaluate and interpret the results of the algorithms.
iv. Develop Linear Models for Regression using Bias-Variance Decomposition, Bayesian Linear Regression.
v. Design Linear Models for Classification using Probabilistic Discriminative Models, The Laplace Approximation, Bayesian Logistic Regression.

Unit 1: Introduction: (12 hrs)

Introduction to Machine Learning, Probability Theory, Model Selection, The Curse of Dimensionality, Decision Theory, Information Theory.

Unit 2: Probability Distributions: (12 hrs)

Binary Variables, Multinomial Variables, The Gaussian distribution, The Exponential Family, Nonparametric Methods

Unit 3: Linear Models for Regression: (12 hrs)

Linear Basis Function Models, The Bias-Variance Decomposition, Bayesian Linear Regression, Bayesian Model Comparison, The Evidence Approximation, Limitations of Fixed Basis Functions.

Unit 4: Linear Models for Classification: (12 hrs)

Discriminant Functions, Probabilistic Generative Models, Probabilistic Discriminative Models, The Laplace Approximation, Bayesian Logistic Regression.

Unit 5: Neural network: (12 hrs)

Perceptron, multilayer network, backpropagation, introduction to deep neural network.

References

1. Christopher M. Bishop, ―Pattern Recognition and Machine Learning‖, Springer, 2013.

2. AlpaydinEthem, ―Introduction to Machine Learning‖, Prentice Hall, 2015.

3. Richard O. Duda, Peter E. Hart and David G. Stork, ―Pattern Classification, Wiley and Sons, 2017.

4. Tom Mitchell, ―Machine Learning, McGraw Hill, 2018.

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			3			
CO2			3			
CO3		2				
CO4				4		
CO5			3			

Mean = 3.0

PDS 4410 Computer Vision 4 hrs / 4Cr

This course provides an introduction to computer vision, including fundamentals of image formation, camera imaging geometry, feature detection and matching. It gives the knowledge on image segmentation and recognition.

At the end of the course students should be able to:

i. Implement fundamental image processing techniques required for computer vision.
ii. Understand basic image processing techniques.
iii. Implement boundary tracking techniques on shapes.
iv. Understand segmentation methods and its applications.
v. Developed the practical skills on image recognition techniques.

Unit 1: Computer Vision Introduction: (12 hrs)

Computer vision-Image Formation: Geometric primitives and transformation-Photometric image formation-The digital camera

Unit: 2 Image Processing: (12 hrs)

Point operation-Linear filtering-More neighborhood operators-Fourier transforms-Pyramids and wavelets – Geometric Transformations – Global optimization

Unit 3 Feature detection and matching: (12 hrs)

Points and patches: Feature detectors – feature descriptors – feature matching – feature tracking – Edges: detection and linking – Lines: Successive approximation- Hough transforms – vanishing points.

Unit 4 Segmentation: (12 hrs)

Active Contours – Split and merge – Mean shift and mode finding – Normalized cuts – Graph cuts and energy –based methods

Unit 5 Recognition: (12 hrs)

Object detection – Face recognition – Instance recognition – Category Recognition – Context and scene understanding –Recognition datasets and test sets

References:

1. Computer Vision-Algorithms and Applications “Richard Szeliski”,Springer-verlang London Limited 2011.

Page Number:

Unit I: Computer Vision- Algorithms and Applications **Page no (1 - 10),(29 - 93)**

Unit: II: Computer Vision- Algorithms and Applications **Page no (99 – 194)**

Unit III: Computer Vision- Algorithms and Applications **Page no(205 - 259)**

Unit IV: Computer Vision- Algorithms and Applications **Page no(267 - 306)**

Unit V: Computer Vision- Algorithms and Applications **Page no (655 - 725)**

Mapping of course outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
			3			
CO2			3			
CO3		2				
CO4				4		
CO5			3			

Mean = 3.0

PDS 4512 Linear Algebra 5hrs/5cr

The course aims to Solve the given system of linear equations through matrices, and verify whether the given set is a vector space or not. If so, determine its dimension and determine the matrix for the given linear transformation.

On the successful completion of the course, students will be able to

i. Apply the concept of Gauss elimination in solving linear equations and to find the inverse of a matrices
ii. Apply the concept of vector spaces, linear independence, basis and dimensions to find Rank and also in electrical network applications
iii. Apply the concepts of Inner product spaces and orthogonal projections to find QR decomposition and least squares
iv. Apply the concept of linear transformation in matrices and geometry linear operators
v. Apply the concept of Eigen values and vectors to orthogonal diagonalizing a given matrix

Unit 1: SYSTEM OF LINEAR EQUATIONS AND MATRICES: (15 hrs)

System of linear equations ,Gauss – elimination, Elementary matrices and a method for finding inverse of a matrix.

Unit 2: VECTOR SPACES: (15 hrs)

Vector spaces and subspaces – Linear combination, Span, Linear independence and dependence - Null space, Column space, and Row space – Basis and dimension of a vector space – Rank and nullity-Applications to Electrical network.

Unit 3: INNER PRODUCT SPACES: (15 hrs)

Inner product, Length, angle and orthogonality – Orthogonal sets – Orthogonal projections – Inner product spaces – Orthonormal basis: Gram-Schmidt process – QR Decomposition-Best Approximation, Least-squares.

Unit 4: LINEAR TRANSFORMATION: (15 hrs)

Introduction to linear transformations – General Linear Transformations – Kernel and range – Matrices of general linear transformation- Geometry linear operators-Change of basis.

Unit 5: EIGEN VALUES AND EIGEN VECTORS: (15 hrs)

Introduction to Eigen values- Diagonalizing a matrix- Orthogonal diagonalization-, Applications to differential equations- Positive definite matrices- Similar matrices – Quadratic forms- Quadratic surfaces Singular value decomposition.

References:

1. Howard Anton and Chris Rorres, ―Elementary Linear Algebra‖, Wiley, 2011.
2. David C. Lay, ―Linear Algebra and its Applications‟, Pearson Education, 2011.
3. Gilbert Strang, ―Linear Algebra and its Applications‖, Thomson Learning, 2009.

Mapping of Course Outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3				4		
CO4		2				
CO5			3			

Mean = 3.0

PDS 4414 Digital Principles and Applications 4 Hrs / 4 Crs

The aim of this course is to give the students with basic ideas regarding digital hardware components at the level of Gate and realization of sequential circuits and combinatorial circuits. This course will enable the students to design digital systems employing the techniques and also give better insights into the basic digital hardware building blocks.

Upon completion of this course, students will be able to:

i. Understand the need for digital system & perform conversion and arithmetic calculations on Numbers system.
ii. Gain knowledge to apply digital principles to Create and synthesize combinatorial logic circuits and simplify problems using Boolean algebra and K-map.
iii. Evaluate and Design the Data Processing Circuits & various types of Flip flops.
iv. Design and synthesize the Sequential Logic circuits.
v. Acquire knowledge on Memory subsystem organization and different types of memory.

Unit 1: DIGITAL SYSTEM CONCEPTS (12 hrs)

Introduction to digital systems and computers – Applications of digital systems Number systems and Codes - Conversion Binary to Decimal – Hexa decimal – octal – Representation of Negative Numbers, Complements in other Number systems 1's Complement – 2's Complement _ BCD Representation. ASCII, Excess_3, Gray, Weighted and unweighted codes

Unit 2: Basic Building Blocks (12 hrs)

Introduction to logic circuits – Basic building blocks - Boolean algebra - Universal gates - De Morgan's Law - Truth tables - Boolean Expressions –Sum of products - Products of sum methods - Karnaugh map – Don't care conditions

Unit 3: Data Processing Circuits & Sequential Logic Circuits (12 hrs)

Multiplexers - De_Multiplexers - Decoder- Encoder - Introduction to Flip Flops -RS Flip-flop - Clocked Flip Flop – D Flip Flop - JK Flip Flop -JK Master - Slave Flip Flop.

Unit 4: Memory Element & Basic Computer Organization (12 hrs)

Introduction to Registers -Types of Registers - Introduction to Counters – Counter Design - Basic computer Organization – System buses – instruction cycles. CPU Organization

Unit 5: Memory Subsystem Organization (12 hrs)

Memory subsystem organization – Types of memory – memory subsystem configuration – I/O Subsystem Organization.

REFERENCE:

1. TC Bartee, "Digital Computer Fundamentals", Tata McGraw Hill, 6th Edition, 2011.
2. Malvino AP & Leach DP, "Digital Principles and Applications", Tata McGraw Hill Publications, 6th Edition 2002.
3. John D Carpinelli, Computer systems Organization & Architecture, Pearson Education, 1st Edition, 2012.
4. John P. Hayes, Computer Architecture and Organization, Tata McGraw Hill, 2nd Edition, 2013.

Mapping of course outcomes with Bloom's Taxonomy

	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**
Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering					
K2: Understanding		**2**			
K3: Applying	**3**		**3**		**3**
K4: Analysing				**4**	
K5: Evaluating					
K6: Creating					

Mean = 3.0

PDS 4416 Social Media Analytics 4 Hrs / 4 Crs

This course aims to foundation of social media analytics and deal with any social media network strategy or campaign and learn to integrate social media analytics with other areas of business.

i. Understanding data in social media and its various forms.
ii. Different types of social media analytics tools that draw data from different sources, are based in different search patterns, and also deliver different results
iii. Understand Metrics as a part of tactics and applying metrics towards strategic goals and learn to repeat such tactics when successful
iv. Defining what strategy is, its elements, and learn the niceties on how to build a good analytics strategy.
v. Applications of Social Media Analytics and its future.

Unit 1: Social Media Data (12 hrs)

A look into the evolution of Data and the Digital Gap – Social Media Data Sources – Offline and Online - Defining Social Media Data – Data Sources in Social Media Channels – Estimated Vs Factual Data Sources – Public and Private Data – Data gathering in Social Media Analytics – API – Web Crawling or Scraping. From Data to Insights - Shaping data to work for us – Creating a plan to shape Data into insights – The Planning Stage Projecting Possible Insights – The Process of Comparison - Social Media and Big Data – Case Study

Unit 2: Analytics in Social Media and Types of Analytic Tools (12 hrs)

Defining Analytics in Social Media as a Broad Term – Types of Analytics in Social Media - Analytics, Listening, Advertising Analytics, Analytics from CMS and CRM - Dedicated vs Hybrid Tools its advantages and disadvantages – Data Integration Tools its advantage and disadvantages. Differences of Social Media Networks - Social Network Landscape- Concept and user experience, Features – Interactivity - The flow of content – Interaction between users – Power of copy – Social Media as a two way channel – Goals or Trends – case study - The Analytics Process - Elements to shape data insights – Analysis is Comparison – Shaping method – Analysis Cycle – Community activity – Resources - Attention span for reports – Dynamic cycles – short and long periods – Understand the audience – case study.

Unit 3: Metrics, Dashboards and Reports (12 hrs)

Metrics – Default and Custom metrics – Metric Categories – Divide and conquer – Metric Capabilities – examples – Metrics and Strategy – Estimated Metrics – Given by the social networks – calculated by third party technology – Metrics and Tactics - Dashboards – purpose – defining objectives – example – default vs custom dash boards – Linearity and order of Metrics – Reports - Elements of Reporting - Good Qualities for Each Element of Reporting - Elements in Chain - Reporting Approaches - A Note on Reporting Formats - Highlights - Goal Oriented - 360 Overview - Storytelling - Animation and Effects in Reporting - Images - Graphs - Numbers - or Text - Stakeholders and Feedback - Reporting with teams - Case study.

Unit 4: Strategy and Tactics (12 hrs)

Success Strategy in Social Analytics - Strategic Planning in Social Media Analytics - Data Availability and Data Sources - Knowledge beyond Social Media - Tools and Technology Preparation - Team Preparation Goals and Objectives - Reporting Cycles and Timelines - Contingency Plans - Application of a Social Media Analytics Strategy - Evaluation of a Strategic Analytics Cycle - Detecting a Hidden Strategy - Building a Good Social Analytics Strategy - Tactics - Practical Elements to Include in Social Analytics – Strategies - Tactics for Analytics Strategies - Correlation - Filtering - Ranking - Aggregation - Conversions and Rates - Goals and success rates - Competitive bench marking – Discovery - Case study.

Unit 5: The Future (12 hrs)

The Final Stage for Analytics Applications - Three Stages of Analytics - Descriptive Analytics Predictive Analytics - Prescriptive Analytics - Competitive Advantage as a Goal -Prescriptive Analytics - The Future of Social Media Analytics - What Can We Expect And How Can We Prepare For It? - The Need for More Data and the Digital Transformation - Integration and “Social Everywhere – Social Everything” - The Rise of Intelligent Machines and How to Befriend Them - Behavioral Changes and What Is Measured - Wise Investments: The Right Step at the Right Time.

References:

1. Social Media Analytics Strategy, Alex Gonclaves, 2017, Apress
2. Social Media Analytics, Marshall Sponder, 2012, The Mc-Graw-Hill Publisher.
3. Social Media Analytics, Mathew Ganis – Avinash Kohirkar, IBM Press.
4. Creating value with Social Media Analytics, Gohar.F.Khan, 2018, CreateSpace Independent Publishing Platform.
5. Social Network Data Analytics, Charu C.Aggarwal, Springer, 2011.
6. Social Media Data Mining and Analytics, Gabor Szabo, Gungor Polatkan, Osca Boykin, Antonios Chalkiopoulos, Wiley 2018.
7. Human-Centered Social Media Analytics, Yun Fu, Springer,2014
8. Social Media Analytics:40, Steve O'Connor, Emerald 2016.
9. Social Network Analytics, Computational Research Methods and Techniques, Nilanjan Dey, Samarjeet Borah, Rosalina Babo, Amira S.Ashour, Academic Press, 2019.
10. Social Media Analytics: A Primer, Sandeep Kautish, Simat Kaur Brar, Rana Khudhair Abbas Ahmed, LAP Lambert Academic Publications 2017.

Mapping of course outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3		2				
C04				4		
C05			3			

Mean = 3.0

PDS 5415 Software Engineering 4 Hrs / 4 Crs

This course aims to train the students to analyzer, estimate and design new software with quality standards. In this course the Essentials in Software Engineering, software processes and the various software engineering paradigms are introduced. Software testing methods and quality maintenance strategies are included.

Upon completion of this course, students will be able to:

i. Understand diverse software application domains with different process models used in software development.
ii. Elucidate the need for software specifications and requirements with their gathering techniques.
iii. Transform requirements model into design model and demonstrate software.
iv. Differentiate SCM and SQA models, classify testing strategies and tactics and evaluate them.
v. Generate project schedule and construct, design and develop network diagram for different type of Projects.

Unit 1: Introduction to Software and Software Engineering (12 hrs)

Software and Software Engineering – The Nature of Software – Software Engineering - The Software Process- Software Engineering Practice – Software Myths - The Software Process**:** Process Models**:** A Generic process Model – Process Assessment and improvement - Prescriptive process Models – Specialized Process Models- Unified process - personal and team process models.

Unit 2: MODELING: Principles that Guide Practice (12 hrs)

Principles that Guide Practice: Software Engineering Knowledge – Core Principles – Principles that guide Each Framework Activity. Understanding Requirements: Requirements engineering Establishing the Groundwork – Eliciting Requirements – Requirements Modeling: Scenarios, Information, and analysis Classes: Requirements Analysis- Scenario-Based Modeling - UML Models that supplement that use case – Data Modeling Concepts – Class-Based Modeling.

Unit 3: Design Concepts (12hrs)

Design with the Context of software Engineering – The Design Process – Design Concepts – The design Model. Architecture Design: Software Architecture- Architecture Genres – Architecture Styles - Architecture Design.

Unit 4: Software Testing Strategies (12 hrs)

A Strategic Approach to Software Testing- Strategic Issues – Test Strategies for Conventional Software – Validation Testing – System Testing – Testing Conventional Applications: Software Testing Fundamentals – Internal and External Views of Testing – White Box Testing – Basis Path Testing – Control Structure Testing - Black Box Testing.

Unit 5: MANAGING SOFTWARE PRODUCTS (12hrs)

Project Management Concepts: - The Management Spectrum – People – The Product –The Process – The Project – The W5HH Principle – Critical Practices. Project Scheduling: Basic Concepts.

Textbook:

1. "**Software Engineering a Practitioners Approach",** Roger S. Pressman, McGraw – Hill International Edition, Seventh Edition 2013.

References:

1. Roger S Pressman, " Software Engineering -A Practical Approach" Tata McGraw Hill, 7th Edition, 2013
2. Stephen R Schach, " Object Oriented and Classical Software Engineering", Tata McGraw Hill, 8th Edition,2010
3. Watts S Humphrey, "A Discipline for Software Engineering", Pearson Education, 2001.
4. Boriz and Beizer, "Software Testing Techniques", DreamTech, 2nd Edition, 2000.

Mapping of course outcomes with Bloom's Taxonomy

	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**
Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering					
K2: Understanding					
K3: Applying		3			3
K4: Analyzing				4	
K5: Evaluating	5		5		
K6: Creating					

Mean = 4.0

PDS 5417 Parallel and Distributed Computing 4 Hrs / 4 Crs

This course introduces the fundamentals of parallel and distributed computing and focuses on the basic architectural, programming, and algorithmic concepts in the design and implementation of parallel and distributed applications.

Upon successful completion of the course the students will be able to:

i. Understand the Architecture of Parallel Computing and Pipeline architecture
ii. Compare and contrast various parallel algorithms
iii. Discuss Pram Algorithm and Flynn's Taxonomy
iv. Infer concept and functioning of Distributed Computing
v. Comprehend various system models and Synchronization

Unit 1: Architecture and Pipeline (12 hrs)

Introduction – Parallel Computing Architecture – Performance metrics – Parallel programming models – Algorithms – Distributed Processing – Pipeline processing – performance – Arithmetic pipelines – pipeline Instruction processing – Pipeline Stage Design – Dynamic Instruction scheduling – Memory systems in pipelined processes – pipeline scheduling theory – High Performance – Processor Designs – Branch prediction.

Unit 2: SIMD Architecture and algorithms (12 hrs)

Introduction – SIMD – architecture and programming principles – SIMD parallel algorithms – Data Mapping and memory in array processors – Mapping data to processors on processor arrays and multi computers – Dynamic load balancing on multicomputer – static scheduling on UMA multiprocessors - deterministic models – graham's list scheduling algorithm – Coffman – graham scheduling algorithm – non deterministic models.

Unit 3: Pram Algorithms (12 hrs)

Pram algorithms – Pram models of parallel computation – Pram algorithms – Reducing the no. of processors – Processor organizations – mesh networks – Binary tree networks – hypertree networks – Processor - Processor Arrays – Multiprocessors – UMA – NUMA – Multicomputers – Flynn's taxonomy.

Unit 4: Distributed Systems (12 hrs)

Introduction to Distributed Systems – Advantages of Distributed systems over centralized systems – Hardware and Software concepts – Network Operating Systems – Distributed and Time Sharing systems - Design Issues – Communication in Distributed System s – Layered Protocols – Asynchronous Transfer Mode networks – Client Server Model – Remote Procedure Call – Group Communication

Unit 5: Synchronization and Processes (12 hrs)

Synchronization in Distributed Systems – Clock Synchronization - Mutual Exclusion - Election Algorithms – Atomic Transactions – Deadlocks in Distributed Systems - Processes and Processors in Distributed Systems - Threads – System Models – Processor Allocation Algorithms – Scheduling in Distributed Systems - Fault Tolerance – Real Time Distributed Systems.

References:

1. Parallel Computing, M.R.Bhujade, New Age International, 2009
2. Parallel Computing: Theory and Practics 2nd Edition – Tata McGraw-Hill Education – 2002.
3. Distributed Computing: Principles and Paradigms, Andrew S.Tanenbaum, Prentice Hall, 2002.
4. Kai Hwang and Zhi.Wei Xu, “Scalable Parallel Computing”, Tata McGraw-Hill, New Delhi, 2003.
5. David E. Culler & Jaswinder Pal Singh, “Parallel Computing Architecture: A Hardware/Software Approach”, Morgan Kaufman Publishers, 1999.
6. Michael J. Quinn, “Parallel Programming in C with MPI & OpenMP”, Tata McGraw-Hill, New Delhi, 2003.
7. Kai Hwang, “Advanced Computer Architecture” Tata McGraw-Hill, New Delhi, 2003.
8. David B. Kirk, Wen-mei W. Hwu. Programming Massively Parallel Processors: A Hands-on Approach. Morgan Kaufmann, 2010.

Mapping course outcome with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2		4		
CO3			3			
C04				4		
C05					5	

Mean = 3.8

PDS 421V Data Analysis using Tableau 2 hrs /2 cr

This course aims to learn how to become a master at communicating business-relevant implications efficiently using data visualizations in Tableau, the most popular visualization program in the business world. Tableau is a data visualization tool or business intelligence tool which analyzes and shows data in a chart or report fast. Data visualization and predictive analytics is a norm in every industry today.

Upon successful completion of the course the students will be able to:

Understand data visualization

i. Connect to various data sources
ii. Create complex calculations, share and publish visualizations
iii. Apply the filtering and groups
iv. Build a variety of basic charts

Unit 1: Introduction 6 hrs.

Introducing Visualization and Tableau - data visualization - expectations for a data visualization tool - reasons to make a switch to Tableau - positioning of Tableau - Tableau product line - file types in Tableau Tableau Workbook (twb) - Tableau Packaged Workbook (twbx) Tableau Data Source (tds) file - Tableau Packaged Data Source (tdsx) file

Unit 2: Connecting with Tableau 6 hrs.

Working with Single and Multiple Data Sources Desktop architecture - Data layer - Data connectors - Tableau environment To open – To close - Start page - Data Source Page Workspace - Workbooks and Sheets Visual Cues and Icons in Tableau - Connect to a File - Connect to a Text File - Connect to MS Access, R, MySQL, NoSQL Databases - Joins Adding Fields to the Data Pane - Exploring different types of Join Union

Unit 3: Function in Tableau 6 hrs.

Table Calculations - Profitability as Percent of Total - Moving average - Types of moving average - Rank - LOD (Level of Detail) - Percentile -Number functions - String functions - Logical Functions - Date functions

Unit 4: Filtering and Groups **6 hrs.**

Simplifying and Sorting Your Data Filtering – filtering - Sorting - Discrete and Continuous Data - Groups - create a group - editing an existing group - creating hierarchies sets Contents - Difference between a set and group - Group Set Creating parameters

Unit 5: Statistics and Charts **6 hrs.**

Statistics - number summary - Spread of data - Box plot - Pie chart - Line Graph - Scatter plot – Histogram - Word Cloud - Waterfall charts - Bump charts - Bullet graph

Textbook

1. Joshua N.Milligan, "Learning Tableau 2019", Packt Publishing, 2019

Reference

1. Seema Acharya, Subhashini Chellappan, "Pro Tableau", A step by step guide, APress 2017.
2. Daniel G.Murray, with the InterWorks team "Tableau Your Data", Wiley, 2013
3. https://www.tutorialspoint.com/tableau/tableau_quick_guide.htm
4. https://www.javatpoint.com/tableau
5. https://intellipaat.com/blog/tutorial/tableau-tutorial/introduction-tableau

Mapping course outcome with Bloom's Taxonomy

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO2		2				
CO3			3			
CO4					5	
CO5				4		

Mean = 3.0

POSTGRADUATE DEPARTMENT OF MICROBIOLOGY

Value Added Courses

w.e.f. 2020-2021

Semester	Course Code	Course Title
I	**MIM 421V**	Food preservation techniques
II	**MIM 422V**	Spectroscopic techniques for biological samples
III	**MIM 521V**	IPR & Bioethics
IV	**MIM 522V**	Molecular Diagnostics

MIM421V Food Preservation Technology 2Hrs / 2Cr

The course aims to introduce the students the concept of food preservation. This is necessary for effective understanding of a detailed study of food processing and techniques implied in food industries. To impart students with basic knowledge relating to principles of preservation.

On completion of the course the students are expected to

i. Be aware of the different methods applied to food preservation.
ii. Analyze the food commodities their conversion to a food product and to understand the post-harvest changes and their reasons.
iii. Be familiarize with processing and preservation techniques handled for various food products.
iv. Able to utilize the various preservative methods for food industrial settings.
v. Comprehend the processing techniques utilized in food industries.

UnitI: Fundamentals of Food Preservation (6hrs)

Introduction to food preservation- Objectives of food processing & preservation - Principles of preservation methods. Importance and Scope of preservation industry in India.

Unit II: **Post-harvest changes and Spoilage(6 hrs)**

Post-harvest Changes and Spoilage - Physical, chemical and microbiological changes in fruits and vegetables - Factors affecting growth of microorganisms and the control measures.

UnitIII: Low Temperature Preservation(6 hrs)

Preservation by low temperature- Refrigeration, freezing and freeze-drying, cold storage, Introduction to thawing, changes during thawing and its effect on food.

UnitIV: Thermal Processing(6 hrs)

Preservation by high temperature- Drying, Dehydration, Canning, Pasteurization, Sterilization, Blanching.

UnitV: Chemical Preservatives and Fermentation(6 hrs)

Preservation by preservatives- Objectives, Principles, Types of preservatives, Natural & Chemical Preservatives. Chemical preservatives- Safety in use and certification levels.Fermentation - Principles, Types of fermentation, Types of fermented foods, Advantages of fermentation.

Textbooks:

1. Karnal, Marcus and D.B. Lund Physical Principles of Food Preservation. Rutledge, 2003.
2. VanGarde, S.J. and Woodburn. M Food Preservation and Safety Principles and Practice.Surbhi Publications, 2001.
3. Sivasankar, B. Food Processing and Preservation, Prentice Hall of India, 2002.
4. Khetarpaul, Neelam, Food Processing and Preservation, Daya Publications, 2005.

References

1. Desrosier. Food Preservation. 4th edition. 1977. AVI Publication.
2. Fennema. Physical Principles of Food Preservation. 2nd Volume. 1975. M. Dekker Publisher.
3. Novel Food Processing Technologies, Ed., Barbosa-Canovas, G.V.; Tapia M.S.:Pilar Can M.Pub.Routledge(Taylor and Francis Group), USA.2004.ISBN:978-0-8247-5333-7(hardback) 978-0-203-99727-7(electronic)

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2			3	3	3	6
CO3		2	3	4		
CO4			3	4	5	6
CO5			3	4		6

Mean: 3.8

MIM422V **Spectroscopic Techniques for Biological Samples** **2Hrs / 2Cr**

This course aims to provide a basic understanding of spectroscopic techniques. It introduces the students to basic tools and operation in analytical laboratory safety, materials and reagents, and sample processing. Basic concept of spectroscopy, its instrumentation, theory, principle, demonstration of sample preparation, analysis, result interpretation of different spectroscopic techniques such as UV visible, Fluorometry, Fourier transform infrared (FTIR) spectrometers and Atomic Spectrometric Methods are dealt with.

Upon completion of this course, students will be able to

i. Outline the basic tools and operation in materials and reagents, sample processing and analytical laboratory safety
ii. Understand the interaction of electromagnetic radiation with matter
iii. Review the basic concept of spectroscopy
iv. Apply the theoretical principle and sample analysis for different spectroscopic techniques
v. Analyze the results and interpretation of different spectroscopic techniques

Unit I: Basic tools and operation (6Hrs)
Laboratory Materials and Reagents - Preparation of Standard Solutions - Handling and Treating Samples- Obtaining the Sample- Laboratory Safety.

Unit II: Introduction to spectroscopy (6 Hrs)
History - Interaction of electromagnetic radiation with matter - Spectrometric Instrumentation – types -Beer Lamberts law.

Unit III: UV Visible and Fluorometry (6Hrs)
Theory and principle – instrumentation – demonstration of sample preparation- analysis – results and interpretation.

Unit IV: Fourier transform infrared (FTIR) spectrometers (6Hrs)
Theory and principle – instrumentation – demonstration of sample preparation- analysis – results and interpretation.

Unit V: Atomic Spectrometric Methods(6Hrs)
Theory and principle – instrumentation – demonstration of sample preparation- analysis – results and interpretation.

Textbooks:

1. Gary D. Christian, Purnendu K. Dasgupta, Kevin A. Schug, (2014). Analytical chemistry. Seventh edition, John Wiley & Sons, Inc.pp 477-574.

References

1. John R Dean.(2014). Environmental trace analysis: techniques and applications, First edition, John Wiley & Sons, Ltd pp 150-258
2. Settle, F. A. (1997). Handbook of instrumental techniques for analytical chemistry. Prentice Hall PTR.
3. Gary D. Christian (2002). Analytical Chemistry, Student Solutions Manual-Wiley.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2	3			
CO3				4	5	
CO4				4	5	
CO5				4	5	

Mean: 3.8

MIM521V Intellectual Property Rights and Bioethics 2hrs / 2 Cr

Scientific and technological advances will never be anti-ethical. For mankind, "a search for new ways" means better conditions for achieving autonomy. Developments in the life sciences – genetic engineering, cloning, and manipulation of cell lines, exploitation of genetic resources – have sparked vigorous debate about the ethical dimension of technologies. The ethical dimension of the life sciences touches many issues and policy communities, but one widely debated aspect is the ethical implications of protecting biotechnological inventions through the intellectual property (IP) system

Upon completion of this course, students will be able to

i. Describe the concepts and Various components of IPR
ii. Explain the basics concepts of Patent Process
iii. Outline the Patent Filling Procedures
iv. Integrate the Association of IPR and Biotechnology
v. Discuss the importance of Bioethics

Unit I: Introduction to IPR (6hrs)
Concepts and Types, Copyrights, designs, Trademark, Protection of GMOs, IP as factors in R&D, Agreements and Treaties- GATT, TRIPS, WIPO, IPR&WTO

Unit II: Basics of Patent (6hrs)
Introduction, Basic Principles of Patent Laws, Types of Patent application, Patentable subjects and Protection in Biotechnology, Patent Data Base, Country wise Patent Searches (USPTO,esp@cenet (EPO),Patent scope(WIPO), IPO

Unit III: Patent Filling Procedures (6hrs)
National and PCT filling Procedures, Time frame and cost, Status of patent, application field, Financial assistance for patenting and patent infringement (Scope, litigation, case studies)

Unit IV: IPR & Biotechnology (6hrs)
Concept and Definition of Biopiracy, Bioeconomy & challenges and Bioprospecting farmer Right

Unit V: Bioethics (6hrs)
Introduction to bioethics, Ethical implication related to Healthcare, Food and Agriculture and Genetic engineering, Biological weapon, Components of institutional ethical committee (Human and Animal), Ethical limit of animal use, Green Peace- Human Rights and Responsibilities

References

1. Beier F.K, Crespi R.S and Straus T. Biotechnology and Patent protection, Oxfordand IBH Publishing Co. New Delhi.
2. Jeffrey M. Gimble, Academia to Biotechnology, Elsevier Academic Press.
3. Sasson A, Biotechnologies and Development, UNESCO Publications.
4. Senthil Kumar Sadasivam and Mohammed Jaabir M. S. (2008). IPR, Biosafety andBiotechnology Management, Jasen Publications, India.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				6
CO2		2	3	2		
CO3						
CO4		2				
CO5			3			6

Mean: 3.3

MIM522V Molecular Diagnostics 2hrs / 2 Cr

This course offers insight into polymerase chain reaction as a tool for diagnosis of infections in a clinical setting. This will help students the various steps involved in the detection of genetic markers for accurate identification of infectious agents. It will equip students to set up and maintain a molecular biology laboratory.

Upon completion of this course, students will be able to:

i. Setup and maintain a molecular biology laboratory and understand the importance of curate identification of infectious agents with PCR
ii. Understand the significance of obtaining good quality nucleic acid samples for PCR reaction.
iii. Describe the different components of PCR and will be able to prepare PCR reaction mixture accurately and storage of PCR products.
iv. Analyze PCR products by agarose gel electrophoresis.
v. Demonstrate the detection of genetic markers by PCR

Unit I: Introduction to molecular diagnostics (6 hrs)

Molecular diagnostics lab layout- Setting up a PCR laboratory- Biosafety practices- practices to minimize contamination- good work practices- Practical applications of a molecular diagnostics in clinical laboratory medicine

Unit II: Nucleic acid extraction (6 hrs)

Extraction method selection- Preparation of reagents- basic extraction steps- Nucleic acid quantity and purity analysis by spectrophotometry and gel electrophoresis

Unit III: Polymerase chain reaction (PCR) (6 hrs)

Introduction to PCR- Basic steps involved in PCR- Components of PCR- Preparation of PCR reaction mix- Running a PCR reaction- Importance of negative controls and positive controls- Storage of PCR products.

Unit IV: Analysis of PCR amplicons by gel electrophoresis (6 hrs)

Introduction to agarose gel electrophoresis- Reagent preparation- Separation of PCR products by AGE- Viewing of the amplicons by gel documentation- interpretation of results- troubleshooting

Unit V: Demonstration of PCR (6 hrs)

Preparation of template DNA- preparation of PCR reaction mix- Performing PCR- Agarose gel electrophoresis- gel documentation.

Textbook:

1. Stoddard, R. (2013). PCR detection of microbial pathogens. Springer Protocols. Springer.

References:

1. World Health Organization Staff, & World Health Organization. (2004). Laboratory Biosafety Manual. World Health Organization.
2. Hayashi, K., Mullis, K. B., Ferré, F., & Gibbs, R. A. (1994). The Polymerase Chain Reaction Birkhäuser Basel.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				6
CO2		2	3	2		
CO3						
CO4		2				
CO5			3			6

Mean: 3.3

DEPARTMENT OF MANAGEMENT STUDIES

MBA Programme (Dual Specialisation)

PROGRAMME OUTCOMES (POs)

1. *Academic Excellence*: Being a member of the academic community with advanced discipline-specific knowledge and professional skills in the relevant field with the prowess to communicate complex ideas and to engage in current critical debates with all sensitivity and fairness.
2. *Higher Order Thinking Skills*: Ability to critically think, analyse, evaluate, and create new knowledge and skills both in the chosen discipline and across other fields.
3. *Subscription to Quality Research*: Ability to design and carry out independent research, to update oneself with current research trends and contemporary inputs in the discipline, and to evaluate research contributions.
4. *Lifelong Learning*: Ability to learn, unlearn, and relearn knowledge and skills in the emerging areas of the field of specialization.
5. *ICT Literacy*: Ability to be digital natives so that they can access a wide range of technologies for personal, academic and professional use and to be members of online communities enjoying the unlimited access blending transparency with accountability and fair practices.
6. *Good Communication*: Ability to participate in public discourse on varied themes and topics in one's mother tongue as well as in English as a global link language.
7. *Individuals as Assets*: To be academically honest, intellectually curious, ethically responsible, professionally competent, and spiritually inspiring citizens.
8. *Civic and Social Responsibility*: Ability to function as matured democratic citizens with participation in issues of equity, gender equality, social justice, sustainable development, and poverty alleviation.
9. *Continuous Professional Development*: Ability to continuously develop oneself professionally and to critically improve one's self with a view to taking appropriate decisions in diverse professional and real life environments.
10. *Global Citizenship*: Ability to work effectively and to live responsibly in a global context of cross-cultural life and capability, to value human diversity and lead life of timeless learning and endless opportunities.

SEMESTER	COURSE NO.	COURSE TITLE	HOURS / WEEK	Credit
Semester I	MBA 4421	Essentials of Management	4	4
	MBA 4423	Organizational Behaviour	4	4
	MBA 4425	Legal Aspects of Business	4	4
	MBA 4427	Management Information System	4	4
	MBA 4525	Economics for Managers	5	5
	MBA 4529	Managerial Accounting	5	5
	MBA 4221	Fundamentals of Computer Applications (Lab - I)	2	2
	MBA 4223	Business Environment (Self Study-Seminar - I)	2	2
Semester II	MBA 4420	Entrepreneurship	4	4
	MBA 4422	Operations Management	4	4
	MBA 4424	International Business Management	4	4
	MBA 4426	Marketing Management	4	4
	MBA 4428	Human Resource Management	4	4
	MBA 4528	Corporate Finance	5	5
	MBA 4222	Business Application Software (Lab – II)	2	2
	MBA 4224	Contemporary Management Practices (Self Study – Seminar - II)	2	2
	MBA 4122	Managerial Skills – I (Activity)	1	1
Summer	MBA 4500	Summer Internship	-	5

Value Added Courses

SEMESTER	COURSE NO.	COURSE TITLE	HOURS / WEEK	Credit
Semester I	MBA 421V	Executive Communication	2	2
Semester III	MBA 521V	Capital Market	2	2

PROCEDURE FOR DUAL SPECIALISATION

1. Rank the subjects under each area of specialization based on its weightage or importance.
2. Form a table including all the subjects as given below.

Finance Management	Marketing Management	Human Resources Management	International Business Management
III Semester			
Investment and Portfolio Management	Advertising & Sales Promotion	Training and Development	International Financial Management
Financial Derivatives	Consumer Behaviour	Organizational Change and Development	International Logistics
Merchant Banking & Financial Services	Services Marketing	Industrial Relations and Labour Law	Global Trade Practices & Documentation
IV Semester			
Financial Modeling	Digital Marketing	Talent and Knowledge Management	International Marketing
Banking and Insurance	Rural Marketing	Emotional Intelligence	Foreign Trade Policies / EXIM Policies & Procedure
Strategic Cost Management	Retail Marketing	Compensation Management	Cross Cultural Business Management

3. Students may choose any 3 subjects in the 3rd and 4thsemester under the condition that they cannot choose more than one subjects from the same row.
4. Students should restrict their choice within maximum of two specialization area.

PROGRAMME SPECIFIC OUTCOMES

PSO 1: Develop the knowledge of business management and administration across all domains.

PSO 2: Describe and analyse current domestic and international business trends.

PSO3: Analyse business situations and inculcate entrepreneurial skills.

PSO4: Evaluate and evolve various business strategies.

PSO5: Apply accounting and financial management principles and practices in business.

PSO6: Outline the principles related to human resources management.

PSO7: Assess the business ethical practices and the impact of corporate social responsibilities.

PSO8: Design and apply technology and modern analytics in managerial decision making.

PSO9: Solve the complex management problems with an understanding of its impact.

PSO10: Create skills related to planning, organizing and controlling of an organisation.

Mapping of Courses with

Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
MBA 4421	X		X		X			X	X	X
MBA 4423	X	X		X	X	X	X		X	X
MBA 4425	X	X	X	X			X	X	X	
MBA 4427	X	X	X				X	X	X	
MBA 4525	X	X	X	X	X				X	X
MBA 4529		X	X	X	X				X	X
MBA 4221	X	X	X	X	X	X			X	X
MBA 4223	X	X	X	X			X			X
MBA 4420	X	X	X					X	X	X
MBA 4422	X	X		X		X		X	X	
MBA 4424	X	X	X		X		X	X		X
MBA 4426	X	X		X			X	X	X	X
MBA 4428	X	X		X		X	X		X	X
MBA 4528	X	X		X	X		X		X	X
MBA 4222	X	X		X	X			X	X	X
MBA 4224	X	X	X	X			X			X
MBA 4122	X	X	X	X			X	X	X	X
MBA 4500	X	X			X			X	X	X

Mapping of Programme Specific Outcomes (PSOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO 1	X									X
PSO 2			X							
PSO 3						X				
PSO 4								X		
PSO 5								X		
PSO 6								X		
PSO 7							X			
PSO 8		X			X	X			X	
PSO 9		X								
PSO10				X						X

MBA 4421 ESSENTIALS OF MANAGEMENT 4 Hours/ 4Credits

This course provides an introduction to the basic management processes in organization. It introduces students to the environment of management and covers the basic management functions like planning, organizing, leading and controlling. Further, it develops an understanding of the development thoughts through ages and its applications.

At the end of the course, students will be able to

i. Compile the overview of the concept of management
ii. Analyze various types of plans and decisions in an organization
iii. Comparing various types of organization and analyze the staffing functions
iv. Finding the facet of direction in management
v. Evaluating and Designing the appropriate controlling techniques for an organization

Unit–1: Overview of Management (10 Hours)

Definition of Management –Science or Art – Nature and Scope of Management – Management Theories–Evolution of Management Thought–Importance of Management – Features of Management – Functions of Management – Difference between Management and Administration –Role and Skills of Managers–Functions of Manager –Approaches of Management.

Unit–2: Planning (12 Hours)

Nature – Importance – Types of plans– Steps Involved in Planning Process – Objectives – Setting Objectives – MBO – Strategies – Nature and Purpose of Strategies and Policies– TOWS Matrix for Strategy Formulation – Decision Making: Importance – Types – Decision Making Process – Creativity and Innovation

Unit–3: Organizing (14 Hours)

Nature and Purpose – Types – Process of Organizing – Organization Chart – Departmentation – Types – Line and Staff Authority – Centralization and Decentralization – Delegation – Staffing: Elements of Staffing – Functions of Staffing – Processing of Staffing – Placement and Orientation – Approaches to Manager Development: On the Job and Off the Job Training – Importance of Performance Appraisal –Application of Performance Review Software

Unit–4: Directing (14 Hours)

Motivation– Nature of Motivation – Types of Motivation – Requirements of Sound Motivational System – Leadership – Characteristics of Leadership – Difference Between Leader and Manager – Leadership Theory – Communication– Barriers in Communication–Guidelines for Improving Communication – Promoting Electronic Media in Communication

Unit–5: Controlling (10 Hours)

Introduction to Controlling –Scope of Control – Steps in Control process –Control as a Feedback System – Requirements of Effective Control System – Techniques of Control

Textbooks:

1. Harold Koontz and Heinz Weihrich, Essentials of Management, Tata McGraw-Hill,2015.
2. Ramasamy T,Principles of Management, Himalaya Publishing,2018.

References:

1. Stephen P. Robbins and Mary Coulter, Management, Prentice Hall of India,2007.
2. Andrew J. Dubrin, Essentials of Management, Thomson South Western,2009.
3. VSP Rao and V.H. Krishna, Management, Excel Books,2008.
4. Joseph and Massie, Essentials of Management, Prentice Hall of India,2005.
5. Tripathy PC and Reddy PN,Principles of Management, Tata McGraw- Hill,2012.

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

CourseOutcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X									
CO2	X									X
CO3	X				X	X		X		X
			X		X			X	X	X
			X		X			X	X	X

Revised Blooms Taxonomy

CourseOutcomes (COs)	Skill Levels					
	K1	K 2	K 3	K4	K 5	K 6
CO1	1			4	5	
CO1	1		3		5	
CO1	1		3		5	
CO1	1				5	6
CO1	1				5	

Mean: 3.3

MBA 4423 ORGANISATIONAL BEHAVIOUR 4 Hours/ 4 Credits

To gain a deep understanding of human behavior in organizations from multiple perspectives and frameworks and to learn the suitable tools to effectively analyze and approach different organizational circumstances.

At the end of the course, students will be able to

i. Understand the evolution of Organizational Behaviour and relevance of OB to Managerial Roles
ii. Demonstrate the applicability of the concept of personality and perception to understand and shape the behavior of people in the organization.
iii. Analyze the importance of attitude and motivation in achieving organisational outcomes
iv. Analyze the importance of Group Behavior and its effect on Organizational Outcomes
v. Appraise the effect of organisational change , development and culture on organisational outcomes

Unit – 1: Introduction and historical overview (12 Hours)

Organisational Behaviour – Definition, Need, Importance and Scope, ContributingDisciplines, Models of Organizational Behaviour, HistoricalOverview of the Field

Unit – 2: Foundations of individual behaviour (12 Hours)

Individual Behaviour – Personality – Determinants of Personality, Theories of Personality and Measuring Personality, Perception - Perceptual Process, Factors Influencing Perception, Shortcuts Used for Judging Others Learning – Theories of learning – Shaping Behavior

Unit – 3: Attitude and Motivation – Concepts & Theories (12 Hours)

Attitudes – Nature and Components of Attitudes, Functions of Attitudes and Changing Attitudes. Motivation- Content and Process Theories of Work Motivation, Motivation through Employee Recognition Programs and Employee Involvement Programs

Unit – 4: Group Dynamics and Leadership (12 Hours)

Group Behaviour – Dynamics of Group Formation – Types of Groups – Reasons for Group Formation. Leadership – Leadership Styles – Difference Between a Leader and Manager. Stress – Definition, Causes of Stress, Managing Stress, Emotional Intelligence.

Unit – 5:Dynamics of Organization (12 Hours)

Organisational Change – Types of Change, Process of Change, Resistance to Change and Overcoming Resistance to Change. Organisational Development – OD Interventions. Organisational Culture

Textbook:

Stephen P. Robbins, Organization Behavior , Stephen P. Robbins , Timothy A.Judge ,Neharika ohra, Organization Behavior , Pearson education,(16th ed) , 2016

References:

1. Fred Luthans, Organization Behavior McGraw Hill Higher Education, 12th Edition, 2017
2. Schermerhorn, Osborn, , Hunt , John Wiley and Sons Ltd , 11th edition , 2011

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X				X					
CO2				X	X				X	
CO3					X	X				X
CO4				X	X					
CO5		X		X	X		X			

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3		5	
CO2	1	2		4	5	
CO3	1			4		6
CO4	1				5	6
CO5	1			4		6

Mean: 3.4

MBA 4425 LEGAL ASPECTS OF BUSINESS 4 Hours/4 Credits

To orient on the basic legal framework of the various Statutory Provisions in India, that can guide future managerial decisions.

At the end of the course, students will be able to

i. Understand the essential requirements while framing a Contract and rules concerning it.
ii. Be aware of the terms and conditions used in a contract and realize it's implications.
iii. Apprehend the different types of Special Contracts, the right and duties of the parties involved.
iv. Interpret the obligations and rights of Buyer and Seller under a Contract of Sale.
v. Decipher the protection provided by Competition, IT and RTI acts.

Unit –1: Indian Contract Act, 1872: Part 1 (13 Hours)

Essential Elements of a Valid Contract - Formation of Contract- Difference between Agreement and a Contract - Classification of Contracts / Agreements - Offer/ Proposal ; Essentials of a Valid Proposal ; Kinds of Offer; Invitation to an Offer ; Termination of Offer - Acceptance : Rules Regarding Acceptance; Revocation of Offer ; Revocation of Acceptance ; Consideration : Rules Regarding Consideration ; Types of Consideration; Contract without Consideration is Void

Unit – 2: Indian Contract Act, 1872: Part 2 (13 Hours)

Capacity of Parties: Rules Regarding Minor Agreements ; Free consent : Effect of Flaw in Consent; Coercion, Undue Influence, Fraud, Misrepresentation, Mistake, Mere Silence or Non-Disclosure, Legality of Object / Consideration, Agreements Against Public Policy ; Void Agreements, Exceptions, Wagering Agreement, Specific Grounds of Frustration, Effects of Frustration ; Quasi Contracts : Types of Quasi Contracts , Obligations of Parties to a Contract ; Discharge of a Contract; Breach of Contract and Remedies Against Breach ; Amendment Bill 2017

Unit – 3: Special contracts Part 1 (12 Hours)

Contracts of Indemnity: Essential Elements, Rights ;Contracts of Guarantee: Essentials and Features, Surety's Liability, Rights of Surety, Discharge of Surety from Liability, Distinction between Indemnity and Guarantee ; Contracts of Bailment : Classification, Rules of Gratuitous Bailment, Distinction between Gratuitous and Non Gratuitous Bailment, Essentials of a Valid Contract of Bailment, Specific Cases of Bailment, Duties and Rights of Bailor, Duties and Rights of Bailee, Right of Lien, Distinction between Particular and General Lien, Finder of Goods, Termination of Bailment

Unit – 4: Special Contracts Part 2 and Sale of Goods Act, 1930 (13 Hours)

Contracts of Pledge – Essentials, Rights and Duties of Pawnor, Rights and Duties of Pawnee ; Contracts of Agency – Principal, Agent, Modes of Creation of Agency, Kinds of Agents, No Personal Liability, Duties and Rights of an Agent, Duties and Rights of Principal, Relations of Principal with Third Parties, Termination of Agencies ; Sale of Goods Act, 1930: Goods and it's Types, Essentials of Valid Contract of Sale, Difference Between Sale and Agreement to Sell; Conditions and Warranties, Doctrine of Caveat Emptor, Exceptions to this Doctrine; Transfer of Ownership, Transfer of Title, Rules as to Delivery, Rights of Unpaid Seller and Rights of Buyer

Unit – 5: Competition, IT and RTI Act (9 Hours)

The Competition Act, 2002: Objectives and Main Provisions; The Information Technology Act, 2000: Objectives and Main Provisions; Cyber Crimes and Penalties; The RTI Act, 2005: Objectives and Main Provisions

Textbooks:

1. N. D. Kapoor, Elements of Mercantile Law, Sultan Chand & Co, New Delhi 2016.
2. P.K. Goel, Business Law for Managers, Bizentra Publishers, India, 2015.

References:

1. P.P.S. Gogna, Mercantile Law, S. Chand & Co. ,New Delhi, 2016
2. Akhileshwar Pathak, Legal Aspects of Business, Tata Mc Graw Hill, Delhi 2018

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X	X	X							
CO2								X	X	
CO3							X		X	
CO4		X		X					X	
CO5	X			X					X	

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3			
CO2	1	2		4	5	6
CO3	1				5	
CO4	1			4		6
CO5	1			4	5	6

Mean : 3.4

MBA 4427 MANAGEMENT INFORMATION SYSTEM 4 Hours/ 4 Credits

To help the students understand the concepts and need of computer based information system so that they would participate effectively in designing and utilizing such systems for carrying out managerial decisions under various circumstances.

At the end of the course, students will be able to

i. Identify the basics of Management Information System
ii. Outline the Information Technology used by the Management in organization
iii. Analyze and design the system and the different tools required for the Information system
iv. Compile the Data ware housing and data mining techniques
v. Outline the Customer Relationship Concepts in the Business World

Unit – 1:Fundamentals of MIS (12 Hours)

Conceptual Foundation of MIS - Management – Definition - System – Information System – Fundamental Roles of MIS in Business – Components of Information Systems – Information System Resources – IS activities - Trends in Information Systems – Types of Information Systems – Operations Support System – Management Support System.

Unit – 2: Information Technology (12 Hours)

Information Technology – Strategic Uses of Information Technology – Managerial Challenges of Information Technology - Re-engineering Business Processes – Role of IT – Agile and Virtual Company - Challenges of IT Careers

Unit – 3:System Analysis & Design (12 Hours)

System Analysis and Design – Feasibility Studies – System Analysis – System Design – Prototyping – ER Diagram - End User Development - Dataflow Diagram for Business – Big Data Analytics– Cloud Computing – Mobile Computing – Smart Machines – Internet of Things

Unit – 4:Data Mining & Data Warehousing (12 Hours)

Database Management – Database Structures – Data Warehousing – Data Mining – Functional Business Systems – Marketing Systems – Interactive & Targeted Marketing – Sales Force Automation – Human Resource Systems – Accounting Systems – Financial Management Systems

Unit – 5: Customer Relationship Management (12 Hours)

Customer Relationship Management – Major Application Clusters – Phases of CRM – Benefits, Challenges and Failures in CRM – Decision Support in Business – Decision Structure – Management Reporting Alternatives – OLAP – Analytical Modeling – Executive Information System – Artificial Intelligence – Expert Systems – Components, Applications, Benefits and Limitations

.

Textbook:

Ramesh Bhel, James A O'brien, George M Markas, , Management Information System (Eleventh Edition, Special Indian Edition) Mc GrawHill Education, 2019

References:

1. Gary W Dickson & James C Wetherbe, The Management of information System, Mc GrawHill, 2007
2. Janakiraman V S & Sarukesi V S. Decision support system (Eastern Economy Edition.) PHI, 2006
3. Gordon B Davis, Margret H Olson, Management Information System (2 ed) Mc GrawHill, 2001
4. Senn A James, Analysis and Design of Information Systems (2 ed.) Mc GrawHill, 2001
5. Jiawei Han, Micheline Kamber, Jian Pei, Data Mining, Concepts and Techniques, Morgan Kaufmann Publishers an Imprint of Elsevier, 2011.
6. John W Gosney, Thomas P Boehm, CRM Essentials, PHI, 2000

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X							X		
CO2		X						X		
CO3			X							
CO4							X	X		
CO5									X	

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3	4		
CO2	1			4		
CO3	1				5	6
CO4	1				5	6
CO5	1			4	5	

Mean: 3.35

MBA 4525 ECONOMICS FOR MANAGERS 5 Hours/ 5 Credits

Economics has much to offer business executives. Economists have a depth of knowledge to say about pricing, evolving market structures, capital structure, profit planning, investment, National Income etc. They can warn of coming market collapses and hopefully point out on expanding market opportunities. Hence, the objectives are to acquire knowledge and understanding of various economic principles and help managers in its applications in the real life of business.

At the end of the course, students will be able to

i. Familiarize the Fundamentals of Business Economics
ii. Identify the demand and supply determinants and analyze the Cost-Output Relationship.
iii. Classify the market structures and examine the pricing strategies under each market.
iv. Understand the methods of factor pricing and decisions related to distribution of revenue in a business.
v. Discuss the influences of macroeconomic variables in a business.

UNIT-1: Introduction (15 hours)

Meaning and Definition of Economics and Business Economics - Scope of Economics – Divisions, Approaches and Methods of Economic Study – Basic Economic Concepts - Utility and Value, Goods and Services, Cost and Price, Firm and Industry, Supply and Demand, Production and Consumption - Economy and Economic Systems: Capitalism. Socialism, Mixedism and Globalism - Central Problem of an Economy – Production Possibility Curve – Objectives of Business Firm.

UNIT-2: Demand and Supply Analysis (15 hours)

Demand: Meaning – Determinants of Demand – Laws of Demand – Elasticity of Demand : Types and Measurement – Consumer Equilibrium : Marginal Utility Theory – Indifference Curve Analysis – Consumer Surplus **Supply**: Meaning – Determinants – Law of Supply – Elasticity of Supply –Types - Market Equilibrium - Changes in Demand and Supply.

UNIT-3: Production, Cost and Revenue Analysis (15 hours)

Production Analysis: Production Function- Factors of Production – Laws of Production: Law of Variable Proportions – Law of Returns to Scale - Economies and Diseconomies of Scale – **Cost Analysis**: Cost Concepts - Types of Costs - Short and Long Run Cost Curves – Relationship Between Average and Marginal Cost Curves and Total, Fixed and Variable Costs **Revenue Analysis**: Revenue Concepts - Total Revenue, Average Revenue- Marginal Revenue - Revenue Curves – Relationship Between Average and Marginal Revenue

UNIT-4: Market and Distribution Analysis (15 hours)

Market Analysis: Meaning of Market - Market Structure: Perfect Competition : Features – Price, Output and Profit Determination in Short and Long Run – Monopoly : Features – Price, Output and Profit Determination in Short and Long Run – Types of Monopoly - Price Discrimination - Dumping – Monopolistic Competition : Features – Product Differentiation - Oligopoly : Features – Types. **Distribution Analysis:** Meaning - Factor Pricing - Marginal Productivity Theory of Distribution - Modern Theory of Distribution

UNIT-5: Macro Economic Analysis (15 hours)

National Income: Basic Concepts - Methods of Measurement - Problems of National Income Analysis - **Business Cycle**: Meaning – Features – Phases of Business Cycle – Causes – Measures to Control Business Cycle. **Inflation**: Meaning - Types - Causes - Control Measures- **Economic Policies**: Monetary and Fiscal Policies - **Globalisation andEconomic Reforms**: Meaning - LPG Strategy - Reform Initiatives

Textbooks:

1. Varshney R.L and Maheswari K.L., Managerial Economics, Sultan Chand & Sons, New Delhi, 2016
2. Jhingan ML and J K Stephen, Managerial Economics, Vrinda Publications (P) Ltd, New Delhi, 2017
3. Paneerselvam.R, Sivasankaran.P and P.Senthilkumar, Managerial Economics, Cengage Learning India Pvt.Ltd., New Delhi, 2018.

References:

1. Mankar, G , Business Economics, Vikas Publishing House, Mumbai, 2016.
2. Mehta.P.L. , Managerial Economics, S.Chand and Sons Company Ltd., New Delhi, 2016.
3. Dwivedi D N, Managerial Economics, Vikas Publishing House Pvt, Ltd., New Delhi 2016.
4. Peterson Lewis, Managerial Economics, Prentice Hall of India, New Delhi,2002

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes(COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X	X								X
CO2			X					X		X
CO3			X		X					
CO4								X		X
CO5	X	X								X

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K4	K 5	K 6
CO1	1			4	5	
CO2	1			4		6
CO3	1			4		6
CO4	1		3		5	
CO5	1		3		5	6

Mean : 3.5

MBA 4529 MANAGERIAL ACCOUNTING 5 Hours/5 Credits

Under this course students not only learn about recording and classifying data, they also learn about managing an organization by reporting and interpreting data for decision making. The course aims at exposingthe various fields of accounting viz., financial accounting, cost accounting and management accounting.

At the end of the course, students will be able to

i. Apply accounting principles and prepare the basic records of financial accounting viz, journal, ledger and trail balance
ii. Construct corporate financial statements as per the accounting standards
iii. Appraise the financial performance of firms by using ratios and make inter-firm comparison.
iv. Compile cost related records to determine breakeven point and making short-run decisions
v. Formulate various budgets and check the variances in material and labour costs.

Unit – 1:Financial Accounting – Recording the Financial Transactions (12 Hours)

Introduction – Definition – Need for Accounting – Branches of Accounting – Accounting Principles – Accounting Concepts and Conventions – Journalizing Transactions – Ledger Posting and Trial Balance

Unit – 2: Financial Accounting – Preparation of Financial Statements (16 Hours)

Preparation of Trading Account – Profit and Loss Statement – BalanceSheet with Adjustments – Depreciation Accounting – Straight Line Method – Diminishing Balance Method – Window Dressing.

Unit – 3:Management Accounting – Analysis of Financial Statements (16 Hours)

Financial Statement Analysis – Techniques of Financial Statement Analysis –Ratio Analysis – Common Size Financial Statement Analysis – Comparative Financial Statement Analysis – Trend Analysis – Cash Flow Statements.

Unit – 4:Cost Accounting (16 Hours)

Cost Concepts – Cost Classification – Methods of Costing –Marginal Costing –Cost-Volume-Profit Analysis – Break-even Analysis –Decisions Involving Alternative Choices – Make or Buy – Sell or Process Further – Product Mix with Limiting Factor.

Unit – 5: Budgetary Control and Standard Costing (15 Hours)

Budgetary Control System – Classification of Budgets – Flexible Budget – Cash Budget – Standard Cost System – Variance Analysis – Material Cost Variance – Labour Cost Variance.

Textbooks:

1. Dr S N Maheshwari, CA Sharad K Maheshwari & Dr Suneel K Maheshwari, A Textbook of Accounting for Management, Vikas Publishing, 2018.
2. Debarshi Bhattacharyya, Management Accounting, Pearson Education India, 2012

References:

1. Khan MY and Jain PK : Management Accounting, McGraw Hill, 2013
2. Singhvi NM&Ruzbeh J. Bodhanwala Management Accounting Text & Cases PHI, 2018
3. Narayanaswamy R. - Financial Accounting A Managerial perspective, PHI, 2014
4. Bhattacharya and John Deardon, Accounting for Management, Vikas Publishing House, 2004

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1					X					
CO2					X				X	
CO3				X	X				X	
CO4			X		X					X
CO5		X			X					

Revised Blooms Taxonomy

Course Outcome (Cos)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3		5	
CO2	1		3		5	
CO3	1				5	6
CO4	1				5	6
CO5	1			4		6

Mean : 3.53

MBA 4221 FUNDAMENTALS OF COMPUTER APPLICATIONS (LAB - I)

2 Hours/2 Credits

This course helps to transform basic business data into meaningful results using fundamental and some advanced functions of Excel in various real-time business scenarios.

Outcome: Atthe end of the course the students will be able to

i. Describe the data with basic statistical functions like sum, average, max and min.
ii. Use scenario manager for performing sensitivity analysis by varying the input cells.
iii. Select the optimum of product mix for maximisation of profit or minimisation of cost.
iv. Appraise and select the best location, workforce, projects, and financial planning using Solver.
v. Compare data sets using descriptive statistics like mean, standard deviation, range, percentile, etc.

Unit – 1: Summarising Data with Statistical Functions (6 Hours)

Range Names – Lookup Functions – Index Function – Match Function – Text Function – Date Function – IF Statements – Time Functions – The Paste Special Command – Three-Dimensional Formulas – The Auditing Tool – Summarizing Data with Database Statistical Functions –Filtering Data and Removing Duplicates – Consolidating Data – Creating Subtotals

Unit – 2:Sensitivity Analysis Using Scenario Manager (6 Hours)

Sensitivity Analysis with Data Tables – The Goal Seek Command – Using the Scenario Manager for Sensitivity Analysis – The COUNTIF, COUNTIFS, COUNT, COUNTA, and COUNTBLANK Functions – The SUMIF, AVERAGEIF, SUMIFS, and AVERAGEIFS Functions

Unit – 3: Introduction to Optimization Using Solver (6 Hours)

The OFFSET Function – The INDIRECT Function – Conditional Formatting – Sorting in Excel – Spin Buttons, Scroll Bars, Option Buttons, Check Boxes, Combo Boxes, and Group List Boxes – An Introduction to Optimization with Excel Solver - Using Solver to Determine the Optimal Product Mix

Unit – 4: Optimization of Inputs Using Solver (6 Hours)

Using Solver to Schedule Your Workforce – Using Solver to Solve Transportation or Distribution – Problems – Using Solver for Capital Budgeting – Using Solver for Financial Planning – Using Solver to Rate Sports Teams – Warehouse Location and the GRG Multistart and Evolutionary Solver Engines – Penalties and the Evolutionary Solver

Unit – 5: Summarizing Data Using Descriptive Statistics (6 Hours)

The Traveling Salesperson Problem – Importing Data from a Text File or Document – Importing Data from the Internet – Validating Data – Summarizing Data by Using Histograms - Summarizing Data by Using Descriptive Statistics – Using PivotTables and Slicers to Describe Data – Spark Lines

Textbook:

Wayne L. Winston, Microsoft Excel 2010: Data Analysis and Business Modelling, Microsoft Press, 2011

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X	X			X					
CO2				X	X					
CO3				X	X				X	X
CO4				X	X	X				
CO5		X	X	X						

Revised Blooms Taxonomy

Course Outcome (Cos)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1		2		4		
CO2			3	4		
CO3				4	5	
CO4				4	5	
CO5				4		

Mean: 3.9

MBA 4223 BUSINESS ENVIRONMENT (Self Study–Seminar I)

2 Hours / 2 Credit

Objective: This self study course aims at **d**evelopinganin depth understanding of the policy environment in which business operates, appreciating the impact of culture on business activities, analysing the interaction of technology and business decisions and understanding the linkages between business and the political environment

Outcome: At the end of the course, the students will be able to

i. Assess the impact of policy on business decisions.
ii. Examine the cultural environment of business.
iii. Detail the interaction of technology and business decisions
iv. Analyse the political environment influencing business.
v. Appraise of the international trade environment and relations affecting business.

Unit 1: Policy Environment (6 Hours)

India's Fiscal policy –Control of Inflation – Employment Generation Programmes – Trade Policy – Conservation and generation of Foreign Exchange – Foreign Policy - Relations with China, US, Russia, Pakistan etc. Economic Policies – Promotion of Small Scale Sector – Handicrafts – Rural Industries - Public Sector – Role and Importance of the Public Sector in India

Unit 2: Cultural Environment (6 Hours)

Languages, Festivals, Population Protection against Discrimination based on Gender, Caste, Religion and Ethnicity etc. Welfare Measures for the Economically Weaker Sections – MNREGA& MGREGS 2.0 - Conservation of Indian culture – Monuments – Conservation of Flora and Fauna

Unit 3: Technological Environment (6 Hours)

Development of Indigenous Technology& Import Substitution – Conservation of Energy & Environment – Pollution Control – Success of India's Space Programme – Development of Manufacturing and Services Sector in India

Unit 4: Political Environment (6 Hours)

Democracy, Political Parties, Constitution of India - Gram Panchayat – Local Administration – Local body Elections etc. – Elections and Election Commission – Role of Trade Unions in India – RTI Act – Fight against Corruption

Unit 5: International Environment (6 Hours)

The world of International Business, Internationalization, International Market Size and Reasons for Growth – Why Companies Go International – Structure of International Market, Regional Integration – EU , NAFTA and Others. International Trade Framework – GATT, WTO – Trade Disputes and Settlement Mechanisms.

References:

1. Ruddar Dutt, K.P.M. Sundaram, "Indian Economy, (68th ed.) S.Chand, New Delhi 2016.
2. Francis Cherunilam, Business Environment, Himalaya Publishing House, Delhi.2015
3. A.C. Fernando, Business Environment, Pearson Education India, Delhi, 2016
4. Websites of Government of India, States of India.
5. Economic Survey, Government of India, latest year.
6. John D. Daniels, Lee H.Radebaugh, Daniel P. Sullivan, Prashant Salwan, International Business, Pearson Education Asia, New Delhi, 2018.

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X		X							X
CO2			X	X						X
CO3				X			X			X
CO4				X			X			X
CO5		X		X			X			

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1			3	4		
CO2				4	5	
CO3			3		5	
CO4				4	5	
CO5			3		5	

Mean : 4.1

MBA 4420 ENTREPRENEURSHIP 4 Hours/4 Credits

Objective: The objective of this course is to sensitize the students with entrepreneurship skills they should nurture and develop. This course sensitizes the students with the concept of entrepreneurship, entrepreneurial traits and the process of entrepreneurship.

Outcome: At the end of the course, students will be able to

i. Outline the Importance of Entrepreneurship & its Evolution in India
ii. Identify the Major Characteristics and Types of Entrepreneurs
iii. Explain the Importance, Role & Nature of Entrepreneurship
iv. Narrate the process of Creation & Managing of an Enterprisethe effect of dividend policies by discussing the dividend theories and differentiating different forms of dividend.
v. Specify the stages of Growth & Closure of an Enterprise

Unit –1: Introduction to Entrepreneurship (15 Hours)

Nature and Importance of Entrepreneurs – Definition of Entrepreneur and Entrepreneurship – Role of Entrepreneurship in Economic Development – Entrepreneurship in Ancient Period, Pre-Independence Period, and 1947 onwards. Future and drawbacks of entrepreneurship. Advantages and Drawbacks of Pursing Entrepreneurship as a Career

Unit – 2: Characteristics & Classifications of Entrepreneurs (10 Hours)

Classification and Functions of Entrepreneur – Characteristics and Traits of Entrepreneur- Types of Entrepreneur

Unit – 3: Concept of Intrapreneurship (10 Hours)

Entrepreneurial Decision Making – Intrapreneurship – Climate for Intrapreneurship – Establishing Intrapreneurship in Organization

Unit – 4: Business Creation & Management (10 Hours)

Creating and Starting the Venture – Creativity and Business Idea – Business Plan – Sources of Capital – Managing the Enterprise – Buying an Existing Business – Franchising

Unit – 5: Business Growth, Financing & Closure (15 Hours)

Strategies for Growth and Managing the Implications of Growth – Accessing Resources for Growth from External Sources – Going Public – Ending the Venture - Financial Support by the Government, Development Banks and Public Sector Banks Global Aspects of Entrepreneurship- Contemporary Issues

Textbook:

G.S. Sudha, Dynamics of Business Entrepreneurship, RBSA Publishers, 2013.

References:

1. Hisrich, Peters and Sheperd, Entrepreneurship, Tata McGraw Hill, 2016
3. Peter Drucker Innovation and Entrepreneurship, Colins (Reprint) 2006
4. John Hampton, Financial Decision making, Problems, Text and Cases, Prentice Hall of India, 1999.
5. Zimmerer and Scarborough, Essentials of Entrepreneurship and Small Business Management, fourth edition, Prentice Hall of India, 2017
6. Charantimath, Entrepreneurship Development, Pearson Education, 2010
7. Mohanty, Fundamentals of Entrepreneurship, Prentice Hall of India, 2016

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X									
CO2			X							
CO3			X							
CO4			X					X	X	X
CO5		X							X	X

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3		5	
CO2	1	2				6
CO3	1			4		6
CO4	1		3		5	6
CO5	1			4	5	6

Mean : 3.5

MBA 4422 OPERATIONS MANAGEMENT 4 Hours/ 4 Credits

Objective: Operations Management course aims at dealing with the different process that converts input to outputs in both production as well as services sector.

Outcome: At the end of the course, students will be able to

i. Identify the core concepts of operations or productions management, including the types of production, layout techniques.
ii. Examine the factors that govern the productivity.
iii. Evaluate the various production management techniques as inventory management, capacity planning and work management.
iv. Analyse the project management techniques.
v. Assess the practice of implementingbestpractices of total quality management at industry level.

Unit – 1:Introductory Concepts (10 hours)

Introduction –Evolution and Scope of Operations Management –Demand Forecasting Techniques – Production Systems- Job Shop, Batch Production, Continuous and Discrete Production.

Unit – 2:Layout and Plant Maintenance (10 hours)

Location Planning - Plant Layout Methods – Product Layout, Process Layout, Fixed Layout and Combination Layout ; Plant Maintenance - Preventive, Breakdown and Scheduled Maintenance .

Unit – 3: Inventory Management and Capacity Planning (15 hours)

Inventory Management – Inventory Models and EOQ Calculation – Types of Inventories – Material Management - Planning and Types – Aggregate Planning, Capacity Planning , MRP I , MRP II. ERP Life Cycle – Critical Success Factors and Failures of ERP.

Unit – 4:Project Management (10 hours)

Project Management – PERT and CPM ; Productivity Enhancement Techniques - Work Measurement- Method Study , Motion Study, Time Study- Scheduling and Sequencing.

Unit – 5: Total Quality Management (15 hours)

TQM– Introduction and Importance ; TQM Gurus and Contributions – Tools of TQM ; Statistical Process Control – OC Curve ; Six Sigma – Bench Marking – Quality Circles ; Quality Management Systems – ISO, BIS and Other Certifications.

Textbook:

William J. Stevenson , Operations management., Tata McGraw Hill Ltd.,2019

References:

1. S.N.Chary,Production and Operations Management, McGraw-Hill Education, Sixth Edition, 2019.
2. R. Panneerselvam , Production and Operations Management , PHI Learning Pvt. Ltd., Third Edition, 2012.
3. Buffa & Sarin, Modern Production / Operations Management – Ninth Edition – Wiley publishers ltd., 2010
4. V. Vijayan and H .Ramakrishnan , Total Quality Management ,S.Chand , 2019.

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X					X		X	X	
CO2		X		X				X		
CO3	X							X	X	
CO4								X		
CO5		X		X				X		

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1	2	3			
CO2	1			4		6
CO3	1			4	5	
CO4	1			4	5	6
CO5	1				5	6

Mean : 3.4

MBA 4424 INTERNATIONAL BUSINESS MANAGEMENT 4 Hours/4Credits

The aim of this course is to define international business management, comprehend the international business environment and international business strategies, and elucidate the concept globalisation and to explicate the effects of globalisation.

At the end of the course, students will be able to

i. Familiarise the fundamentals of international business and the international businessenvironment
ii. Summarise the theories of international business and their relevance
iii. Understand basic aspects of MNCs and FDIs and their determinants.
iv. Comprehend the business strategies in international business.
v. Analyse the various dimensions of globalisation and its relevance.

Unit –1: Introduction (12 Hours)

International Business: Nature, importance and Scope –International Business Manager: Functions, Role and Characteristics – Reasons for International Business- Mode of Entry into International Business - Internal Trade Vs. International Trade - International Business Environment – Geographical, Demographic, Economic, Socio-cultural, Political, Legal and Technological Environment.

Unit – 2: International Business Theories (12 Hours)

Trade Theories: Theory of Mercantilism - Theory of Absolute Cost Advantage - Theory of Comparative Cost Advantage - Theory of Country Size - Heckseher-Ohlin Trade Theory – Product Life Cycle Theory, National Competitive Advantage Theory - Foreign Direct Investment (FDI) Theories: Monopolistic Advantage Theory, Internationalization Theory, Dunning's Eclectic Paradigm

Unit – 3: Multinational Corporations and Foreign Investment (12 Hours)

Multinational Corporations: Conceptual Framework of MNCs; MNCs and International Relations - Merits and Demerits of MNCs- Problems Faced by MNC's - Technology Transfers –Importance and Types –Gains of Technology Transfer - Foreign Direct Investment: Key Features - Motives – Types - Barriers on Foreign Investment Flows - Factors Influencing FDI.

Unit –4: International Business Strategy (12 Hours)

Importance of International Business Strategy - Creating Strategy for International Business - Management of Production, Services, Technology, Operations and Marketing - Ethics and Social Responsibility of Business - Strategic Alliances: Acquisitions and Mergers, Management of Joint Ventures and other International Strategic Alliances.

Unit - 5: Globalisation (12 Hours)

Definition - Historical Background - Major Forces of Globalisation – Advantages and Disadvantages of Globalisation - Stages of Globalisation - Global Financial and Trade Institutions: IMF, IBRD and WTO - Globalisation at Firm/Corporate Level - Effects of Globalisation on Strategies for Small Scale and Medium Sized Business – Glocalisation.

Textbooks:

1. John D. Daniels, Lee H. Radebaugh, Daniel P.Sullivan , Prashant Salwan, International Business, Pearson Education Asia, New Delhi, 16th editon, 2018.
2. S.Tamer Cavusgil, Gary Knight, John Riesenberger,International Business: The New Realities, 5th Edition, 2020

References:

1. Francis Chernulium, International Economics, Tata McGraw Hill Publishing Company Limited, New Delhi, 2017
2. Jhingan M.L, International Economics, Virendra publication Pvt. Ltd., New Delhi, 2017
3. Subbu Rao, International Business, Text and cases, Himalaya publishing House, Mumbai, 2016

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X	X								X
CO2			X				X	X		X
CO3	X		X		X					
CO4								X		X
CO5	X	X								X

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K4	K 5	K 6
CO1	1			4	5	
CO2	1		3			6
CO3	1			4	5	6
CO4	1		3		5	
CO5	1			4	5	6

Mean = 3.6

MBA4426 MARKETING MANAGEMENT 4 Hours/ 4 credits

Marketing is an organizational function and set of process for creating, communicating and delivering values to the customer and for managing customer relationship in ways that benefit the organization and its stake holders. This course aims at highlighting the significance of Customer Orientation.

Outcome: At the end of the course, students will be able to

i. Identify and analyze the functions of marketing and impact of environmental factors.
ii. Explain the importance of marketing research process
iii. Creating new product and developing pricing strategies
iv. Designing and managing marketing channels and logistics
v. Evaluate the current promotional strategies of marketing

Unit–1: Introduction (10 Hours)

Core Marketing Concepts – Nature and Importance of Marketing– Approaches to Marketing – Marketing Process – Functions of Marketing – Marketing Environment and their Impact on Marketing Decisions.

Unit –2: Marketing Research (10 Hours)

Marketing Research – Market Research Process – Marketing Mix– Bases for Consumer Market Segmentation– Market Targeting and Positioning– Buying Decision Process

Unit –3: Product Planning and Pricing (15 Hours)

Product – Classification of products– Product Line & Product Mix- Branding, Packaging, Labeling – New Product Development – Product Life Cycle – Pricing – Kinds of Pricing – Factor Affecting Price Determination

Unit–4: Place (12 Hours)

Channels of Distribution – Importance of Channel of Distribution in Marketing – Types – Design Marketing Channel–Channel Management Decisions; Retailing and Wholesaling – Logistics Management

Unit–5: Promotional Mix (13 Hours)

Promotion Tools – Advertising– Types of Media – Social Media – Personal Selling– Sales Promotion– Publicity – Public Relations– Direct Marketing– Direct Marketing Vs Mass Marketing – Digital Marketing

Textbooks:

1. Philip Kotler and Kevin Lane, Marketing Management, PHI Learning / Pearson Education, 2017.
2. Pillai,R.S.N and Bagavathi,Marketing Management, S.Chand Publishing, Delhi, 2010.

References:

1. Dhruv Grewal, Michael Levy,Marketing Special Indian Edition,2006.
2. Philip Kotler and Gary Armstrong,Principles of Marketing 9th Edition ,2010.
3. Stanton, Etzel, Walker, Fundamentals of Marketing, Tata-McGraw Hill, 2008.
4. Saxena, Rajan, Marketing Management, Tata-McGraw Hill, 2006.
5. Ramasamy and Namakumari, Marketing Management – An Indian Perspective ,McMilan India Ltd,2011.

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X			X			X			X
CO2								X	X	
CO3							X		X	
CO4		X		X					X	
CO5	X			X					X	

Revised Blooms Taxonomy

Course Outcomes (COs)	Skill Levels					
	K 1	K 2	K 3	K4	K 5	K 6
CO1	1			4		6
CO2	1	2			5	
CO3	1			4		6
CO4	1			4	5	6
CO5	1		3		5	

Mean: 3.44

MBA4428 HUMAN RESOURCE MANAGEMENT 4 Hours/ 4 Credits

This course aims at sensitizing the students about the historical development of HRM, the various functions of HRM starting from procurement, development, compensation, integration, and maintenance of workforce.

Outcome: At the end of the course, students will be able to

i. Outline a framework of knowledge relating to the concepts and evolution of Human Resource Management
ii. Apply the knowledge of Human Resource Planning through Job analysis and job specification.
iii. Identify the appropriate recruitment methods for different job openings in the industry.
iv. Analyze the different training needs in an organization and develop the personnel in the organization.
v. Evaluate the different aspects of maintaining, retaining and improving the quality of work life of the employees of the organization.

Unit – 1:Introduction to Human Resource Management (12 Hours)

Human Resource Management – Nature – Importance – Scope – Objectives - Evolution of HRM – Personnel Management Vs HRM - HRM Functions – HR Manager Qualities - Outsourcing HRM -Changing Workforce Profile - Role of HR in Changing Environment - Ethical Issues in HRM

Unit – 2: Human Resource Planning (12 Hours)

Human Resource Planning- Importance of H.R.P- Introduction to Job Analysis- Uses and Process of Job Analysis - Methods of Collecting Job Analysis Data- Job Description- Job Specification- Job Evaluation- Uses - Methods of Information Collection - Job Enrichment Vs Job Enlargement.

Unit – 3: Talent Acquisition Management (12 Hours)

Concept of Recruitment – Factors Affecting Recruitment – Internal and External - Sources- Advantages and Limitations of Internal and External Sources – Selection Process - Placement- Induction - Performance Appraisal- Methods of Performance Appraisal – Compensation – Components of Compensation - Objectives

Unit –4: Training & Human Resource Development (12 Hours)

Training and Development a Comparison- Benefits of Training- Methods of Training – On the Job – Off the Job - Evaluation of Training Programme - Human Resource Development – Learning Organization - Competency Management – Knowledge Management – Succession Planning

Unit –5: Maintenance of Human Resource (12 Hours)

Approaches and Techniques for Improving Quality of Work Life – Human Resource Counseling Functions - Transfer – Promotion – Demotion – Employee Turnover –

Causes & Control - Employee Retention Strategies – Absenteeism – Causes – Measures to Control Absenteeism - Employee Separation

Textbook:

L M Prasad, Human Resource Management, Sultan Chand & Sons, 2019

References:

1. V.S.P. Rao, Human Resource Management (Text & Cases), Excel books 2009
2. Ashwathappa K, Human Resource Management, 7th edition , 2013
3. Edwin Flippo, Principles of Personnel Management, McGraw Hill ,2016

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X					X			X	
CO2		X				X				X
CO3				X		X				
CO4						X	X			X
CO5						X			X	

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3		5	
CO2	1			4		6
CO3	1				5	6
CO4	1			4	5	
CO5	1				5	6

Mean: 3.6

MBA 4528 CORPORATE FINANCE 5 Hours/5 Credits

Objective: Corporate Finance is the study of corporations and businesses from the stand point of the financial manager.This course aims at helping students to understand the major functions of finance manager with the ultimate objective of maximising shareholders wealth.

Outcome: At the end of the course, students will be able to

i. Identify the key decisions of financial management and demonstrate how they are connected to the objective of financial management
ii. Demonstrate the effect of fixed charges obligation on the value of firm and selecting an optimal capital structure
iii. Evaluate the alternative investments by applying capital budgeting methods and identifying the different sources of long term funds.
iv. Assess the working capital requirements and identify the different sources of working capital.
v. Appraise the effect of dividend policies by discussing the dividend theories and differentiating different forms of dividend.

Unit – 1: Overview of Financial Management (12 Hours)

Overview of Financial Management – Financial Goals – Profit Maximization – Objections to Profit Maximization – EPS Maximization – Wealth Maximization –Agency Problems – Agency Costs – Key Decisions of Financial Management.

Unit – 2: Financing Decision (16 Hours)

Analysis of Operating and Financial Leverages – Analyzing Alternative Financial Plans – EBIT and EPS Analysis– Calculation of Indifference Point – Capital Structure Theories – Relevant and Irrelevant Theories – Practical Considerations in Determining Capital Structure – Cost of Capital – Cost Debt – Cost of Preference Share – Cost of Internal Equity – Cost of External Equity.

Unit – 3: Long Term Financing Sources and Investment Decision (16 Hours)

Fund Based Financing – Shares – Debentures – Long Term Loans – Asset Based Financing – Hire purchase – Leasing – Idea Based Financing – Venture Capital Financing – Investment Decisions – Capital Budgeting – Investment Evaluation Criteria – Net Present Value – Internal Rate of Return – Profitability Index – Payback Period – Accounting Rate of Return – Capital Rationing.

Unit –4: Working Capital Decision (16 Hours)

Concept of Working Capital – Operating and Cash Conversion Cycle – Determinants of Working Capital – Estimating Working Capital Needs –Working Capital Finance – Trade Credit – Accrued Expenses and Deferred Income – Bank Finance – Factoring – Commercial Paper.

Unit – 5: Dividend Decision **(15 Hours)**

Relevant and Irrelevant Dividend Theory Models – Walter's Model – Gordon's Model – MM Approach – Dividend Policy – Objectives of Dividend Policy – Practical Considerations in Dividend Policy – Forms of Dividend – Cash Dividend – Bonus Shares – Advantages and Limitations.

Textbook:

I.M. Pandey, Financial Management, Vikas Publishing House, 2015.

References:

1. Richard A. Brealey, Stewart C. Myers, Franklin Allen, and Pitabas Mohanty, Principles of Corporate Finance, McGraw Hill, 2018
2. Khan MY and Jain PK Financial Management, Text, Problems and Cases McGraw Hill, 2018

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X				X					
CO2				X	X				X	
CO3					X				X	X
CO4				X	X					
CO5		X		X	X		X			

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1			4	5	
CO2	1				5	6
CO3	1				5	6
CO4	1				5	6
CO5	1				5	

Mean : 3.7

MBA 4222 BUSINESS APPLICATION SOFTWARE (LAB – II)2 Hours/2 Credits

Objective: This course aims at training students the effective ways to use spreadsheet packages to help solve the business problems and make better decisions.

Outcome: At the end of the course the students will be able to

i. Appraise the investment alternatives by Modelling Capital Budgeting Methods.
ii. Carry out forecast of sales and cost of a plant using Multiple Regression and incorporating qualitative factors into account.
iii. Check whether specific factors influence the sales and evaluate the forecast accuracy.
iv. Formulate stock prices simulation and modelling asset allocation.
v. Identify the optimal order quantity and profit maximising price

Unit – 1: Modelling Investment Risk and Returns (6 Hours)

Evaluating Investments by Using Net Present Value Criteria – Internal Rate of Return – Estimating Straight Line Relationships – Modeling Exponential Growth – The Power Curve – Using Correlations to Summarize Relationships – Introduction to Multiple Regression

Unit – 2: Forecasting Cost Using Multiple Regression (6 Hours)

Incorporating Qualitative Factors into Multiple Regression – Modeling Nonlinearities and Interactions - Analysis of Variance: One-Way ANOVA – Randomized Blocks and Two-Way ANOVA - Using Moving Averages to Understand Time Series - Winters's Method – Ratio-to-Moving-Average Forecast Method

Unit –3: Forecasting in the Presence of Special Events (6 Hours)

Forecasting in the Presence of Special Events –An Introduction to Random Variables – The Binomial, Hyper geometric, and Negative Binomial Random Variables – The Poisson and Exponential Random Variable – TheNormal Random Variable – Weibull and Beta Distributions: Modeling Machine Life and Duration of a Project

Unit – 4: Model Stock Prices and Pricing Stock Options (6 Hours)

Making Probability Statements from Forecasts – Using the Lognormal Random Variable to Model Stock Prices – Introduction to Monte Carlo Simulation - Calculating an Optimal Bid – Simulating Stock Prices and Asset Allocation Modeling – Fun and Games: Simulating Gambling and Sporting Event Probabilities –Using Resampling to Analyze Data - Pricing Stock Options

Unit – 5: Inventory Modeling & Pricing (6 Hours)

Determining Customer Value – The Economic Order Quantity Inventory Model - Inventory Modeling with Uncertain Demand – Queuing Theory: The Mathematics of Waiting in Line – Estimating a Demand Curve – Pricing Products by Using Tie-Ins –

Pricing Products by Using Subjectively Determined Demand – Nonlinear Pricing – Array Formulas and Functions – Power Pivot

Textbook:

Wayne L. Winston, Microsoft Excel 2010: Data Analysis and Business Modelling, Microsoft Press, 2011

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X				X					
CO2				X	X			X	X	
CO3					X			X		X
CO4				X	X				X	
CO5		X						X		

Revised Blooms Taxonomy

Course Outcome (Cos)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1				4	5	
CO2			3			
CO3				4	5	
CO4					5	6
CO5		2			5	

Mean: 4.3

MBA 4224 CONTEMPORARY MANAGEMENT PRACTICES (Self Study- Seminar II)
2 hours / 2 credits

Objective: This self study course is intended to equip the students in understanding and articulating the management practices such as Production Management, Marketing Management, Human Resources Management, Financial Management and Business Ethics.

Outcome : At the end of the exercise , students will be able to

i. Identify the latest production trends and management practices .
ii. Understand the recent trends in marketing and issues related to them.
iii. Analyse the manpower management practices.
iv. Designing and maintaining a proper financial management practices.
v. Evaluate the ethical issues connected to business.

Unit – 1 : Production Management (6 hours)

Lean Production Methods – Cost-cutting Methods - Total Quality Management Practices – ISO Certifications.

Unit – 2 : Marketing Management (6 hours)

Recent Trends in Marketing – Event Marketing – Green Marketing – Digital Marketing – Permission Marketing.

Unit –3 : Human Resources Management (6 hours)

Manpower Planning – Methods of Selection – Performance Appraisal – Motivation.

Unit – 4: Financial Management (6 hours)

Inter-Corporate Loans and Investments – Financial Implications of Winding up – Borrowing Powers – Financial Audit, Cost Audit , Management Audit .

Unit – 5 : Business Ethics (6 hours)

Corporate Social Responsibility – Organisational Culture – Environmental Protection – Fair Trade Practices.

References:

1. S.N.Chary, Production and Operations Management, McGraw-Hill Education, Sixth Edition, 2019.
2. Pillai,R.S.N and Bagavathi, Marketing Management, S.Chand Publishing,2010
3. V.S.P. Rao, Human Resource Management (Text & Cases), Excel books 2009
4. I. M. Pandey, Financial Management, Vikas Publishing House, 2016
5. Sandeep Goel, Corporate Governance : Principles and Practices, Mc Graw Hill Ltd., , 2019.

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X		X							X
CO2			X	X						X
CO3				X			X			X
CO4				X			X			X
CO5		X		X			X			

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1				4		6
CO2				4		6
CO3					5	6
CO4					5	6
CO5				4		6

Mean : 5.2

MBA 4122 MANAGERIAL SKILLS – I (Activity)1 Hour / 1 Credit

Objective: It aims topromote the development of core and specialized competencies of students. They can demonstrate high levels of competence in the areas of different managerial skills.

Outcome: At the end of the course, students will be able to

i. Develop their creative thinking ability and decision making skills.
ii. Evaluate alternative solutions and choose solutions that maximize positive and minimize negative outcomes.
iii. Resolve conflicts arising in the workplace environment.
iv. Inspire individuals and teams to reach their potential by embracing innovation through strategic thinking and shared responsibility.
v. Demonstrate effective communication skills by selecting the appropriate style, language and form of communication suitable for different audiences and mediums

Unit I: Creative Thinking Skills, Decision-Making Skills:

Unit 2: Problem-Solving Skills, Time Management Skills

Unit 3: Managing Conflicts, Negotiation Skill

Unit 4: Teamwork Skills, Leadership Skills

Unit 5: Relationship Management Skills, Communication Skills

References:

1. Whetten, David and Cameron, Kim, Developing Management Skills, Prentice Hall, 2008
2. E. H. McGrath, S.J., Basic Managerial Skills, Prentice Hall India Learning Private Limited, 2011
3. Prashant Sharma, Soft Skills-Personality Development For Life Success, BPB Publications, 2018

Mapping Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Course Outcomes (COs)	Program Specific Outcome (PSOs)									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	X									
CO2			X	X					X	
CO3			X						X	X
CO4				X			X	X		
CO5		X		X			X			

Revised Blooms Taxonomy

Course Outcome (COs)	Skill Levels					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1				4	5	
CO2				4	5	6
CO3				4	5	6
CO4				4	5	6
CO5				4	5	

Mean : 4.8

MBA 4500 **SUMMER INTERNSHIP** **Credit 5**

Objective: The objective of summer internship is to accommodate the students in any organization to gain practical knowledge

Outcome: At the end of the course, students will be able to

i. Learn the functions of different departments in an organization
ii. Synergize the theoretical knowledge with real time exposure
iii. Use hands-on experience on various industry practices
iv. Involve in all the three levels of management
v. Utilize the knowledge gained in future course of action

Mapping Course Outcomes(COs) with Programme Specific Outcomes (PSOs)

Course Outcomes	**Program Specific outcome PSOs**									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1					X			X	X	X
CO2					X			X	X	X
CO3	X	X								
CO4	X	X								
CO5								X	X	

Revised Blooms Taxonomy

Course Outcome (Cos)	Skill Levels					
	K 1	K 2	K 3	K4	K 5	K 6
CO1				4		
CO2				4	5	6
CO3					5	6
CO4					5	6
CO5					5	6

Mean: 5.2

MBA 421V EXECUTIVECOMMUNICATION 2 Hours / 2 Credits

Objective: This course aims to improve the conceptual understanding of written, oral and symbolic communication. Students can understand the importance of communication for a manager.

Outcome: At the end of the course, the students will be able to

i. Make effective presentation with appropriate words and gesture.
ii. Write effective business letters in the prescribed format.
iii. Develop formal project report in a professional way.
iv. Make effective oral communication
v. Identify the cross-cultural differences in non-verbal communication.

Unit 1: Introduction to Business Communication (6 Hours)

Meaning - Importance of Communication in Business- Functions - Communication Process - Classifications - Barriers of Communication

Unit 2: Business Communication – I (Letters and Notes) (6 Hours)

Business Letter Writing – Inquiry, Reply to Inquiry, Order, Adjustments Grants and Refusals, Claim, Credit Refusals – Sales Letter – Persuasive Letter. Email, Memo, Circular, Tender, Notice Agenda, Minutes

Unit 3: Business Communication – II (Report Writing) (6 Hours)

Report Meaning– Typesof Report– ProjectReport and Appraisal Report– Contentsof a Formal Report– Mechanicsof Report writing

Unit 4: Business Communication – III (Presentation) (6 Hours)

Public Speaking and Oral Reporting - Extempore Speech - Formal Speeches - Presenting a Speech - Telephone Conversations - Dictating Messages, Participating and Conducting Meeting, Interview, Discussion, Debate and Seminar - Fluency Development – Improving Speaking and Listening Ability

Unit 5: Effective Business Communication (6 Hours)

Features of Effective Communication - Process of Preparing Effective Communication - Business Communication and InterpersonalCommunication - Cross-cultural Communication - Technology in Communication - Guidelines for Effectiveness

Textbook:

Herta A Murphy, Herbert W Hidebrandt and Jane P Thomas, “Effective Business Communication”, Tata McGraw-Hill, New Delhi, 2008

References:

1. Lesikar, Raymond V., John D Pettit, and Mary E Flatly Lesikar's, "Basic Business Communication", (13th ed.), Tata McGraw-Hill, New Delhi, 2015.
2. Gronbeck, Bruce E & German, Kathleen & Ehniger, Douglas & Monroe, "Principles of Speech Communications", Alan H, (13th ed.), Harper Colling Publishers, New York, 1997.
3. Meenakshi Raman and Sangeeta Sharma, "Technical Communication: Principles and Practice, Oxford University Press, New Delhi, 2014.
4. Sandra D Collins, "Listening and Responding", Cengage Learning India Private Ltd, (3rd ed.), New Delhi, 2008.

Blooms Taxonomy

Course Outcome (COs)	**Skill Levels**					
	K 1	K 2	K 3	K 4	K 5	K 6
CO1	1		3	4		
CO2	1			4	5	
CO3	1			4	5	
CO4	1		3	4	5	
CO5	1		3	4	5	

Mean : 3.2

MBA 521V CAPITAL MARKET 2 Hours / 2 Credits

Objective: The aim of this paper is to acquire knowledge and understanding of the Indian capital market and its functioning and to acquire the ability to apply such knowledge to address issues in practical scenarios.

Outcome: At the end of the course, students will be able to

i. Familiarize the fundamentals of capital markets and able to discriminate between different capital market instruments
ii. Comprehend the mechanism and guidelines for new issues
iii. Understand the diverse aspects secondary market functioning
iv. Comprehend the pertinent functions of key capital market intermediaries
v. Outline the key regulations governing capital market functioning

Unit – 1:Overview of Capital Market (6 Hours)

Role of Financial market, Types, Evolution of Capital Markets in India, Segments in Capital Markets , Difference Between Money Market & Capital Market , Capital Market Instruments,Authorities Governing Capital Markets in India , Participants in the Securities Market, Category of Investors; Qualified Institutional Bidders, Non Institutional Investors , Retail investors

Unit – 2: Primary Market (6 Hours)

Primary Market – Role, Types of Issues (Initial Public Offer, Follow-on Public Offer, Rights Issue, Preferential Issue/ Bonus Issue/ QIP Placement), Issue Price – Fixed Price & Book Building , Difference Between Primary Market and Secondary Market, Rating and Grading of Instruments , Rating Agencies

Unit – 3: Secondary Market (6 Hours)

Stock Exchanges – Functions, Major Stock Exchanges in India, Global Exchanges , Trading Platforms, Listing – Benefits & Criteria , Stock Market Indices, Circuit Breakers, Categories of Stocks , Depository Services – Functions, Depository Participant, Clearing &Settlement Cycles, Dematerialisation & Rematerialisation , Demat Account & Trading Account , KYC Norms

Unit – 4: Intermediaries (6 Hours)

Merchant Bankers – Management of Public Issues, Registrar and Transfer Agents – Services Offered, Underwriters, Custodian, Depository Participant, Stock Brokers – Services Provided by Stock Brokers

Unit – 5: Regulatory Framework (6 Hours)

Role of SEBI, Regulatory Framework for Securities Market - The SEBI Act, 1992, The SC(R)A, 1956, The Depositories Act, 1996, The Companies Act, 1956, Investor Grievances and Arbitration , Primary Market Reforms by SEBI , Secondary Market Reforms by SEBI , Rules for FII & NRI Investments

Textbook:

M.Y.Khan, 'Financial Services' – TataMcgraw –Hill, 6th edition, New Delhi, 2009

References:

1. Vasant Desai, 'Financial Markets and Financial Services', Himalaya Publishing House, New Delhi, 2nd ed. 2010
2. Sandeep Goel, 'Financial Services', PHI, New Delhi, 2012
3. Jeff Madura, "Financial Markets and Institutions', Cengage Learning, New Delhi, 2011

Blooms Taxonomy

Course Outcome (COs)	**Skill Levels**					
	K 1	K 2	K 3	K4	K 5	K 6
CO1	1					
CO2	1			4		
CO3	1				5	6
CO4	1			4	5	
CO5	1					6

Mean = 3.18

POSTGRADUATE DEPARTMENT OF SOCIAL WORK

(*Specialization in Human Resources Management, Development Management and Medical and Psychiatric Social Work*)

w.e.f. 2020-2021

Course Code	COURSE TITLE	HRS/WK	Credits	Marks
SEMESTER I				
MSW 4411	Fundamentals of Professional Social Work	6	4	80
MSW 4413	Sociology for Social Work	5	4	80
MSW 4415	Psychology for Social work	5	4	80
MSW 4417	Social Policy, Legislation and Welfare Administration	5	4	80
MSW 4209	Life Skill Education	4	2	40
MSW 4519	Field work – Observation Visits	5	3	60
SEMESTER II				
MSW 4412	Social Case Work Practice	5	4	80
MSW 4414	Social Group work Practice	5	4	80
MSW 4416	Community Organization and Social Action	5	4	80
MSW 4418	Social Research and Statistics	6	4	80
MSW 4210	IT Skills for Social Work	4	2	40
MSW 4520	Preparatory Field Work – Block Placement	5	3	60
SEMESTER III				
MSW 5411	Criminal Justice and Social Work Practice (Common Paper 1)	5	4	80
MSW 5413	Disaster Management and Social Work Intervention (Common Paper 2)	5	4	80
Specialization - I : MEDICAL AND PSYCHIATRIC SOCIAL WORK				
MSW 5421	Health and Health Care Systems	5	4	80
MSW 5423	Mental Health & Social Work Intervention	5	4	80
MSW 5425	Disability Management	5	4	80
MSW 5427	Field Work for Medical & Psychiatry -I (Block Placement)	5	4	80
Specialization - II :DEVELOPMENT MANAGEMENT				
MSW 5441	Rural Development in India	5	4	80
MSW 5443	Livelihood and Social Enterprises	5	4	80
MSW 5445	NGO Management	5	4	80
MSW 5447	Field Work for Development Management -I (Block Placement)	5	4	80

Course Code	COURSE TITLE	HRS/WK	Credits	Marks
Specialization - III :HUMAN RESOURCE MANAGEMENT				
MSW 5461	Fundamentals in Human Resource Management	5	4	80
MSW 5463	Industrial Relations and Labour Legislations	5	4	80
MSW 5465	Organization Behaviour	5	4	80
MSW 5467	Field Work for Human Resource Management -I (Block Placement)	5	4	80
SEMESTER IV				
MSW 5412	Project	5	4	80
MSW 5414	Media and Social Work	5	4	80
Specialization - I :MEDICAL AND PSYCHIATRIC SOCIAL WORK				
MSW 5422	Medical Social Work	5	4	80
MSW 5424	Psychiatric Social Work	5	4	80
MSW 54256	Hospital Management	5	4	80
MSW 5428	Field Work for Medical & Psychiatry -II (Block Placement)	5	4	80
Specialization - II :DEVELOPMENT MANAGEMENT				
MSW 5442	Social Exclusion and Inclusion In India	5	4	80
MSW 5444	Urban Community Development In India	5	4	80
MSW 5446	Environmental Social Work	5	4	80
MSW 5448	Field Work for Development Management - II (Block Placement)	5	4	80
Specialization - III :HUMAN RESOURCE MANAGEMENT				
MSW 5462	Human Resource Development	5	4	80
MSW 5464	Organization Change & Development	5	4	80
MSW 5466	Employee Compensation and Wage Administration	5	4	80
MSW 5468	Field Work for Human Resource Management -II (Block Placement)	5	4	80

Value Added Courses

Semester	Course No.	COURSE TITLE	Hrs/wk	Credits	Marks
Semester 1	**MSW 421V**	**Basic Counselling**	**2**	**2**	
Semester 2	**MSW 422V**	**Advance Counselling**	**2**	**2**	
Semester 3	**MSW 521V**	**Tribal Community Development**	**2**	**2**	
Semester 4	**MSW 522V**	**Employability Skills**	**2**	**2**	

Program Specific Outcome

PSO1: Recall and recognize the meaning, principles and methods of social work and its application in the society. *[Social Work Domain Knowledge]*

PSO2: Apply the meaning, principles and methods of social work in the fields of Human Resource Management, Development Management and medical and Psychiatric Social Work. *[Problem Analysis]*

PSO3: Apply various legislations and policies in terms of social welfare and social security. *[Application]*

PSO4: Interpret and translate the use of social work professional methods to extend the skills, tactics and application for societal development. *[Cognitive]*

PSO5: Employ and execute real time remedial measures to the societal need using acquired social work knowledge. *[Demonstration]*

PSO6: Apply ethical principles and commit to professional ethics, values, responsibilities and norms of social work practice. *[Ethics]*

PSO7: Compare and incorporate the acquired social work skills and techniques in the fields of social work with support of Value Add on Courses. *[Skills and competencies]*

PSO8: Generate new ideas and skills to do independent research through synthesis and analysis of data, enumerate recommendations and demonstrate scholarly writing with presentations skills. *[Research]*

PSO9: Transform creative knowledge, skills, values and ability towards sustainable development for Nation building. *[Sustainable development]*

PSO10: Articulate social consciousness about positive and conducive social processes and to be vigilant towards destructive and negative social processes as a professionally trained social worker. *[Lifelong learning]*

Mapping of Program Specific Outcomes (PSOs) with Program Outcomes (POs)

POs / PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	√	√	√	√			√	√	√	√
PSO2	√	√	√	√	√			√	√	√
PSO3	√	√		√	√		√	√		√
PSO4	√	√		√				√	√	√
PSO5	√	√	√	√	√	√		√	√	√
PSO6	√	√					√	√	√	√
PSO7	√	√	√	√		√		√	√	
PSO8	√	√	√	√		√	√		√	
PSO9	√	√	√		√	√		√	√	√
PSO10	√	√	√	√	√			√	√	√

Mapping of Program Specific Outcomes (PSO)with Courses

PSO / Course Code	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
SEMESTER I										
MSW 4411	√			√	√		√	√	√	√
MSW 4413	√			√	√	√	√	√		√
MSW 4415	√			√	√		√	√	√	√
MSW 4417	√			√	√	√	√		√	√
MSW 4209				√	√	√	√	√	√	√
MSW 4519				√	√	√	√	√	√	√
SEMESTER II										
MSW 4412	√			√	√	√		√	√	√
MSW 4414	√			√	√	√	√		√	√
MSW 4416	√		√	√		√	√		√	√
MSW 4418	√			√		√	√	√	√	√
MSW 4210				√	√	√	√	√	√	√
MSW 4520				√	√	√	√	√	√	√

MSW 4411Fundamentals of Professional Social Work 6Hr/4cr.

This course aims to build a stage for students to take social work as their career and professional practice. The course will offer a holistic idea about social work profession which has emerged especially in India and UK. It aims to outline the strengths, opportunities, challenges that engulfs the profession and presents the social reality of the contemporary world.

At the end of the course the students will be able to:

i. Describe the social work concepts, philosophy, scope and Principles.
ii. Extend and implement the skills and traits of social worker in the contemporary society
iii. Recognize and execute the methods of social work in different settings
iv. Prepare them to associate in various fields of social work
v. Outline social movements and reformations in transforming the society

UNIT 1: Introduction to Social Work (Hours 18)

Social Work: Concept, Definition, Philosophy, Scope, Objectives and Principles; Related Concepts- Philanthropy,Social Service, Social Welfare, Social Reform, Social Security, Social Policy, Social Development, Social Empowerment. Social work Vs Social Service.

UNIT 2: Social Work as a Profession (Hours 18)

Historical Development of Social Work in Western (UK & USA) and Indian context- Role of TISS - Professional Associations in Social Work - Professional Code of Ethics - Challenges of Social Work Professional, Skills and Traits of a Social Worker.

UNIT 3: Methods in Social Work (Hours 18)

Direct Methods- Social Casework, Social Group work, Community Organization Indirect Methods - Social WelfareAdministration, Social Work Research,Social Action.

UNIT 4:Fields of Social work (Hours 15)

Welfare: Women, Children, Family, Youth, Old Age, LGBTQ and Marginalized; Fields: Medical & Psychiatric Social Work, Industrial Social Work &Labour Welfare, Correctional Social Work, Rehabilitation Social Work, Community Development, Development Management and Disasters.

UNIT 5:Transforming the Society (Hours 15)

Social Movements and Reform Tradition in India: Brahma samaj, Arya Samaj, RamaKrishna Mission, Theosophical society, Dalit movement, Sarvodaya Movement, Ecological Movement and Gandhian Ideology of Social work. International Social Work: meaning and scope of International Social work – Global perspective; Skills required for International Social Work.

Pedagogical approach:

Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:

- Chowdhry, Paul (1992) Introduction to Social work, New Delhi, Atmaram& Sons.
- Herschel Knapp (2009) Introduction to Social Work Practice - A Practical WorkBook, Sage Publications

References:

- Francis & Nicholas, (2015). Handbook of Professional Practice and Career Development In Social Work. Francis publications, Madurai.
- Bailey.R&Brake.M (1975) Radical Social Work, Edward Arnold
- Clock.G&Asquith.S (1985) Social Work & Social Philosophy, London: Routledge&kegan Paul
- Congress.E.P (1998) Social Work Values and Ethics, Chicago: Nelson- Hull Publishers
- Cox, David &Pawar, M. (2006) International Social Work-Issues, Strategies and Programs , New Delhi, Vistaar Publishers
- David Howe, (2009) A Brief Introduction to Social Work Theory, Palgrave Macmillan Publishers
- Dominelli, L. 2004 Social Work: Theory and Practice for a Changing Profession
- Freidlander, (2005) Concepts and Methods of Social Work, New Delhi, Concept Publishers
- Madan, G.R., (1981) Indian Social Problems, Allied Publishers, Calcutta.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5					X	

Mean Value: 4

Paper – 2 **Hr /wk: 5**

MSW 4413 Sociology for Social Work

Course Description:

This course aims at offering a functional composite of society and seeks to equip the students to develop analytical frames of reference to understand and appreciate its structure and stratification. Basic sociological thoughts and concepts used in looking at the society will help students to construct a critique on understanding social and cultural issue.

Course Outcome:

At the end of the course the students will be able to:

i. describe the nature, meaning, characteristics and concepts of the society.
ii. interpret the social process, institutions their types and functions
iii. carryout the concept of culture and discover the effects of social stratification and social control.
iv. assess the sociological theories and connect with social work practice
v. integrate the concept of social problem, social disorganization and social change for social work practice

UNIT 1: Sociology **(15 Hours)**

Sociology: Definition -Nature – Meaning and Scope; Sociology and its Relationship with Social Work; Society- Meaning, characteristics, Nature and Scope; Basic Social Concepts: groups, community, association, institution, organization, social structure and culture.

UNIT 2: Social Processes

Social Processes - Co-operation, Competition, Conflict, Accommodation, and Assimilation; Social Institutions - Marriage, Family, Education, Religion and Political Institutions – Meaning, Types and Functions; Socialization - Meaning, Agencies and Functions; Social Mobility – Concept and types of social mobility.

UNIT 3: Culture **(18 Hours)**

Concept of Culture - Culture and Society - Cultural Lag, Cultural assimilation and integration - Civilization - Customs, Mores, Folkways; Social Stratification – Meaning and functions, Caste, Class and Race; Social Control - Meaning and agents - its effect on individual and society.

UNIT 4: Sociological Theories **(20 Hours)**

Sociological Theories: August Comte, Durkeheim, Karl Marx, Spencer, Weber; Indian Social Thinkers –Jyotirao Phule, MK Gandhi, BR Ambedkar, EV Ramasamy and MN Srinivas.

UNIT 5: Social problem **(17 Hours)**

Social problem:- Concept, Causes, Characteristics - Social Labeling, Social Deviance, Social Disorganization - Major Social Problems in India; Social Change – Meaning, Causes and resistance - agents of social change- Social change in India.

Pedagogical approach:
Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, opinion survey and dialogue corners with public.

Text Book:
- Shankar Rao, C.N. 1990, Sociology-Principles of Sociology with an Introduction to Social Thoughts. New Delhi: S. Chand Publication.
- Haralambos, M. 1998. Sociology: Themes and Perspectives. New Delhi: Oxford

REFERENCES:

- Bhusan, Vidya&Sachdev, 2006, An introduction to sociology, Allahabad, KitabMahal.
- Harry. M. Johns, 1993, Sociology – A Systematic Introduction, Chennai, Allied
- Horton,P.S& Hunt, C. L. 2005, Sociology, New Delhi, Tata McGraw Hill.
- Jayaram, N. 2005. Introductory Sociology, Macmillan Publications, Madras.
- Ram Ahuja 1997 Social Problems in India. Jaipur, Rawat Publications.
- Srinivas, M.N. 1966 Social change in Modern India. Bombay, Allied Publication, University Press.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2		X				
CO3			X			
CO4				X	X	
CO5						X

Mean Value: 2+2+3+4+5+6 = 22/5 = 4.4

Semester I **Credit*: 4***
Paper - 3 **Hr /wk: 5**

MSW 4415Psychology for Social Work

Course Description:

This is an introductory which would deal with the elements of psychology needed for social work. Ideas and insights providing the foundation of this course will lead the student to develop a passion and interest in their career as a Social Worker.

Course Outcome:

At the end of the course the students will be able to:

i. Understand and develop the utility of psychology relevant to social work.
ii. Relate the historical development of psychology to contemporary social needs.
iii. Observe and correlate the physical, emotional and intellectual development of human being at different stages of life.
iv. Identify and Classify physiological and psychological aspects related to human behaviours.
v. Illustrate and interpret the effectiveness of learning and the characteristics of personality.

Unit 1: Introduction to Psychology (Hours 18)

Psychology: Definition, Meaning, Branches, Scope, Fields. Utility of Psychology, Relevance of Psychology for Social Work.

Unit 2: History of Psychology (Hours 18)

Development of Psychology: Pre Scientific – Superficisism, Monoism, Dualism, Empericism, Associationism, Naturalism, Herbartianism. Scientific Psychology: Structuralism, Functionalism, Behaviorism, Gestalt psychology, Psychoanalysis, Individual Psychology, Analytical Psychology. Contemporary Psychology: Humanistic Psychology, Transpersonal Psychology, Cognitive Psychology.

Unit 3: Developmental Psychology (Hours 18)

Developmental aspects – Physical, Psychological, Social:Prenatel, Infancy, Babyhood, Childhood, Adolescent, Adulthood/early/middle/later.

Unit 4: Thinking and Behaviour (Hours 18)

Physiology of Behaviour: Nervous System - ***CNS*** – Brain & Spinal cord - ***PNS***- Somatic [sensory & motor] & Autonomic [motor- sympathetic/parasympathetic] -Endocrine System; Psychological aspects: Instincts, Emotions, Thinking, Reasoning and Problem Solving.

Unit 5: Motivation and Personality (Hours 18)

Motivation: Definition, Types; Learning : Definition, Types, Theory-Trial & Error/ Classical Conditioning / Operant Conditioning / Insight Learning; Personality – Meaning , nature, characteristics, Theories- Type/Trait/Type cum Trait., Enneagram.

Pedagogical approach:

Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:

- Morgan, C. T. &King, R.A. (1975) Introduction to psychology, McGraw Hill, New York.
- Kuppusamy, B. (1980) An Introduction to Social Psychology, Media promoters and pub, Bombay.
- Munn Norman, L. (1967) Introduction to psychology, Oxford and IBH, New Delhi

References:

- Anastasi, A. (1987) Psychological testing, McMillan Revised Edition, New York
- David, H. Barlow V., Mark Durand 2008 Abnormal Psychology, Thomson Wardsworth Davidoff, L. L (1976) Introduction to psychology, McGraw Hill Inc ; .New York
- Eric (1978) Human Development, George Allen and Unwin, London
- Hurlock E.B (1995) Developmental Psychology, Tat McGraw Hill, New Delhi
- Jaypee Brothers 2005 Diagnostic and Statistical manual of mental Disorders DSM-IV- TR Medical Publishers Pvt. Ltd.
- Michael Gelder (2009) Shorter Text book on Psychiatry V Edition Paul Harrison and Philip Cown Oxford University Press
- Newman P.R.& Newman B.M (1981) Living: The Process of Adjustment, Illinois; The Dorsey Process Rayner.
- Sharan A.K.(1997) international Understanding of Human Psychology, Commonwealth, NewDelhi.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2		X				
CO3			X			
CO4				X		
CO5					X	

Mean Value: 2+2+3+4+5 = 16/5 = 3.2

Semester I **Credit*: 4***
Paper – 4 ***Hr/Wk: 5***

MSW 4417Social Policy, Legislation and Welfare Administration

Course Description:

This course would help the student to see Social Welfare Administration as a method of social work and provide knowledge and insights on the various social welfare processes, schemes and Social policies launched in India.

Course Outcome:

At the end of the course the students will be able to:

i. Infer and demonstrate the concepts of Social Policy.
ii. Interpret the framework related to social Legislation and Social Welfare
iii. Describe the Administrative Framework with social welfare.
iv. Categorize the structures and statutes associated with social welfare and administration in various domains.
v. Influence the social policy, Legislation and Welfare through organized effort for social change.

UNIT 1: Social Policy **(Hrs: 15)**

Social Policy- Meaning, Definition, Nature, Scope, Objectives and Types; Social Policy as an instrument of social change.Policies related to: Nutrition and Food Security, Education, Health, Women and Children, Senior citizens, Transgender,Backward Classes and Unorganized Sector.

UNIT 2:Social Legislation &Social Welfare **(Hrs: 20)**

Social Legislation: Meaning, Definition, Nature and Scope; Constitutional basis for social legislation, instrument for social change, tool for social justice and control. Social Welfare: Definition, Nature, Scope, Significance, Functions, Principles, Historical Development; Related Concepts: Social Welfare; Social Development; Social Welfare Agency; Qualities of a Social Welfare Executive.

UNIT 3: Administrative Framework **(Hrs: 15)**

Basic Administration Process: Planning, Organizing, Staffing, Directing, Controlling, Reporting, Budgeting (POSDCORB), Notes on Book keeping. Financial and Office Administration: Budgeting, Accounting, Auditing, Fund Raising, Reporting, Office procedures and Record maintenance;Monitoring, Evaluation, Decision-Making, Co-ordination, Communication, Public Relations and Networking.

UNIT 4: Structure and Statutes **(Hrs: 15)**

Social Welfare Organization- Types of Social Welfare Agencies - Registration of Societies and Trusts- Bye-laws, Governing Board:Function and responsibilities, Organizational structure; Provisions : the Income Tax Act, Foreign Contribution and Regulation Act.

UNIT 5: Domains **(Hrs: 20)**

Functional areas: Central and State Ministries, Central Social Welfare Board and Other National Institutions:ICDS, ICCW, ISSNIP, ICPS, Child and Women Welfare-, Functions and Structure:

State and Central Social Welfare Board, Provisions in State Social Welfare Board Programs; Administrative arrangements for Social Welfare in Tamilnadu.

Pedagogical approach:
Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:
- Chowdhry, D. Paul. 1983- Social Welfare Administration, Atma Ram and Sons Publishers, New Delhi
- Sanjay Bhattacharya (2006)- Social Work Administration and Development, Rawat Publishers
- Singh D.K. (2013_- Professional Social Work: Principle & Practice, New Royal Book Publishers.

References:

- Bhatiya&Dingh(2009), Social Policy In India, New Royal Book Company, Lucknow.
- Bose.A.B, (2001), Social Welfare Planning in India, Bangkok, United Nations.
- Gautam (2011), Social Work, Social Policy , Concept and Methods, Centrum Press, New Delhi
- KumarJha (2009), Encyclopedia of Social Work, Social Welfare and Social Work, Anmol, New Delhi
- Rino. J.Patti 1983 (2008), Social Welfare Administration: Managing Social Programme sin a Developmental Context, Prentice Hall Publishers
- Sachdeva, D. R. (2013), Social Welfare Administration in India, KitabMahal Publishers.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5					X	

Mean Value: 2+3+4+5+5 = 19/5 = 4

Semester I **Credit*: 2***
Paper – 5 ***Hr/Wk: 4***

MSW 4209Life Skill Education

Course Description:
The Life Skill Education Course aims on personality development of students in their personal and professional domains. This course facilitates the students to unlock their potentials and enrich their abilities for adaptive and positive behaviour. The course enables students to deal effectively with the demands and challenges of everyday life successfully by understanding the psychosocial aspects of life.

Course Outcome:
At the end of this semester, the students will be able to

i. Understand the importance of life skills and transform knowledge, attitudes andvalues into healthy behavior with self-awareness
ii. Developcommunication skills and use at college with teachers, students and others in society.
iii. Understand and develop IPR skills to interact with people individually and in groups. Practice to build team and work with it harmoniously and effectively.
iv. Assess leadership skills in coordinating group activities and direct towards goals and objectives. Practice to deal with stress full situations in their personal and professional life successfully.
v. Develop360 degree of thinking and practice problem solving on daily basis in academic situations and other day- to-day life practices. Practice decision making to achieve their goals and proceed further.

UNIT 1:Introduction on Life Skills (Hours 8)
Life Skills: Introduction on Life Skills, Need for Life Skills, Importance and Uses of Life Skills, Components of Life Skills; Self-Awareness : Self Concept; Human Values and Ethics; Components of Self Concept, SWOT Analysis, JOHARI Window

UNIT 2: Communication Skills (Hours 10)
Communication: Introduction, Meaning, Purpose of Communication, Process of Communication, Key Elements of Communication, Characteristics of Effective Communication, Effective Listening and Speaking Skills, Types of Communication, Barriers to Communication.

UNIT 3: IPR Skills and Team Building (Hours 12)
Inter Personal Relationship Skills: Introduction, Importance and Uses, Types of IPR Skills, Factors Influencing and Consequences of IPR.Team Building: Introduction, Importance of Human Relations, Types. Team Behaviour, Characteristics of High-Performance Team

UNIT 4: Leadership Skillsand Stress Management (Hours 14)
Leadership: Introduction, Meaning, Importance, Approaches, Characteristics,Function, Responsibilities, Styles. Managing Stress: Introduction and Understanding Emotions and Stress, Recognizing Stress, Types of Stress, and Common Signs of Stress, Coping and Managing Stress.

UNIT 5: Thinking, Problem Solving and Decision Making (Hours 16)

Thinking Skills: Introduction, Categories of Thinking – (i) Critical Thinking and (ii) Creative Thinking. Problem Solving: Introduction & Need for Problem Solving, Skills, Process & Stages, Methods of Problem Solving. Decision Making: Introduction and Features of Decision Making, Scope and Purpose of Decision Making, Types and Process of Decision Making

Pedagogical Method:

Lecture, PPT, Group Discussion, Activity and Exposure Visit

Text Book:

1. WHO Report (1997) , Life Skill Education Guidelines

Reference Books:

1. Centre for Field Assistance and Applied Research (2001), Life Skills Manual,Washington,Peace Corps.
2. RGNIYD, Life Skill Education Manual.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

C0/K	K1 Knowledge	K2 Understand	K3 Apply	K4 Analyze	K5 Evaluate	K6 Create
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Score = 2 + 3 + 4 + 5 + 6 = 20/5 = 4

Semester I **Credit*: 3***
Paper – 6 ***Hr/Wk: 5***

MSW 4519Field Work – Observation Visits

Course Description:
This course aims to provide a closer understanding of Social Work interventions in the field practices by various organizations through observation visits. The students will visit Government and Non – Governmental Organizations, Industries, etc., to observe the practical activities carried out in relation with Social Work, which will enhancecognitive reality of the subjects.

Course Outcome:
At the end of the course the students will be able to:

i. gain direct field reality through Field Visits.
ii. identify various issues and problems in society.
iii. appraise their experiences with the contemporary societal issues.
iv. develop the basic competencies to deal with persons with problems.
v. compile field experiences through Field Work Reports.

Observational Visits

The students will visit Government and Non – Governmental Organizations, Industries, etc., along with the Faculty Supervisor(s) to observe the practical activities carried out in relation with Social Work. The observations made by the students will be recorded and individual experiences will be shared, discussed periodically.Work put in by the students will be monitored by the Faculty. Students are expected to submit reports prepared as per guidelines indicated in the manual.

Course Requirements and Evaluation:
75% of marks will be allotted for continuous assessment. Regularity in attendance, keenness to participate, readiness to learn, and development of required skills, ability to conceptualize and acquisition of functional knowledge will be tested on the basis of process reports, observational reports and participatory evaluation by the faculty. A viva voce will be conducted at the end of the semester by a three-member committee of which one is an external member. Performance in the viva will be evaluated for 25%.

A. Continuous Assessment:
(Based on submission of weekly reports/assignments)

i.	Regularity of attendance	10 marks
ii.	General Participation	15 marks
iii.	Skills and Competencies	15 marks
iv.	Individual Presentations	10 marks
v.	Written Reports	25 marks
		Total 75 marks

B. Viva Voce:

i.	Conceptualization	5 marks
ii.	Working Knowledge	5 marks
iii.	Problem Solving Ability	5 marks
iv.	Consolidated Report	10 marks
		Total 25 marks

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Value = 2 + 3 + 4 + 5 + 6 / 5 = 20/5 = 4

Semester II **Credit*: 4***
Paper – 1 **Hr /wk: 5**

MSW 4412Social Case Work Practice

Course Description:

This course aims at introducing the primary methods of social work. The concept and strategies of social case work and social group work will entrain them to work with individuals and groups in the Society. Training given in the course will provide the know-how to use of social case work and group work tools and techniques carefully in social work practice.

Course Outcome:

At the end of the course the students will be able to:

i. Understand and recognize the fundamentals of social case work and its principles.
ii. Practice the social case work process and interventions.
iii. Associate social case work approaches to solve problems among individuals.
iv. Practice the application of social case work in different settings.
v. Analyze and connect social case work practice with contemporary societal development.

Unit I: Fundamentals of Social Case Work **18 Hours**

Social Case Work: Meaning, definition and objectives, nature and scope, its importance and relationship with other methods of Social Work; Components of Social Case Work: the person, the problem, the place and the process; Use of relationship-Transference & Counter transference and their significance; Principles of case work.

Unit II: Process of Social Case Work **20 Hours**

Social Case Work process: Intake, study, assessment, diagnosis, treatment, termination and follow-up; Tools and Techniques of Social Case Work: Interview, observation, home visits and collateral contacts; Social Case Work Recording: Need, importance and types of recording.

Unit III: Approaches in Social Case Work **18 Hours**

Approaches in Social Case Work: Psychological approach, functional approach, problem solving model, diagnostic approach and crisis intervention, family therapy. Counselling and social case work - similarities and differences. Social Case Work intervention: Micro, Mezzo and Macro.

Unit IV: Application of Social Case Work **18 Hours**

Social Case Work in different settings: Family and child welfare, School, Community, Industries, Medical and Psychiatric institutions, Correctional settings: prisons; Care of aged and in foster home. Role of social worker: enabler, facilitator, guide and resource, mobilizer.

Unit V: Recent Developments in Social Case Work **16 Hours**

Recent development in Social Case Work; Impact of social, cultural factors on individual and families; Problems and limitations of Social Case Work practice in India.

Pedagogical approach:

Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Books:

- Upadhyay, P.K. (2003) Social Case work New Delhi Rawat Publications
- Perlman, Helen H (1957) Social Case Work - A Problem solving process, University of Chicago Press, Chicago
- Mathew, Grace (1993) An Introduction to Social Case Work Bombay; Tata Institute of Social Sciences, Mumbai.

References:

- Aptaker, Herbert, (1982) Dynamics of Case Work and Counselling, Miffin Pub. Boston
- Hollis, Florence (1964) Case Work - A Psychosocial Therapy, Random House, New York
- Jordan, William1 (970) Client Worker Transactions, Rutledge & Kegan Paul, London
- Kadushin, Alfred (1972) The Social Work Interview, Columbia University Press, New York

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Value: 2+3+4+5+6 = 20/5 = 4

Semester II **Credit*: 4***
Paper – 2 ***Hr/Wk: 5***

MSW 4414SOCIAL GROUP WORK PRACTICE

Course Description:

This course aims at introducing the social Group work methods in social work. The concept and strategies of social group work will entrain them to work with groups in the Society. Training given in the course will provide the know-how to use of social group work tools and techniques carefully in social work practice.

Course Outcome:

At the end of the course the students will be able to:

i. Infer and apply the fundamentals of social group work.
ii. Extend the theoretical framework of Group work for knowledge apprehension.
iii. Relate the Group work process and comprehend it to different settings
iv. Apply the Group work techniques individually to facilitate the group work process effectively.
v. Integrate the application of group work in various settings.

Unit 1: Fundamentals of Social Group Work (Hrs: 15)

Groups: meaning, definition, types, purposeand stages of groups;Social Group Work: Definition, characteristics and objectives, assumption and philosophy; historical development and currentapplication of group work as a method; Psychological needs that are being met in groups.

Unit 2: Theories in Social Group Work (Hrs: 15)

Knowledge base for group work: Psycho-analytic theory, learning theory,filed theory, social exchange theory and systems theory; Group dynamics:Definition, functions and basic assumptions.

Unit 3: Process of Social Group Work (Hrs: 20)

Social Group Work process: Planning state, beginning stage, middle stage andending stage; Principles of Social Group Work: Group process, bond,acceptance, isolation, rejection, sub-groups scapegoats, conflict and control;Leadership development and Team building; Factors of Group formation.

Unit 4: Techniques of Social Group Work (Hrs: 20)

Social Group Work recording: Use of social group work records, principlesand problems of group work recording; Group Therapy: Significance of grouptherapy, programme planning in Social Group Work, Use of psychodrama andsocio-drama; Different Therapeutic approaches: Transactional analysis, T-groups,gestalt, role play, buzz group and brain storming.

Unit 5: Application of Social Group Work (Hrs: 20)

Social Group Work in various settings: Correctional, hospital, educational, oldage homes and communities; Use of socio-metrics for group work; Skills of theSocial Group Worker; Scope and limitations of group work in different fieldsof Social Work; Knowledge and skills of a group worker, group worker as anenabler, guide, facilitator and therapist.

Pedagogical approach:
Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:

- Gisela Konopka, (1963) Social Group Work: A helping Process, Prentice Hall, New Delhi
- Alissi, Albert S (1980), Perspectives on social Group Work Practice, The Free Press, New York

References:

- Gerald Corey (2000) Theory and practice of Group Counselling, Wordsworth, London
- Gravin, Charles, D. (1989) Contemporary Group Work, Prentice Hall, New Jersey.
- Conyne K, Robert (1999), Failures of Group Work Practice, Sage, Oaks.
- Douglas, Tom (1972) Group Process in Social Work, Chicester, Willey.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2				X		
CO3			X			
CO4					X	
CO5						X

Mean Value: 2+3+4+5+6 = 20/5 = 4

Semester II **Credit*: 4***
Paper – 3 ***Hr/Wk: 5***

MSW 4416Community Organization and Social Action

Course Description:

This course is designed to present to students community organization as another option method of social work. Besides enabling them to understand the basis of the organization of a community, content of the course helps the learner to look at the nuances of applying community organization as a strategy for social work in different conditions.

Course Outcome:

After completing this course, the students will be able to:

i. Understand the community organization and its history
ii. Execute the process and models of community organization in the fields of social work
iii. Analyze and apply the appropriate methods of community organization
iv. Equip and practice the skills required for community organization
v. Demonstrate the social action to solve the social problems

Unit 1: Community Organization (Hours 15)

Community: Definition, Characteristics and Types. Community Organization (CO) – Definition, Objectives, scope and relevance. Principles of Community Organization. Community Organization as a method of Social Work. History of Community Organization - USA, UK, India. Community Development (CD): Definition - Difference between CD and CO.

Unit 2: Models and Process (Hours 15)

Process of Community Organization: Study, Analysis, Assessment, Discussion, Organization of Action, Evaluation, Modification, and Continuation. Models in Community Organization: Locality Development, Social Planning and Social Action.

Unit 3: Methods of Community Organization (Hours 20)

Methods of Community Organization: Planning, Education, Communication, Community Participation, Collective Decision-making, Leadership Development, Resource Mobilization, Community Action, Promotion, and Co-ordination.

UNIT 4: Skills and Applications (Hours 20)

Skills in Community Organization: Organizing Conferences, Committee Meetings, Training, Communication, Consultation, Negotiation, Conflict Resolution, Networking and use of Relationship. Role of the community organizer. Application of community organization: Public Health, Child and women Rights, marginalized groups and Disasters.

UNIT 5: Social Action - Method of Social Work (Hours 20)

Social Action: Definition, Objectives, Scope, Principles and strategies. Social Action and Social Movement. Social Action for Social Development. Advocacy and Lobbying. Enforcement of Social Legislation through Social Action. Contributions to CO: Paulo Frierrie, Saul Alinsky, Gandhi, and EVR Periyar.

Pedagogical approach:
Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:
- Murray.G. Ross, (1955) Community Organization. Theory, Principles and Practice, New delhi.
- M.L, Raju (2012) Community Organization and Social Action: Social Work Methods and Practices,Regal Publications, New Delhi

References:

- Joseph M.K (2000) Modern Media and Communication, New Delhi: Anmol.
- Kumar, Aravind (2000), Encyclopedia of Decentralized Planning and Local Self Government, New Delhi: Anmol.
- Kumaran, Hyma, Wood (2004), Community Action Planning, Chennai, T. R. Publications
- Laxmidevi (1997) Planning for Employment and Rural Development, New Delhi: Anmol.
- Maheswari.S (1985) Rural Development in India - A Public Policy Approach, New Delhi: Sage
- Mathur.B.L.(1996) Rural Development and Cooperation, Jaipur: RBSA Publishers.
- Rahul Mudgal (1996) Economic Dimensions of Rural Development, New Delhi: Sarup&sons
- Singh, Hoshiar (1995) Administration of Rural Development in India, New Delhi: Sterling Publishers Private Ltd.
- Tiwari S (2000) Encyclopedia of Indian Government: Programmes and Policies, New Delhi.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Value : 2+3+4+5+6 = 20/5 = 4

Semester II **Credit*: 4***
Paper – 4 **Hr /wk: 6**

MSW 4418Social Research and Statistics

Course Description:

The course aims at introducing the students to the core concepts, principles, methods and procedures pertaining to Social research and its methods.

Course Outcome:

At the end of the course the students will be able to:

i. Recognize the relevance of social research and its type in addressing the social problems.
ii. Independently formulate the research problems and appropriate research methodology to pursue the research.
iii. Use the required tool to collect the data from the sample.
iv. Apply independently the statistical tools including SPSS for data analysis.
v. Express the relevance of qualitative research and its methods as alternatives.

UNIT 1:Research **(Hrs: 10)**

Basics of Research: Meaning, Definition, Objectives, Types - Basic, Action and Applied, Social Survey and Social Research, Qualitative and Quantitative Research; Scientific Method- Nature and characteristics; knowledge: Induction and Deduction method; Social research: Meaning and definition, Aims and objectives – Steps in social research.

UNIT 2: Research Process **(Hrs: 20)**

Research Problem: Identification -Formulation, Review of Literature, Formulation of Aim and Objectives for Research; Research Designs -Definition, Meaning, Types. Exploratory, Descriptive, Diagnostic and Experimental, - Factors influencing the choice of designs. Hypothesis – Definition, relevance,types; Pilot study - uses, Pre Test and its importance.

UNIT 3:Data collection and sampling **(Hrs: 20)**

Methods and Tools for Data collection: Primary and Secondary data collection. Observations,Questionnaireand Interview. Universe andSampling: Meaning, types, advantages and limitations, Factors affecting the size of samples - Sample size estimation andsampling errors.

UNIT 4: Data analysis **(Hrs: 20)**

Data analysis: Editing, Coding, Sorting, Master chart, Data entry. Presentation of Data– Tabulation, Diagrams, Graphs. Statistics: Introduction,functions, uses and misuses of Statistics. Measurement of Central Tendencies – Mean, Median and Mode –Measure of Depression: Range –MeanDeviation- Standard Deviation - Quartile Deviation- Correlation; Significance Test: t &F –Test - Chi Square Test - Usage of SPSS.

UNIT 5:Qualitative Research **(Hrs: 20)**

Qualitative Research: Meaning, context, Epistemological approach: Enlightenment - Positivism - Falsification ; Methods in Qualitative Research:Participant Observation - FGD - PRA & Social Mapping - Case Study - Action Research - Triangulation - Phenomenology - Ethno methodology - Semiotic Analysis – Visual Methods, Content Analysis**;** Ethics and Limitations of Qualitative Research.

Pedagogical approach:
Lecture method, power point presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:
- C.R. Kothari and Gaurav Garg (2018), Research Methodology, New Age International Publishers.
- O. R. Krishnaswami (2005), Methodology of Research in Social Sciences, Himalaya Publishing House, New Delhi.

References:

- Anderson et al, (1991), Thesis and Assignment Writing, New Delhi, Wiley Easton Ltd.
- Ahuja, Ram, (2003), Research Methods, Jaipur, Rawat Publications
- Champian, DJ. (2001), Basic Statistics, Prentice Hall
- Goode &Hatt, Methods in Social Research, McGraw Hill
- Gupta, S P. (2005). Statistical Methods, New Delhi, Sulthan Chand.
- Denzin, N.K and Lincoln, Y.S. (2000), Hand Book of Qualitative Research, Sage, ThousandOaks.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3						X
CO4				X		
CO5					X	

Mean Value: 2+3+6+4+5 = 20/5 = 4

Semester II **Credit*:2***
Paper – 5 ***Hr/Wk: 4***

MSW 4210IT SKILLS FOR SOCIAL WORK

Course Description:

The Main objective of this course is to prepare the students of the Social work in appropriate IT Skills, which can be utilized in Social Work Practices.

Course Outcome:

At the end of the course the students will be able to:

i. infer the concepts related to Information Technology and Computers.
ii. prepare Word, Excel, PowerPoint individually.
iii. analyze the Uses of IT Tools
iv. recommend the appropriate IT Tools for Social Work Practice.
v. formulate and arrange the data using SPSS independently.

Unit 1: Basics (Hours 8)

Basic concepts of information technology: Fundamentals of a Computer - Meaning, Characteristics, History of computers. Operating systems - Windows, LUNIX. Basic operations and managing files. Other Technical Devices.

Unit 2: Tools (Hours 10)

Offline Tools: MS Office: Word, PowerPoint, Excel and MS Paint; Dash Board

Unit 3: Tools (Hours 10)

Online Tools: G-Suite: Gmail, Meet, Docs, Slides, Sheets, Drive, Classroom and Forms

Unit 4: Uses (Hours 12)

Utilization of IT Tools: Documentation, Report Writing, Analysis, Presentation, Publication, E-Communication, Social Media and Mobile Applications.

Unit 5:Application (Hours 14)

Social Work and IT: Professional IT Skills for the Fields and Methods of Social Work – E-Counseling, Online Social Education, Social Awareness through online streaming, Social Advocacy, online campaign, Fund Raising platforms and Social Research though online survey tools. Cyber ethics.

Pedagogical approach:

Lecture method, power point presentations, Laboratory activities, seminars.

Text Book:

- Gregor, Claire. 2006. Practical Computer Skills for Social Work, SAGE Publications, UK

References:

- Sinha & Sinha. 2003. Computer Fundamentals. BPB Publications New Delhi.
- Bright, Steven. 2017. Computer Fundamentals: Introduction to Computer. Independent Publisher.

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Value : 2+3+4+5+6 = 20/5 = 4

Semester II **Credit*:3***

Paper – 6 ***Hr/Wk: 5***

MSW 4520 Preparatory Field Work – Block Placement

Course objective:

This course aims at developing a closer understanding of field work requirements to the students who are to take their specialization. The content of the course would be dealt with a special approach.

Customization of the training experience

This course being the first of its kind to be experienced by the student in the social work program towards gaining direct field experiences will rest on teacher's inventiveness to entrain him/ her in the selected field setting for a period of 25 days. In the creative design of the programme the students who will be attached to an organization / agency will focus consistently in such a way a team of two would continuously monitor the professional skills and methodology followed by the supervisor belonging to the agency in social work setting. The check list provided would direct the candidate look for on details that he/she will have to observe keenly in his/her field work engagement.

Course Outcome:

At the end of the course the students will be able to:

i. Gains Direct Field Experience.
ii. Apply the Social Work Methods through Field Work experiences in their Placements.
iii. Develop and utilize the latest Professional Skills in the required setting.
iv. Construct community Social Case work, Group Work and OrganizationProgrammes.
v. Compile Field Work Experiences through Field Work Report.

Course Requirements and Evaluation:

- 75% of marks will be allotted for continuous assessment.
- Regularity in attendance, keenness to participate, readiness to learn, development of required skills, ability to conceptualize and acquisition will be tested
- The functional knowledge will be evaluated on the basis of process reports, observational reports and participatory evaluation by the faculty.
- A viva voce will be conducted at the end of the semester by a three-member committee of which one is an external member. Performance in the viva will be evaluated for 25%.

REQUIREMENTS	
Case Study (2)	Case Work (1)
Group Activity (2)	Group Work (1)
Community Program (1)	Community Organization (1)
Mini Research / Study	

A. Continuous Assessment:
(Based on submission of weekly reports/assignments)

Regularity of attendance	15marks
General Participation	15marks
Skills and Competencies	15marks
Individual Presentations	10marks
Written Reports	20marks
Total	75 marks

B. Viva Voce:

Conceptualization	5marks
Working Knowledge	5 marks
Problem Solving Ability	5marks
Consolidated Report	10 marks
Total	25marks

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5					X	

Mean Value : 2+3+4+5+5 = 19/5 = 4

Value Added Courses

Semester I **Credit*:*2**

Paper - 1 ***Hr /wk: 2***

MSW 421V - Basic Counselling

Course Description

This course will help students to understand the concepts, need and practice the counseling techniques and develop in students the ability to recognize the dynamics of understanding of self deviance and apply appropriate intervention strategies.

Course Outcome:

At the end of the course the students will be able to:

i. Associate the concept of counselling and need for practice.
ii. Apply the counselling as a tool for help and intervention
iii. Utilize the appropriate counselling types to assist.
iv. Integrate skills that would enable them to perform their role effectively.
v. Synthesize the importance of counselling process in different settings.

UNIT 1: Introduction **(Hour: 6)**

Counselling: Meaning, concept, Conceptual clarification – Advice, Guidance & Counselling, Need for Counseling.

UNIT 2: **Process** **(Hour: 4)**

Approaches in Counseling and guidance - used in assisting individuals and groups.

UNIT 3: Micro Skills **(Hour: 6)**

Counselling Interview - Nature and significant features, setting andGuidelines for Counseling

UNIT 4: Counseling Skills and Principles **(Hours:8)**

Counselling Skills and Principles. Applications of counselling skills.

UNIT 5: Settings **(Hour: 6)**

Counselling settings – educational, health, organizational, correctional, community rehabilitation, family,etc.

Pedagogical approach:

Lecture method, power point presentations, focus group discussions, field visits, seminars, role play.

Text Book:

- John Antony, D OFM Cap.(2015), ***Counselling Made Easy***, Dindugal, Guru Publications.

REFERENCE

- Pasricha, Prem (1976) : ***Guidance and Counselling In Indian education***
- Rao, Narayan (1984): ***Counselling Psychology***
- Dave, Indu (1992): ***Basic Essentials of Counselling***

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5						X

Mean Value : 2+3+4+5+6 = 20/5 = 4

Semester III **Credit:2**

Paper - 3 ***Hr /wk: 2***

MSW 521V - Tribal Community Development

Course Description:

This course on Tribal community development is planned to impute the concept of Tribes, Tribal Community Development. It helps the student to understand the Tribal context and impact of modernization on tribal societies. Students will be made to understand the responsibility and participation of Tribal engagement and Development.

Course Outcome:

After completing this course, the students will be able to:

i. Cognize the concept of Tribes & Tribal Communities
ii. Analyze and propose solutions to the Tribal problems
iii. Advocate with Tribal development agencies to promote Tribal community development
iv. Apply the Tribal development policies for urban community development
v. Take initiatives for Tribal development through people's participation.

Unit 1 **(Hour: 6)**

Tribe: concept, characteristics, major tribes classification, potentialities and problems with reference to Tamilnadu. Scope of social work intervention in tribal welfare.

Unit 2 Tribal Development **(Hour: 5)**

Tribal Development: origin, history and approaches. Tribal development in the pre and post-independence era. Its impact on indigenous communities.

Unit 3 Impact **(Hour: 7)**

Impact: Impact of urbanization, industrialization and modernization. Impact of non-tribal penetration on inter-tribal relation, forest regulations. Relationship between tribals and government, police, contractors, forest department and other agencies.

Unit 4 Tribal Movements **(Hour: 6)**

Tribal Movements: Ideology, structure and leadership. NGO's role and impact on tribal community development.

Unit 5 Rights of a Tribes **(Hour: 6)**

Rights of a Tribes**:** legislation related to land, encroachment, eviction, tenancy law, local bodies, land documents, people's courts and tribal local communities.

Pedagogical approach:

Lecture method, PowerPoint presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Text Book:

- Vidyut Joshi and ChandrakantUpadhyaya (eds),(2017) TRIBAL SITUATION IN INDIA: Issues and Development- 2nd Ed, Rawat Publication, New Delhi.

References:

- Christophy Von Furer (1958) Tribes of India; the struggle for survival Haimendorf Oxford University press, Delhi
- L.P.Vidyarthi (1976) The tribal culture of India Binaykumar Rai Concept publishing company, New Delhi
- Devendra Thakur (1995), Tribal Development and planning D.N.thakur Deep and Deep publications, New Delhi

Mapping of Course Outcomes (COs) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		X				
CO2			X			
CO3				X		
CO4					X	
CO5					X	

Mean Value: 2+3+4+5+5 =19/5 =4

POSTGRADUATE DEPARTMENT OF PSYCHOLOGY

Syllabus for Master of Science (Applied Psychology)

w.e.f. 2020 -2021

SEMESTER - I				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 4401	Biological Foundations of Behavior	6	5	100
PAP 4403	Life Span Psychology	6	5	100
PAP 4405	Advanced Social Psychology	6	5	100
PAP 4407	Professional Effectiveness	6	5	100
PAP 4609	Community Service	6	2	40

SEMESTER - II				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 4402	Cognitive Psychology	5	4	80
PAP 4404	Research Methods in Psychology	5	4	80
PAP 4406	Statistics in Behavioural Sciences	5	4	80
PAP 4408	Abnormal Psychology	5	4	80
PAP 4410	Positive Psychology	5	4	80
PAP 4612	Summer Internship	-	5	100
SEMESTER – III (Common to All)				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5401	Qualitative Research Methods	5	4	80

SEMESTER III				
Specialization I – Clinical Psychology				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5431	Introduction to Clinical Psychology	5	4	80
PAP 5433	Psychotherapeutic Techniques	5	4	80
PAP 5435	Psychopathology	5	4	80
PAP 5437	Psychometrics	5	4	80
PAP 5439	Clinical Assessments (Practical)	5	4	80

Specialization II – Counselling Psychology				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5451	Children and Adolescent Counselling	5	4	80
PAP 5453	Couple and Family Counselling	5	4	80
PAP 5455	Theories of Counselling and Psychotherapy	5	4	80
PAP 5457	Multi-Cultural Counselling Skills	5	4	80
PAP 5459	Assessments in Counseling Practical	5	4	80

Specialization III – Industrial Psychology and HRM				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5471	Organizational Behaviour	5	4	80
PAP 5473	Human Resource Management	5	4	80
PAP 5475	Organizational Leadership and Culture	5	4	80
PAP 5477	Mental Health in WorkPlace	5	4	80
PAP 5479	Assessments in Industrial Setting Practical	5	4	80

Specializations will begin from Semester III
The students will be asked to select any one of the specializations during third semester

SEMESTER – IV (Common to All)				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5402	Ethics in Psychological Practices in various Sectors	5	4	80
PAP 5604	Specialization specific Internship	-	5	100

SEMESTER IV				
Specialization I – Clinical Psychology				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5632	Clinical Psychology Research - Dissertation	-	10	200

Specialization II – Counselling Psychology				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5652	Counseling Psychology Research - Dissertation	-	10	200

Specialization III – Industrial Psychology and HRM				
Course Code	**Course Title**	**Hours Per Week**	**Credits**	**Marks**
PAP 5672	Industrial Psychology Research - Dissertation	-	10	200

Total Number of Credits 22+25+24+19 = 90

Total Marks = 1800 (90x20)

Value Added Courses

SEM	CODE	TITLE	Hr/Wk	Cr
I	**PAP421V**	Optimism	2	2
II	**PAP 422V**	Gratitude	2	2
III	**PAP 521V**	Self Control	2	2
VI	**PAP 522V**	Self-Compassion	2	2

PSO Programme Specific Outcomes
(MSc Applied Psychology)

At the end of the Post Graduate Programme in Applied Psychology, The students willableto:

1. PSO1: Apply the knowledge of Psychological principles and theories in their respective area of specialization in Applied Psychology.
2. PSO2: Think critically and evaluate the problems in their area of specialization in Applied Psychology and create an effective strategy to overcome the problems.
3. PSO3: Carry out a quality research in their respective area of specialization in Applied Psychology and contribute new knowledge
4. PSO4: Develop their skills in the emerging areas of the field of specialization
5. PSO5: Develop their ICT skills and use it for effective practices in their area of specialization
6. PSO6: Participate in public discourses, seminar, conference and workshops in face to face and online mode on varied topics in their specialization in English language and in their mother tongue
7. PSO7: Apply ethical principles and commit to professional ethics, values, responsibilities and norms of Applied Psychology.
8. PSO8: Compare and appraise the acquired social work skills and techniques in the fields of Applied Psychology
9. PSO9: Construct knowledge, skills, values and ability towards sustainable development for Nation building.
10. PSO10: work effectively in their area of specialization in Applied Psychology, show multi-cultural skills, work with consciousness and value human diversity in their area pf specialization

Mapping Programme Specific Outcomes (PSO) with Programme Outcomes (POs)

PSO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓									
PSO2		✓								
PSO3			✓							
PSO4				✓						
PSO5					✓					
PSO6						✓				
PSO7							✓			
PSO8								✓		
PSO9									✓	
PSO10										✓

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 6
Semester – I Code: PAP 4501	Biological Foundations of Behaviour	Credit: 5 MARKS: 100

This course will familiarize the students about the brain and behaviour connection, methods of brain study. It will sensitize students about the influences of genetic and environmental factors on behaviour of an individual. The students will be motivated to read and critically evaluate the brain parts and functions virtually.

On successful completion of the course, students will be able to:

i. Understand the links between behaviour, mental processes and biological processes
ii. Demonstrate the application of biological foundations
iii. Relate the importance of neurotransmitter with mental health and behaviour
iv. Suggest strategies for better sleeping

Unit 1: Introduction
The origins of biopsychology, Nature of biological psychology, basic cytology and biochemistry, Mind Brain relationship, Methods of study of research in biopsychology anatomical methods, degeneration techniques, lesion techniques, chemical methods, stereo taxic surgery, micro-electrode studies, oscilloscope, polygraph, scanning methods & Ethical issues in research.

Unit 2: Determinants of Behaviour
Biological, Psychological, Social Determinants of behaviour. Basics concepts of human behaviour. Environmental Influence on behaviour. Nature versus nurture: Genetics, environment and cognition

Unit 3: Neurons and Neuronal Conduction
Structure of neurons, types, functions, neural conduction, communication between neurons, Synaptic conduction, Neurotransmitters- structure, types, Functions of Neurotransmitters.

Unit 4: Biopsychology of emotion, stress and health
Emotions as response patterns: fear, anger and aggression; Hormonal control of aggressive Behaviour; Neural basis of the communication of emotion: Recognition and expression; Stress and health: The stress response, stress and gastric ulcers, Psychoneuro immunology, stress and the hippocampus; Fear conditioning: amygdale, contextual fear conditioning and the Hippocampus

Unit 5: Biopsychology of Arousal
Physiological correlations of Arousal: consciousness and sleep, Factors affecting Consciousness. Sleep: Rhythms of sleeping and waking, neural basis of biological clocks, Stages of sleep, brain mechanisms of REM sleep and dreaming, physiological mechanisms of sleep and
Waking, disorder of sleep

Textbooks:

- Kalat, J.W. (2004). Biological psychology (8th.ed.). Belmont: Wadsworth/Thomson learning.
- Carlson, N.R. (2004). Physiology of behaviour (8th.ed.). Boston: Allyn& Bacon.

References:

- Schneider M Alles (1990). An introduction to Physiological Psychology (3rd Edition) USA:Random House.
- Carlson, N.R. (1999). Foundations of physiological psychology (4th. Ed.). Boston: Allyn& Bacon.
- Leukel, F. (1985). Introduction to physiological psychology (3rd .ed.). New Delhi: CPS Publishers.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3	4		
CO4						6
CO5					5	6

Mean =3.6

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	6 Hrs Per week
Semester – I Code: PAP 4503	Life Span Psychology	Credit: 5 MARKS: 100

This course is aims to prepare the students to understand the psychological aspects of growth and development across life span. This course is also explores the biological, cognitive and social process of human development.

After the completion of this course, a student will be able to:

i. Grasp the relevance of a developmental perspective to human development.
ii. Understand and apply the major theoretical concepts related to different domains of development across the lifespan.
iii. Recognize the major issues, challenges milestones and developmental tasks related to different domains of development

Unit 1: Introduction to Life-Span Development

Importance of studying Life-Span Development, Characteristics of life-span development, Nature of Development, Scope of Life span development, Social contexts of lifespan development.

Unit 2: Biological Processes in Human Development

Part 1: Biological Bases to explain Human Development (10 hours) Heredity-Environment Correlations; Important physical changes; Challenges for psychological development. Sleep Disorders across life span; Eating disorders in Adolescence, Obesity in adulthood, Chronic diseases and disorders in the Aging process. Bio-psycho social model of health.

Unit 3: Biological Processes in Human Development

Part 2: Endings of Life (10 hours) Biological and social theories of aging, Successful aging; Death, Causes for death across life span, Suicide in adolescence and adulthood; Facing one's own death, coping with the death of someone else.

Unit 4: Cognitive Processes and Development

Piaget and Vygotsky's theory of cognitive development; Age related challenges to cognitive development

Unit 5: Socio-Emotional Processes and Development Across Life Span

Part I: Development of Emotion, Temperament, Attachment and Love: Bowlby, Ainsworth, Sternberg. Development of Identity: Erickson's theory; Parenting. Moral Development, Contexts of moral development: Kohlberg's theory, Fowlers Theory; life cycle theories: Levinson

Part 2: Introduction to counseling for developmental disorders

Textbooks:

Santrock, J.W. (2011). A topical Approach to life-Span Development. New Delhi: Tata McGraw-Hill Edition.

Reference Books:

Newman & Newman (2003). Development through life: A Psychosocial Approach. USA: Thomson Wadsworth.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4	5	
CO4						6
CO5						

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	6Hrs Per week
Semester – I Code: PAP 4505	Advanced Social Psychology	Credit: 5 MARKS:100

This course will acquaint the students about the social aspects of human behaviour and cognition. It will sensitize students dynamics and importance of social relationship. The students will be motivated to read and discuss the social factors for various behaviours.

Learning Outcome:

i. Understand the past contexts of social psychology as a field in India and the World.
ii. Evaluate the theoretical perspectives that explain social cognition and its impact on self and others.
iii. Relate the past and the present research in social psychology to everyday situations pertaining to stereotyping and group behaviours.
iv. Examine the nature and the dynamics of interpersonal relationships and behaviour.
v. Critically analyse the everyday issues in the social world.

Unit 1:
Defining social psychology – Historical developments - The power of the situation – Where Construal come from: Basic Human Motives – Methods in Social Psychology – Issues surrounding experiments – Social psychology in India

Unit2:
Social cognition and impression management Self and identity. Culture and Development of Self. Social Identity. Attribution- theories, biases and errors.

Unit 3:
Organizing and Changing attitudes; persuasion; The development of social representation; Prejudice, Stereotypes and Discrimination; Theories of inter-group relations; Reducing prejudice. Groups: Small groups and its functions; Social influence processes in groups;

Unit4:
Nature, dimensions and dynamics of interpersonal relationships; Interpersonal attraction; Sexuality and intimacy; Diverse and complex relationships – alternate sexualities; Aggression: Theories and individual differences in aggression; Violence- sexual harassment, genocide, terrorism.

Unit5:
Environmental stresses and social behavior; Social psychological perspectives on health and illness; Psychological effects of unemployment. Social psychology in law; Poverty and deprivation.

Textbooks

1. Aronson, E., Wilson, T.D., and Akert, R.M. (1999). Social Psychology (3rd ed.). New York: Longman.
2. Myers, D. G. (2002). Social Psychology, 7th ed. Int. Education: McGraw Hill.

Reference Books:

1. Taylor, S. E., Peplau, L. A., & Sears, D. O. (2003). Social psychology (11th).
2. Moghaddam, F.M. (1987). Psychology in the three worlds: As reflected by the crisis in social psychology and the move toward indigenous third world psychology. American Psychologist, 42, 912-920.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2						
CO3			3	4		
CO4						6
CO5					5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	6Hrs Per week
Semester – I Code: PAP 4507	PROFESSIONAL DEVELOPMENT	Credit: 5 MARKS: 100

This course is aims to prepare the students for professional engagement in the field of psychology. This course is alsoidentify and engage the students to develop the professional skills in the field. The students will be motivated to read and discuss the recent advancement in professional development.

Learning Outcome:

i. Identify skills, beliefs and values of self to be an effective professional.
ii. Reflect on self and one's impact on others.
iii. Explore problem-solving skills in everyday life.
iv. Recognize and utilize professional skills to educate others.
v. Demonstrate ability to create own ideas.

Unit 1:
Self-awareness, self-image, self-development, identity.

Unit2:
Empathy, effective helpers, building relationships.

Unit3:
Problem solving and decision making, creativity, critical thinking.

Unit4:
Psychoeducation for prevention programs for adolescents, teachers and parents.

Unit5:
Life review

Textbooks

1. Feltham, C. (2007). Professional skills for counselors – understanding the counseling relationships. Los Angeles: Sage publication

2. Goud, N. & Arko, A. (2006). Psychology and personal growth, Pearson, MA.

3. Inskipp, F. (2004). Skills training for Counselling. London: Sage publications.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4		
CO4						6
CO5					5	

Mean= 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	6 Hrs Per week
Semester – I Code: PAP 4209	COMMUNITY SERVICES	Credit: 2 MARKS: 40

This course will familiarisethe students about the importance of community service and it's procedures. It will sensitize students about the skills and documentation procedures in community service. The students will be motivated to read and discuss recent advancement in community services.

Learning Outcome:

i. Explorethe different areas of commUnity service
ii. Apply the psychological knowledge in the commUnity setting
iii. Actively participating commUnity development activities
iv. Apply skills in the commUnity for their betterment in mental health
v. Demonstrate ability to create own ideas.

It is a field activity at the end of the field visits and service in the commUnity the students has to submit their reports in the prescribed format.

Evaluation Pattern

Weekly Assignments and Final Report = 75%
Viva Voce = 25%

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 5
Semester – II Code: PAP 4402	COGNITIVE PSYCHOLOGY	Credit: 4 MARKS: 80

Learning Outcome:

This course is aims to prepare the students to familiarise the cognitive psychology. This course is also identify and engage the students to explore the cognitive process. The students will be motivated to read and discuss the recent advancement in cognitive psychology.

On successful completion of the course students will be able to:

i. To have an in depth understanding of cognitive processes.
ii. To have an insight about behavior and mental process.
iii. To explore the practical implication of cognitive processes in human performance

Unit1: Introduction: Meaning –cognitive psychology. Historical origins of cognitive psychology; information processing model, the present-day approach; psychophysics and signal detection theory. Consciousness: History of consciousness, cognitive psychology and consciousness, consciousness as a scientific construct.

Unit2: Perceptual Processes: Perception and sensation– illusions, previous knowledge, sensory brain disposition. Attention: meaning, models –filter model, the attenuation model, and the neuron-cognition of attention. Pattern recognition– gestalt theory, template matching theory and prototype matching. Attention training, Selective Attention, Division of Attention and Multitasking.

Unit 3: Memory: Short – term memory and long term memory, Models of memory – working memory, Waughand Norman model, Atkinson-Shiffrin model, level of recall, levels of processing, self – reference effect, Tulving's model, A Connectionistic model of memory, Mnemonic systems and meta memory: - Eye witness memory, Flash bulb memory

Unit 4: Decision-making and artificial intelligence: Decision making: Inductive reasoning, decision making in the real world, reasoning and the brain, estimating probabilities, decision frames, representativeness, Baye's theorem and decision making. Artificial intelligence: Artificial intelligence– The beginning computers and artificial intelligence, artificial intelligence and human cognition, perception and artificial intelligence, problem solving, game playing and artificial intelligence. Problem Solving and Creativity: Practical applications of cognitive psychology. Decision making and reasoning: Deductive Reasoning and inductive reasoning.

Unit 5: Language: Concepts, Definitions, Proto types. Organization of Language, Phonology, Words, syntax, sentence parsing, Language and thinking. Nature and Acquisition:

Bilingualism and Multilingualism Reading Comprehension: Bottom up and Top down Processes, Neuropsychology of Language.

Textbooks:

Solso,R.L.(2004).*CognitivePsychology*,SixthEdition.PearsonEducationPvt.Ltd.,New Delhi.

References:

Wessells,M.G.(1982).*Cognitive Psychology*, Harperand RowPublishers, NewYork.

Best,J.B.(1989).*Cognitive Psychology*, IIEdition, WestPublishingCompany, New York.

Wood,G.(1983).*CognitivePsychology*–ASkillsApproach,ColePublishing

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3	4	5	
CO4						6
CO5				4	5	6

Mean =3.8

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – I Code: PAP 4404	RESEARCH METHODOLOGY	Credit: 4 MARKS: 80

This course is aims to prepare the students to understand the research methodology. This course is also identify and engage the students to explore the various research designs. The students will be motivated to read and discuss effective research methods in the field.

Learning Outcome:

i. Understand the historical roots and need for scientific thought in psychology
ii. Compare quantitative and qualitative research in psychology
iii. Explore the process in psychological research
iv. Identify and apply the different techniques in sampling and data collection
v. Demonstrate familiarity with qualitative data analysis

Unit 1:

Philosophical roots of research; History of research in Psychology; Definition of Research and its purpose and need.

Unit 2:

Quantitative research: Experimental, Exploratory, Correlational and Descriptive research in psychology; Experimental designs; Qualitative research: Grounded theory, Narrative Approach, Ethnography, Action Research, and Discourse analysis. Ethical issues in psychological research.

Unit 3:

Process of quantitative research and Process of qualitative research – Conceptualizing research questions, issues of paradigm, theoretical sampling, contrasting qualitative with quantitative approach in research process; issues of credibility.

Unit 4:

Sampling techniques and data collection: Basic assumptions; sampling distribution, probability, non-probability sampling; Methods of data collection: Observation, survey, questionnaires, interviewing methods, case study methods, psychometric tests, focus groups, life history and oral history, documents, diaries, photographs, films and videos, conversation, and texts.

Unit 5:

Data analysis in qualitative research – different traditions; thematic analysis, narrative analysis, discourse analysis, and content analysis.

Textbooks

1. Gravetter,F.J., & Forzana,L.A.B(2009). Research methods for behavioural sciences. United States: Wordsworth Cengage learning.
2. Ritchie, J. & Lewis, J. (eds.).(2003).Qualitative research practice: A guide for social science students and researchers. New Delhi: Sage

3. Biber, S. N.H and Leavy (2006). The practice of qualitative research. New Delhi: Sage publications.
4. Silverman, D and Marvasti, A (2008). Doing qualitative research .New Delhi: Sage publication .

Reference Books:

1. Coolican, H. (2004). Research methods and Statistics in Psychology. London: Hoddes Arnold
2. Kerlinger, N. (1996). Foundations of behavioural research. India: Prentice Hall

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4	5	
CO5					5	6

Mean =3.7

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 5
Semester – II Code: PAP 4406	STATISTICS IN BEHAVIOURAL SCIENCES	Credit: 4 MARKS: 80

This course is aims to prepare the students to understand the statistical procedures in behaviour sciences. This course is also identify and engage the students to calculate parametric and non-parametric statistics. The students will be motivated to read and discuss appropriate statistical technique in the field of research.

On successful completion of the course students will be able to:

i. Understand the basics of statistics
ii. Present data through graph
iii. Choose appropriate statistical tests
iv. Apply the statistical technique and write inferences
v. Utilize computerized packages for analysis

Unit – 1 Introduction to Statistics

Statistics: definition, functions and uses in research. Levels of Measurement. Measures of central tendency – Mean, median, Mode. Measures of variability – range, average deviation, quartile deviation, standard deviation.

Unit – 2 Normal Distribution

Normal Distribution – Meaning, importance, properties. Hypothesis testing – types of hypothesis testing, type I error, type II error, one tailed and two tailed tests. Mean difference – t test, Independent and Correlated – Power of Test. Normal Curve - Characteristics and applications. Non-normal Curve - Skewness and Kurtosis – application and inferences.

Unit - 3 Mean Difference Analysis

The significance of statistical measures – concept of standard error and its uses – Application and inferences of Testing of difference between two means – t-test and CR. One-way ANOVA, Post hoc Test, Two-way ANOVA, Overview of MANOVA and ANCOVA.

Unit – 4 Correlation Measures

Correlation: Definition, Meaning, Types, applications and inferences, Methods of Correlation – Scatter Plot, Spearman Rank Order, Pearson's Product-Moment. Point – Bi-serial, Phi-coefficient and tetra choric correlation. Co-efficient of Determination. Regression - Simple Linear Regression, Introduction to Multiple Regression.

Unit – 5 Non-Parametric Statistics

Difference between Parametric and Non-Parametric Statistics. Application and inferences of Chi Square Test of Significance, Sign Test, Wilcoxon Signed Rank test. Non-parametric tests for uncorrelated data - Mann-Whitney U-test and Kruskal-Wallis Test.

Practicum: Introduction to Statistical software – Excel, SPSS.

Textbooks:

1 Robert R Pagano (2010) 9th ed. Understanding Statistics: In the behavioural sciences. Australia: Wadsworth Cengage Learning.

2 David C. Howell (2011) 7th ed. Fundamental statistics for the Behavioural sciences. Australia: Wadsworth Cengage Learning.

3 Gregory J Privitera (2012) Statistics for the Behavioural Sciences. Los Angels: Sage Publications.

References:

1. Rachel A Gordon (2012) Applied statistics for the social and health sciences. New York: Routledge.
2. Neil J Salkind (2013) 3rd ed. Statistics for people who hate statistics. Los Angels: Sage Publication.
3. Chris Spatz (2008) 9th ed. Basic statistics. Australia: Thaomson& Wadsworth.
4. Richard G Lomax and Debbie L Hahs-Vaughn (2012) 3rd ed. An introduction to Statistical Concepts. New York: Routledge.
5. Kirk Elifson, Richard P. Runyon and Audrey Haber (1998) 3rd ed. Fundamentals of social statistics. Singapore: McGraw-Hill.
6. Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4	5	
CO4						6
CO5				4		

Mean = 3.6

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – I Code: PAP4408	ABNORMAL PSYCHOLOGY	Credit: 4 MARKS: 80

This course is aims to sensitise the students about the psychopathology. This course is also familiarise the students on diagnostic criteria and identification of appropriate treatment strategies.The students will be motivated to read and discuss recent advancement in the field of abnormal psychology.

LEARNING OUTCOMES: -

i. To provide an overview of psychological disorders
ii. To familiarize with different disorders, their symptoms and causes and treatment.

Unit – 1:

Psychopathology: Definition, Psychological abnormality: - Deviance, distress, dysfunction, danger, the elusive nature of abnormality. Clinical assessment: Characteristics of assessment tools, Clinical interviews , Case History, Mental Status Examination, Clinical test, Clinical observations. Diagnosis: DSM-IV TR, ICD 10. Ethics in practice.

Unit – 2:

Schizophrenia and other Psychotic disorders - Schizophrenia- Types, schizophrenic form disorder, schizoaffective disorder, delusional disorder, brief psychotic disorder, shared psychotic disorder, psychotic disorder due to general medical condition, substance induced psychotic disorder - Treatments and Outcomes.

Unit – 3:

Personality disorders -Paranoid personality disorder, Schizoid personality disorder, Schizotypal personality disorder, Antisocial personality disorder, Borderline personality disorder, Histrionic personality disorder, Narcissistic personality disorder, Avoidant personality disorder, Dependent personality disorder, Obsessive compulsive personality disorder-Treatments and Outcomes.

Unit – 4:

Anxiety Disorders - Panic disorder with and without Agoraphobia, Agoraphobia without history of panic disorder, Specific Phobia, Social Phobia, Obsessive compulsive, disorder, Post traumatic stress disorder, Acute stress disorder, Generalized Anxiety Disorder, Anxiety disorders due to general medical condition. Substance induced anxiety disorder -Treatments and Outcomes.

Unit – 5:

Mood Disorders - Understanding and Defining Mood Disorders: Prevalence – Causes Diagnostic features, Criteria, Major Depressive Disorder (MDD) - Bipolar Disorders – Substance induced Mood Disorders – Alcohol induced Mood Disorders - Treatments and Outcomes

Textbooks:

1. Comer, R.J. (2010). Abnormal Psychology. Worth Publishers.
2. American Psychiatric Association (2013).Diagnostic and statistical manual of mental disorders (5 th ed., text rev.). Washington, DC

Reference Books:

1. World Health Organization. (1992). ICD-10 Classifications of Mental and Behavioural Disorder: Clinical Descriptions and Diagnostic Guidelines. Geneva.
2. www.iacapap.org
3. Sarason&Sarason (2011). Abnormal Psychology - The Problem of Maladaptive Behaviour(12thed). Pearson Education
4. Carson (2012). Abnormal Psychology.(15thed). Pearson Education.
5. Bootzin, R.R., Acocella, J.R. and Alloy, L.B. (1993). Abnormal Psychology – Current Perspectives, 6th edition, New York: Mc-Grans-Hill, Inc.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3		5	
CO4				4		
CO5						6

Mean = 3.3

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 5
Semester – II Code: PAP 4410	POSITIVE PSYCHOLOGY	Credit: 4 MARKS: 80

This course is aims to sensitise the students to understand the importance of positive psychology. This course is alsoprepare the students to understand the positive mental health strategies. The students will be motivated to read and discuss recent advancement in positive psychology.

On successful completion of the course, the student will be able to:

i. Understand the importance of Positive Psychology.
ii. Developed the competence to practice the tools in the field.
iii. Familiarize the concepts and perspectives in Positive psychology
iv. Articulate the implications of Signature strengths
v. Application of Positive Psychology in Everyday life

Unit - 1

Introduction: Introduction to Positive psychology: Definition; goals and assumptions; Relationship with health psychology, developmental psychology, clinical psychology.
Activities: Personal mini experiments; Collection of life stories from magazines, websites, films etc and discussion in the class.

Unit - 2

Positive emotions: Positive emotions, Well-being and Happiness -Positive emotions: Broaden and built theory; Cultivating positive emotions; Happiness- hedonic and Euaimonic; Well-being: negative vs positive functions; Subjective well –being: Emotional, social and psychological well-being; Model of complete mental life.

Unit - 3

Self-control, Self-control, Regulation and Personal goal setting .The value of self-control; Personal goals and self-regulation; Personal goal and well-being; goals that create self-regulation; everyday explanations for self-control. Failure problems.

Unit- 4

Optimism and pessimism: Positive Cognitive States and Processes. Resilience: Developmental and clinical perspectives; Sources of resilience in children; Sources of resilience in adulthood and later life; Optimism- How optimism works; variation of optimism and pessimism; Spirituality: the search for meaning Frankl); Spirituality and well-being; Forgiveness and gratitude Test: Mental well-being assessment scale; Test: Signature strength.

Unit – 5

Applications-Applications of Positive Psychology - Positive schooling: Components; Positive coping strategies; Gainful employment -Mental health: Moving toward balanced conceptualization; Lack of developmental perspectives.

Text Book

- Carr. A (2004), **Positive Psychology The science of happiness and human strengths,** New York, Routledge.

- Snyder. C.R.&Lope.S.J (2002),**Handbook of Positive Psychology,** New York, Oxford University Press.

References:

- Acacia C. Parks (2014), **Positive Psychologyin Higher Education**, New York, Routledge.
- Steve.R et al (2009**), Positive Psychology**, New Delhi, Pearson Education.
- Singh.A (2013), **Behavioral science: Achieving behavioral excellence for success,** New Delhi, Wiley India Pvt ltd.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4				4		6
CO5					5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	Hrs Per week
Semester – I **Code: PAP 4512**	**SUMMER INTERNSHIP**	**Credit: 5** **MARKS: 100**

This course is aims to prepare the students to undergo summer internship in their area of specialization. This course is also prepare the students to develop hands on skills in the area. The students will be motivated to read and discuss recent progress in the field of their specialization.

Learning Outcome:

i. Explore and identify organization for summer internship
ii. Nurture the skills through actively participate in the activities of the internship organization
iii. Plan and assist the senior mentor in the internship organization
iv. Learn the procedure in document of the activities carried out during the internship

It is an organizational activity at the end of the internship, the students has to submit their reports in the prescribed format.

Evaluation Pattern

Final Report = 75%
Viva Voce = 25%

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 5
Semester – III Code: PAP5401	QUALITATIVE RESEARCH METHODOLOGY	Credit: 4 MARKS: 80

This course is aims to sensitise the students about various qualitative research methodology. This course is alsomotivate the students to learn skills in required for qualitative research. The students will be encouraged to read and discuss appropriate qualitative research methodology.

On successful completion of the course, students will be able to:

i. To provide theoretical foundation on qualitative research methods
ii. To familiarize various traditions of qualitative research methodologies in psychology
iii. Develop skills on collecting qualitative data using various methods
iv. Develop skills on analysing qualitative data manually and using soft wares
v. Develop skills on reporting qualitative and quantitative research

Unit 1:
Introduction to Qualitative Methods: The History and Philosophical Origins of Qualitative research; Characteristics of Qualitative Research.

Unit 2:
Methods of Data Collection: Ethnographic Observation –Interviews –Focus Group –Texts –Visual Images.

Unit 3:
Qualitative Data Analysis: Data Preparation and developing coding; Overview of Content Analysis –Grounded Theory –Narrative Analysis –Thematic Analysis –Discourse Analysis.

Unit 4:
Ethics in Research: Code of Ethics; General, Consent, Deception; Debriefing, Withdrawal, Confidentiality.

Unit 5:
Report Writing: Significance of Report Writing; Different Steps in Writing Report; Layout of the Research Report, Types of Report; Mechanics and precautions for writing; Research Reports.

Textbooks
1. Glynis Breakwell, Smith and Wright 4th Edition. Research Methodology in Psychology. New Delhi: Sage publication.
2. David Silverman 4th Edition. Interpreting Qualitative Data. New Delhi: Sage publication.
3. Hennick, Hutter& Ajay Bailey. Qualitative research Methodology. New Delhi: Sage publication.
4. Helen Gavin. Understanding Research Methods and Statistics in Psychology. New Delhi: Sage publication.

5. Kothari, C.R. (2004). Research Methodology -Methods and Techniques, New Delhi: New Age International (P) Limited Publishers.
6. Kerlinger, N. (1996). Foundations of behavioural research. India: Prentice Hall

References

1. Bryman,A (2007) Sage Benchmarks in social science research methods Vol. I, Vol. II, Vol. III and Vol. IV. New Delhi : Sage Publications
2. Kapur,R.L. (1999).Qualitative methods in mental health research. Bangalore: NIAS.
3. Kvale,S. (1997). Psychology & Post-modernism. New Delhi: Sage Publications
4. Ritchie,J.&Lewis,J. (2003).Qualitative research practice: A guide for social science students and researchers. New Delhi: Sage
5. Biber,S.N.H and Leavy (2006).the practice of qualitative research.NewDelhi:Sage publications .
6. Silverman, D and Marvasti,A (2008).Doing qualitative research. New Delhi: Sage publication.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2			3			
CO3		2			5	
CO4				4		
CO5					5	

Mean = 3.3

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	Hrs Per week 5
Semester – III Code: PAP 5431	INTRODUCTION TO CLINICAL PSYCHOLOGY	Credit: 4 MARKS: 80

This course is aims to familiarise the students about clinical psychology. This course is alsoprepare the students to learn skills in required for clinical psychology. The students will be encouraged to read and discuss recent advancement in clinical psychology.

Learning Outcome:

i. Know the historical roots and need for scientific thought in clinical psychology
ii. Examine the importance of the clinical assessment process
iii. Explore the various existing clinical assessments
iv. Identify and apply the different techniques in psychotherapy
v. Understand the specialties in clinical psychology

Unit1:
History and philosophy of Clinical Psychology; Clinical Psychology and other related fields; Professions and titles, programs; Models of training in clinical psychology.

Unit2:
Clinical assessment - Assessment interview; the interviewer: general skills, specific behaviors; components of the interview: rapport, technique; types of interviews: intake interviews, diagnostic interviews, structured interviews vs unstructured interviews;

Unit3:
Clinical assessment - Mental status exam; assessment of intelligence, personality assessment, behavioral assessment, clinical judgment.

Unit4:
Psychotherapy: how does it work? Efficacy versus effectiveness of psychotherapy; Past, present, future trends; Psychotherapy perspectives – psychodynamic, humanistic-existential, behavioral and cognitive.

Unit5:
Specialties in Clinical Psychology – CommUnity psychology, Health psychology and behavioral science, neuropsychology, and forensic psychology.

Textbooks

1. Pomerantz, A.M. (2008). Clinical Psychology: Science, practice, and culture. Sage Publications: New Delhi
2. Trull,T.J., &Phares,E.J. (2001). Clinical psychology: Concepts, methods, and profession (6th ed.). Belmont,CA: Wadsworth/Thomson Learning

Reference Books:

1. Hecker,J.E., &Thorpe,G.L. (2005). Introduction to clinical psychology: Science, practice, and ethics (Low Price Edition). Delhi: Pearson Education.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4		
CO4					5	
CO5						6

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	Hrs Per week 5
Semester – III Code: PAP 5433	PSYCHOTHERAPEUTIC TECHNIQUES	Credit: 4 MARKS: 80

This course is aims to sensitise the students about various psychotherapeutic techniques. This course is also motivate the students to learn different psychotherapeutic techniques. The students will be encouraged to read and discuss recent developments in psychotherapeutic techniques.

Learning Outcome:

i. Become familiar with the history of each psychotherapy model
ii. Understand the theoretical frameworks of each therapy
iii. Examine the process of psychotherapy
iv. Explore the various treatment plans for clients with psychological dysfunctions
v. Identify and apply the different techniques in psychotherapy

Unit 1: Psychoanalytic, psychodynamic, object-relations, and interpersonal approaches

Unit2: Rogerian, Existential, and Gestalt therapies.

Unit 3: Behavior therapy, Rational Emotive behavior therapy, Cognitive therapy, and Cognitive behavioral therapy

Unit4: Family and Couple therapy

Unit5: Group Therapy

Textbooks

1. Sharf, R.S. (2000). Theories of psychotherapy and counseling: Concepts and cases (2ndEd.). Singapore: Brooks/Cole.
2. Nichols, P.M & Schwartz C.R (2006). Family Therapy –concepts and methods, 7th edition, Allyn and Bacon, Boston, Pearson education, Inc.
3. Corey, G (2008) Theory and Practice of Group Psychotherapy, 8TH edition, Pacific Grove, CA: Brooks/Cole.

Reference Books:

1. Ivey, A.E., Ivey, M.B., &Simek-Morgan, L. (1997). Counseling and psychotherapy: A multi-cultural perspective (4th ed.). Boston: Allyn& Bacon.
2. Prochaska, J.O., & Norcross, J.C. (2003). Systems of psychotherapy: A transtheoretical analyses (5th ed.). Pacific Grove, CA: Thomson-Brooks/Cole.
3. Trull,T.J., &Phares,E.J. (2001). Clinical psychology: Concepts, methods, and profession (6th ed.). Belmont,CA: Wadsworth/Thomson Learning
4. Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2						
CO3			3	4	5	
CO4						6
CO5				4	5	

Mean = 3.8

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	Hrs Per week 5
Semester – III Code: PAP 5435	PSYCHOPATHOLOGY	Credit: 4 MARKS: 80

This course is aims to sensitise the students about psychopathology. This course is also motivate the students to learn classification of disorders. The students will be encouraged to read and discuss emerging disorders and diseases in the field of study.

Learning Outcome:

i. Understand the intricacies of psychopathology
ii. Develop the ability to utilize DSM and ICD
iii. Evaluate the diagnostic process
iv. Identify and apply the most appropriate treatment
v. Become skilful with clinical case formulation

Unit1:

Definition of mental illness, signs and symptoms in psychopathology; systems of classification – DSM 5 and ICD 11; Clinical case formulation; Diagnosis.

Unit2:

Neurocognitive and sleep disorders – Dementia, delirium, head injury, epilepsy, other amnesic syndromes; Clinical picture, etiology, and treatment.
Specific Developmental disorder of scholastic skills; Pervasive developmental disorders; behavioral and emotional disorders; disorders of social functioning.

Unit3:

Substance-related disorders - Clinical picture, models of addiction, assessment and intervention.
Eating disorders – Anorexia, bulimia, and binge eating disorder.
Sexual dysfunctions and gender dysphoria – Clinical features, etiology and paraphilias.

Unit4:

Mood and anxiety disorders – depression, bipolar, phobia, GAD, panic, OCD, PTSD, adjustment disorder; Clinical features and Etiology.

Unit5:

Somatoform and behavioral syndromes – dissociative disorder, somatoform, and other related disorders.
Psychotic disorders – Schizophrenia, delusion, and other psychotic disorders.

Textbooks

1. Sadock, B.J. & Sadock, V.A. (2003). Kaplan & Sadock's Synopsis of psychiatry: Behavioral sciences/clinical psychiatry (9th. Ed.). Philadelphia: Lippincott Williams & Wilkins.

2. Sadock, B.J. & Sadock, V.A. (2003). Kaplan & Sadock's Synopsis of psychiatry: Behavioralsciences/clinical psychiatry (9th. Ed.). Philadelphia: Lippincott Williams & Wilkins.

Reference Books:

1. Hecker,J.E., &Thorpe,G.L. (2005). Introduction to clinical psychology: Science, practice, and ethics (Low Price Edition). Delhi: Pearson Education.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4						6
CO5				4	5	

Mean = 3.5

M.Sc. PSYCHOLOGY	CORE PAPER - 4	Hrs Per week - 5
Semester – III	PSYCHOMETRICS	Credit: 4
Code: PAP 5437		MARKS: 80

This course is aims to familiarise the students about various psychometric properties. This course is also motivate the students to understand the steps involved in the psychometric. The students will be encouraged to read and discuss effective strategies in psychometric.

Objectives

On successful completion of the course students will be able to:

i. To acquaint the students with the concept, techniques and psychometric properties of psychological measurement.
ii. To develop insight in understanding psychological measurement.
iii. To train the students to develop psychological tools of measurement independently.

Unit 1: Introduction: Measurement in Psychology: Meaning and definition, measurement scales, attributes of measuring instruments. Psychometrics: Nature, origin and history of psychometrics, controversy and ethics of ethics of IQ testing. Models of psychometrics: Trait and function models, Classical test theory and Latent construct model.

Unit 2: Test Development: Introduction: Planning for the test, preparing the preliminary draft, try out, evaluating the test, construction of the final draft. Item types: knowledge based and person-based tests, norm-referenced and criterion-referenced tests, objective and open-ended tests. Item analysis: Difficulty and validity indices. Introduction to factor analysis.

Unit3: Reliability and Validity: Reliability: Meaning; Traditional and Contemporary. Methods of estimating reliability, Factors affecting reliability. Validity: Meaning – Traditional and Contemporary; Methods of estimating Validity, Factors affecting validity, MTMM and its relationship with validity. Contemporary challenges and validity.

Unit 4: Norms: With in Group Norms; Meaning and Challenges. Types of Norms; Percentile and Standard score Norms. Criterion Reference Tools. Culture and Norms.

Unit 5: Application of Tests in Various settings; Education, Counselling, Clinical and Organizational.

Textbooks:

Anastasi,A.&Urbania,S.(2000). *Psychologicaltesting*(7th Ed.) . NewDelhi: Pearson Education Asia.

Chadha, N.K. (2009). *Applied Psychometry*.New Delhi:Sage.

References:

Guilford, J.P. (1954). *Psychometric methods*. New York:Mc Graw– Hill.

Kaplan, R. M. &Saccuzo, D. P. (2005).*Psychological testing:Principles, Applications and issues.* Kundli: (Haryana):Thompson,Wadsworth.

Kline, T.J.B. (2005). *Psychological testing*.NewDelhi:Vistaar.

Murphy,R.K.&Danishofer,C.D.(1994). *Psychologicaltesting:Principlesand applications*. New Jersey: Prentice Hall.

Nunnally, J.C. (1967). *Psychometric theory*. New York:Mc Graw – Hill.

Puhan,B.N.(1980). *Issuesinpsychologicaltesting*. Agra:NationalPsychological Corporation.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4					5	
CO5				4		6

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	Hrs Per week 5
Semester – I Code: PAP 5439	CLINICAL ASSESSMENTS	Credit: 4 MARKS: 80

This course is aims to familiarise the students about clinical assessment. This course is also motivate the students to understand the steps involved in the clinical assessmentThe students will be encouraged to read and discuss effective clinical assessment and profiling.

Learning Outcome:

i. Recognize the importance of assessments in a clinical setting
ii. Understand the psychometric properties of the tests
iii. Explore the various existing clinical assessments and understand their purpose
iv. Identify and apply their knowledge to evaluate the scores on assessments
v. Develop skills to write clinical reports to clients for communicating clinical results.

Unit 1:

Assessment of Personality –
Sixteen Personality Factor Questionnaire (16PF)
Myers Briggs Type Indicator (MBTI)
Eysenck's Personality Questionnaire- Revised (EPQ-R)
Minnesota Multiphasic Persoanlity Inventory (MMPI)
Neo Five Factor Inventory (Neo FFI)

Unit 2:

Assessement of Intelligence and Memory–
Raven's Progressive matrices
- Colored progressive matrices (CPM)
- Standard progressive matrices (SPM)
- Advanced progressive matrices (APM)

Wechsler's Adult Performance Intelligence Scale (WAPIS)
Binet-Kamat test of Intelligence (BKT)
Other tests of Intelligence (Bhatia's performance battery; WAIS, Seguin Form Board, Vineland social maturity scale, Draw a man test)
PGI memory scale
Wechsler Memory Scale (WMS)
NIMHANS Neuropsychological Battery

Unit 3:

Projective and Semi-Projective Tests –
Rorschach Inkblot Test
Thematic Apperception Test (TAT)
Children's Apperception Test (CAT)
Sack's Sentence Completion Test (SSCT)
Raven's Controlled Projection Test (RCPT)

Unit4:
Assessment for Children with special needs
Childhood Autism Rating Scale (CARS)
Connor's rating scale for Attention deficit hyperactive disorder
NIMHANS index for Specific learning disorders
Child Behavior Checklist (CBCL)

Unit5:
Aptitude:
Differential Aptitude Test (DAT)
Comprehensive Interest Schedule (CIS)

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3	4	5	
CO4						6
CO5				4	5	6

Mean = 3.8

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code: PAP5451	CHILD AND ADOLOSCENT COUNSELLING	Credit: 4 MARKS: 80

This course is aims to familiarise the students about child and adolescent counselling . This course is alsoprepare the students to develop counselling skills. The students will be encouraged to read and discuss recent advancement in the field.

Learning Outcome:
At the end of the course students will be able to

i. Understand the principles and skills needed for counselling children and adolescents
ii. Demonstrate understanding of assessment and interventions for children and adolescents with emotional difficulties
iii. Assess and demonstrate ability to assess career needs of adolescents
iv. Demonstrate and choose appropriate educational assessment tools

Unit 1
Counselling Process and Relationship
Counselling needs of children and adolescents, locations of needs (School, Family, Residential care, community, at risk) and Nature of issues (Emotional, behavioural, conduct, developmental, learning). Characteristics of child and adolescent counsellor, therapeutic relation in child and adolescent counselling. Process of child therapy, Internal processes of children and therapeutic change, Child counselling skills, use of play and art with children, Child counselling skills: observation, active listening, dealing with resistance and transference, termination skills

Unit 2
Counselling in Educational context
Specific issues in educational setting: Career Counselling, Special needs children including intellectually different students (the gifted and the mentally handicapped); children with learning disabilities, children with behavioural problems, and those with communication disorders, sensory impairments.

Unit 3
Learning and Teaching
Learning styles: VAK Model, Kolb's Experiential Model, MBTI Pattern, Honey & Mumford Model, Hemispheric Dominance Model, Gregorc Model, Gardner's Multiple Intelligence Model. Study skills: Reading, Writing, Note Making skills, Time Management. Cognitive issues: Factors influencing Attention and Concentration, Remembering, Forgetting

Unit 4
Psychosocial Interventions
Counsellor as Educational Consultant: Consultation Models and Skills, Career guidance and counselling: Theories of Career Development, Influences on Career Development.

Unit 5
Behavioural Management
Functional Analysis and Techniques of Behaviour Modification. Individualized educational programmes, Play Therapy Promotive and preventive counselling strategies, Life skills education

Textbooks:
Asch M (2000) Principles of guidance and counselling (1sted) New Delhi: Sarup& Sons
Bowe Frank G (2000). Birth to five – early Childhood special education, New York Delmar Publishers Inc.
Butler, G. & Hope, T. (1997). Managing your mind: The mental fitness guide. Oxford University Press.

Reference Books:
Cohen, L.G., &Spenciner, L.J (2003). Assessment of Children and Youth with Special Needs. Boston: Allyn& Bacon.
Mangal S.K (2008) Essentials of Educational Psychology, New Delhi, Prentice Hall of India Pvt ltd
Santrock, J.W. (2003). Educational Psychology. Boston: McGraw-Hill.
Woolfolk, A. (2007). Educational psychology (10th ed.). Boston, MA: Allyn& Bacon.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4					5	
CO5				4		6

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code: PAP 5453	COUPLE AND FAMILY COUNSELLING	Credit: 4 MARKS: 80

Course Objectives/Course Description

This course provides an overview of the different family therapy models It historically traces the development of family therapy, the main contributors and the theory as it stands today.

Learning Outcome
After the completion of this course, a student will be able to:

i. Demonstrate skill in drawing genograms of clients
ii. Critically evaluate the various theories of family therapy
iii. Understand how to assess family dynamics using different family therapy models

Unit 1
Historical evolution of the field of marriage and family therapy. Current and Future trends.

Unit 2
Foundations of Family Therapy. Early models, Fundamental concepts (Cybernetics, Systems theory, Social constructivism, Attachment theory)

Unit 3
Classical schools: Bowen, Strategic, Structural, Experiential, Psychoanalytic, Cognitive Behavioural.

Unit 4
Recent Developments- Post modernism, Feminist critique, Solution focused therapy, Narrative Therapy, Integrative models

Unit 5

Evaluation of Family Therapy, Family therapy research, Empirical foundations and Practice implications

Textbooks:

Nichols, P.M & Schwartz C.R (2006). Family Therapy –concepts and methods, 7thedition, Allyn and Bacon, Boston, Pearson education, Inc. Press, Inc.

Reference Books:

Essential Skills in Family Counselling. JoEllen Paterson, et al. New York, New York. Guilford Press. 2009.
Gehart,D.R. Mastering Competencies in Family Therapy: A Practical Approach to Theory and Clinical Case Documentation
Gladding, S.T. Family Therapy: History, Theory, and Practice (4th Edition)
Gottman, J.M. The Marriage Clinic: A Scientifically Based Marital Therapy
Satir.V.(2008) Satir Transformational Systemic Therapy. Publisher: Science &Behavior Books
Steve de Shazer.(1982) Patterns of Brief Family Therapy: An Ecosystemic Approach. Guilford Publications
Napier, A.Y & Whitaker, C. (1988). The Family Crucible: The Intense Experience of Family Therapy

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2						
CO3			3	4	5	
CO4						6
CO5				4	5	

Mean = 3.8

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code: PAP 5455	THEORIES OF COUNSELLING AND PSYCHOTHERAPY	Credit: 4 MARKS: 80

Course Objectives/Course Description

This course introduces the students to the various theoretical orientations to counselling. The major approaches like Psychoanalytic, Humanistic, Adlerian, Gestalt, Experiential, Cognitive, Behavioural, Multimodal and Integrative approaches are covered in this course. Specific techniques and interventions for each of the approaches are also covered.

Learning Outcome

After the completion of this course, a student will be able to:

i. Understand the various approaches to counseling
ii. Implement at least three therapeutic techniques in each approach
iii. Critique various approaches to counselling

Unit 1

Psychoanalytic psychotherapy, Adlerian psychotherapy, Person Centred Psychotherapy, Existential therapy - Therapeutic process, Techniques, Application of techniques and procedures, Therapy with diverse populations.

Unit 2

Gestalt Therapy, Behavior Therapy, Lazarus Multimodal Approach, Cognitive Behavior Modification: Donald Meichenbaum's approach to therapy. Therapeutic process, Techniques, Application of techniques and procedures, Therapy with diverse populations.

Unit 3

Aaron Beck's Cognitive Therapy: Introduction to Aaron Beck's cognitive theory (CT); therapeutic process; Techniques; Application of techniques and procedures; CT with diverse populations. Integrative Approach to Psychotherapy: Integration vs. Eclecticism; An introduction to therapy, techniques and applications.

Unit 4

REBT, Reality Therapy, TA,Solution-Focused Therapy, Tran theoretical Model; Psychodrama, Skills training Lab: Attending and Observation Skills; Focusing, pacing, leading and linking skills.

Unit 5

Application of Group Processes to Special Groups - Children, Adolescents, Couples, Older Clients, Addiction Groups, Divorce Groups Skills training Lab: Skills and strategies for interpersonal influence; Closing a session or a group.

Textbooks:

Corey, G. (2008). Theory and Practice of Counselling and Psychotherapy (8th ed.) Canada: Brookes/Cole.
Corey, G. (2008). Student manual for Theory and Practice of Counselling and Psychotherapy (8th ed.). CA: Brooks/Cole.
Gilland, B.E., & James, R.K. (1998). Theories and Strategies in Counselling and Psychotherapy. Singapore: Allyn and Bacon.
Corey, Gerald (2000). Theory and Practice of Group Counselling (5th Ed). Belmont CA: Brooks/Cole.
Yalom, LD (1995). The theory and practice of group therapy (4th Ed). New York: Basic books

Reference Books:

James O. Prochaska & John C. Norcross. (2007). Systems of Psychotherapy: A trans
Palmer, S. (ed.). (1999). Introduction to counselling and psychotherapy: The essential guide. New Delhi: Sage.
Scharf, R.S.(2000). Theories of psychotherapy and counselling: Concepts and cases (2nd ed.).Singapore: Brooks/Cole.
Todd, J., &Bohart, A.C.(1999).Foundations of Clinical and counselling psychology (3rd ed.). New York. Longman.
Corey, M.S., Corey, Gerald (2006). Groups process and Practice (7th Ed). Thomson: Brooks/Cole.
Capuzzi, Dave (2002). Approaches to Group Work: A Handbook for Practitioners. London: Prentice Hall.
Ivey, A.E., Pedersen, P.B. & Ivey, M.B. (2001). Intentional group counselling: A micro skill approach. Belmont CA: Wadsworth.
Jacobs, Ed E., Masson, Robert L., Harvill, Riley L. (2009). Group Counselling: Strategies and skills. Thomson: Brooks/Cole.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4	5	
CO4						6
CO5				4		

Mean = 3.6

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code: PAP5437	MULTI CULTURAL COUNSELLING SKILLS	Credit: 4 MARKS: 80

This course is aims to familiarise the students about multicultural counselling skills. This course is also prepare the students to develop counselling skills to deal clients from different culture. The students will be encouraged to read and discuss recent advancement in the field.

After the completion of this course, a student will be able to:

i. Demonstrate Basic Counselling Skills
ii. Reflect more on themselves as developing counsellors
iii. Demonstrate a few counselling techniques.

Unit 1:Introduction to Multicultural Counselling
Concept of Cultural, Ethnic, Racial, Religious and Gender Identities; Acculturalization-overview of theories and Measurement. Functional Approaches to Evidence- Based Practices in Multicultural Counselling.

Unit 2: Multiculturalism in Different Settings
Multiculturalism in School setting, Group Therapy, Industrial settings, issues in multicultural counselling

Unit 3: Counselling Skills
Basic Communication Skills - Attending Behaviour, Questions , Observation Skills, Paraphrasing, Empathy and Basic Listening Sequence
Reflection of Content; Reflection of Feeling, Integrating Listening Skills

Unit- 4: Multicultural Counselling Competence
Self-Awareness –Inter-Personal Relationship -Adjustment and Adaptability –Understanding Cultural and Diverse Population –Attitude –Prejudice Issues of Equality in OpportUnity, Social Justice and Discrimination in Multi-Cultural Career Counselling.

Unit-5:Ethics in Multicultural Counselling
Ethical and professional code of conduct for practicing group and multicultural counselling-Professional standards and Ethical and Professional Issues in Group Counselling and Multicultural Group Counselling,

Textbooks:
Ivey, A.E., & Ivey, M.B.(2007). Intentional Interviewing and Counselling. Thomson: Brooks/Cole.

Reference Books:

Evans, D.R. , Hearn, M.T., Uhlemann, M.R., & Ivey, A.E. (2008). Essential Interviewing: A Programmed Approach to Effective Communication. Thomson: Brooks/Cole.

Nelson-Jones, R. (2008). Basic Counselling Skills: A Helper's Manual. New Delhi: Sage Publications.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4		
CO4						6
CO5					5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code: PAP 5459	ASSESSEMENT IN COUNSELLING PRACTICAL	Credit: 4 MARKS: 80

This course is aims to familiarise the students about assessments in counselling. This course is also prepare the students to develop assessment skills required for counselling. The students will be encouraged to read and discuss recent advancement in the field.

Learning Outcome

i. To understand and interpret the person's test scores.
ii. To assist in selection of appropriate test.
iii. To understand and solve the ethical issues in Psychological assessment.

Unit1

Nature and uses of Psychological Tests - Definition of a Psychological test. Uses of psychological tests. Test administration. Examiner and situational variables. Effects of training on test performance. Source of information about the test.

Unit2

Historical antecedents of modern testing: Early interest in classification and training of MR persons. The first experimental Psychologists .Contributions of Francis Galton. Cattell and the Mental tests. Binet and the rise of Intelligence tests. Group testing. Aptitude testing. Standardized Achievement Testing. Assessment of Personality.

ASSESSMENT OF INTELLIGENCE & APTITUDES

1. Advanced Progressive Matrices– John C Raven
2. David's Battery of Differential Aptitude
3. Multiple Intelligence

ASSESSMENT OF PERSONALITY

1. EPQ
2. 16 PF - Raymond B. Cattell
3. Big 5 - John, O. P., & Srivastava, S.
4. Anger Expressions - Charles D. Spielberger
5. Type A Personality

ASSESSMENT RELATED TO HEALTH

1. Students Stress Scale – Manju Agarwal
2. Coping Scale - Erica Frydenberg
3. Quality of Life - WHO
4. Psychological General Wellbeing Index - Olivier Chassany

ASSESSMENT RELATED TO COUNSELLING

1. Problem Checklist - Herbert C. Quay
2. Study Skills – Dr Kanchana
3. Interest schedule - Sanjay Vohra
4. Depression Scale – Beck

ASSESSMENT RELATED TO WORK

1. Work Motivation - K. G. Agarwal
2. Organizational Commitment - Upinder Dhar
3. Job Involvement - R.N.Singh
4. Organizational Stress - C. N. Daftuar

Reference books:

1. Anastasi. A. &Urbina.S. (2002), Psychological testing, 7th Edition, Pearson Education, USA.
2. Gregory.R.J. (2005). Psychological testing, history, principles and applications. 4th Edition, Pearson Education, USA.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3	4	5	
CO4						6
CO5						

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code:PAP 5471	ORGANIZATIONAL BEHAVIOUR	Credit: 4 MARKS: 80

This course is aims to familiarise the students about organizational behaviour. This course is also prepare the students to understand the organizational dynamics and its impact on behaviour. The students will be encouraged to read and discuss recent advancement in the field.

By the end of the course the learner will be able to:

i. Express and associate the concept of Organizational Behaviour (OB) in contemporary organization.
ii. Identify and predict the human behaviours at workplace.
iii. Understand and review the organizational dynamics.(k2)
iv. Caryout the concepts and styles related to management like TQM, TPM, 5S, Kaizen, Six sigmaetc
v. Recognize the meaning and characteristics of organizational culture.

Unit 1 Organizational Behaviour (OB): OB:

Nature, Meaning and Definition, History, Models-Contributions of Hawthorne studies. System views of Organization level of analysis (Individual, group and organization).Organizational Effectiveness, Organizational Climate.

Unit 2 Human Behaviour at Work:

Job satisfaction, morale, motivation &Theories-Maslow, Herzberg, Vroom, McCleland; Conflict and Negotiation, Stress management and Effective Communication, Johari Window.

Unit 3Organizational Dynamics:

GroupsinOrganization:Nature,Cohesiveness,groupdynamics;dynamicsofgroupformation;

Teams:Meaning,Characteristics,Typesandsignificances.Leadership:process,style,typesandtheories – ContingencyModel,ManagerialGrid,Situational,TransactionalandTransformational.

Unit 4 Human Engineering

TQM, TPM, Japanese Style of Management-5S,Kaizen and Six Sigma and its applicability;

Occupational hazards at work place environment. Employee counselling

Unit 5 Organizational Culture

Meaning and characteristics, Challenges, Organizational socialization process, Function and effects, role of leaders, Assessing organizational culture, changing organizational culture, developing Global organizational culture. Pedagogical approach: Lecture method, powerpoint presentations, focus group discussions, field visits, seminars, role play, group activity, interactive debate and discussions.

Textbooks:

1. Kreitner, R. & Kinicki, A. (2008). Organizational behaviour. 8th edn. New Delhi: Tata Mc Graw Hill.
2. Luthans, F. (2008). Organizational behaviour. 11th ed. Boston: Mc-Graw Hill International Edition.

Reference Books:

1. Michener, H.A., Delamater, J.D., & Myers, D.J. (2004). *Social psychology* (5thed.). Belmont, CA: Wadsworth/ Thomson Learning.
2. StephenRobins(1993),Organizational Behaviour PHI,NewDelhi,
3. Vroom V.H&GrantL.OrganizationalBehaviourandHumanPerformanceWiley,NewYork1969
4. Morgan,C.T , King,R.A. (1986). *Introduction to psychology*. 7th ed. New Delhi : Tata McGraw Hill publishing company limited.
5. Pareek, U. (2007). *Understanding organizational behaviour*. 2 . Ed. New Delhi: Oxford University Press.
6. Robbins, S.P. (2009). *Organizational behaviour*. 14thed. New Delhi: Prentice- Hall of India Private Limited.
7. Newstrom, J.W. (2007). *Organizational behaviour – Human behaviour at work.* 12thedition, . Tata McGraw Hill Publishing Company Ltd: New Delhi.
8. Slocum, J.W. & Don Hellriegel. (2007). *Fundamentals of organizational behaviour*. Thomson Learning: India
9. Sinha, J.B.P. (2013). Culture and organizational behaviour. New Delhi: Sage Sinha, J.B.P. (1990). Work culture in the Indian Context. New Delhi: Sage

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2				
CO3			3	4	5	
CO4						6
CO5					5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code:PAP 5473	HUMAN RESOURCE MANAGEMENT	Credit: 4 MARKS: 80

This course is aims to familiarise the students about Human resource management. This course is also prepare the students to develop human resource management skills. The students will be encouraged to read and discuss recent advancement in the field.

At the end of the course students will be able to

i. Understand the importance of Human Resource Management
ii. Demonstrate competence in applying scientific model to HR practices
iii. Analyze and Evaluate the key functions of planning and acquiring resources
iv. Design training modules by analyzing needs and recommending outcomes

Unit 1: Introduction to Human Resource Management
History and evolution of the concept of HRM HRM: Definition, nature, scope, objectives and importance,Models of HRM, Policies, procedures and programs of HRM.Role of an HR practitioner.HRM: Line and staff aspects. HRM: current challenges and limitations

Unit 2: Human Resource Planning (HRP)

Human Resource Planning: Objectives, Importance, Process of HRP, Methods and techniques of HR Job Analysis: Nature and use of job analysis, methods of job analysis, Process of job analysis. Job Description (JD), Job Specification (JS) and Role Analysis. Job design: Nature, techniques for designing jobs. Job Evaluation: Concept, Nature, Methods of job evaluation, limitations

Unit 3: Acquisition and Management of Human Resources

Recruitment: Definition, Process and methods, policies and procedures, limitations, external Vs internal recruitment.

Selection: Purpose, processes and methods.

Unit 4: Career Induction and Management

Induction and placement: Aims and objectives of placement, induction/orientation. Internal mobility: Concept, transfer and employee separations.

Career Management: Nature and concept, stages of career management

Unit5: Training and Development of Human Resources

Training: Process, Need and significance, Models - Training Design and methods: Techniques and method, E-learning, Creative training, Instructional design, Executive development

Training Evaluation: Competency Mapping, Logic Model

HRD in India: HRD in Indian industry

Textbooks**:**

1. Dessler, G. (2009). A framework for human resource management, 5th ed. Pearson/Prentice Hall Publishing.
2. Nick, P. B., & James, T. W. (2012). Effective training - systems, strategies and practices. Pearson.
3. Bhatia, S.B. K. (2009). Training and development: concepts and practice. New Delhi: Deep and Deep publication private limited.

Reference Books:

1. Noe. R. (2012). Employee training and development. New York: McGraw-Hill Education
2. Rao, V.S.P. (2005). Human resource management: Text and cases, 2nd ed. Excel books.
3. Decenzo, D. A. & Robbins, S.P., (2002). Human resource management. John Wiley and Sons Inc.
   2. Pareek, U. (2010). Training instruments for HRD. New Delhi: 3rd Edition, Mc Graw Hill. 3. Pulliam, P.P (2015). ASTD Handbook of Measuring and Evaluating Training, Viva Books, NewDelhi.

3. Page, R. & Tickell. M (2014). Learning and Development: 1st Edition, London, Kogan Page.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4						6
CO5				4	5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code:PAP 5475	ORGANIZATIONAL LEADERSHIP AND CULTURE	Credit: 4 MARKS: 80

This course is aims to sensitise the students about organizational leadership and culture. This course is also prepare the students to develop skills required for effective leadership. The students will be encouraged to read and discuss recent advancement in the field.

After the completion of this course, a student will be able to:

i. develop an understanding of the organizational design, structure and functions.
ii. understand and develop a cognitive framework of the influence of culture on organizational behavior
iii. build an Indian worldview of being aware of leadership functions within one's culture
iv. equip students with an understanding about the varied forms leadership and practices

Unit 1:

Introduction to Organizational Leadership
organizational Leadership: Meaning, Definition Nature, Scope and importance.Organizational Leadership - History, Need and research.

Unit 2:

Organizational Structure and Design

What is organizational structure? Foundations of Organizational structure, Organizational Designs, Framework of designs, Technology and new work designs, Workspace design and redesign. New forms of Organizations, understanding emerging environments.

Organizational Culture

Introduction to culture, Types of culture, Framework for mapping culture (Greet Hofstede, Clyde Cluckhohn, TE Hall). Creating and sustaining culture, Changing organizational culture, Creating Innovation in organizations.

Unit3:

Organizational Leadership

Introduction to Leadership, Functions of Leadrship, Importance and Characteristics, Leadership style. Theories of leadership, Indian Philosophy and leadership (Vedas, Upanishads and Thinkers)

Unit4 :Leadership and Power

Concept of Power, Influence tactics in workplace, sources of power, diagnosing power and dependence, Interpersonal influence, Organizational politics and behavior, managing politics, Positive psychology of Leadership

Textbooks:

1. Roa, V S P. (2009). Organizational Behaviour. First edition. Excel books, New Delhi.
2. Robbins, S. (2000). Organizational Behaviour. 9thEdition. Prentice-Hall, New Delhi
3. Schein, E. (2004). Organizational Culture and Leadership. Third Edition. The Jossey-Bass business & management series), USA

Reference Books

1. Pareek, U. (2007). Understanding organizational behaviour. 2nd. Ed. New Delhi: Oxford University Press.
2. Robbins, S.P. (2009). Organizational behaviour. 14th ed. New Delhi: Prentice- Hall of India Private Limited.
3. Newstrom, J.W. (2007). Organizational behaviour – Human behaviour at work. 12th edition, Tata McGraw Hill Publishing Company Ltd: New Delhi.
4. Slocum, J.W. & Don Hellriegel. (2007). Fundamentals of organizational behaviour. Thomson Learning: India
5. Sinha, J.B.P. (2013). Culture and organizational behaviour. New Delhi: Sage

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4						6
CO5				4	5	

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code:PAP 5477	MENTAL HEALTH AT WORKPLACE	Credit: 4 MARKS: 80

This course is aims to familiarise the students about mental health at workplace. This course is also prepare the students to identify and understand the mental health components at work environment. The students will be encouraged to read and discuss recent advancement in the field.

By the end of the course students will be able to

i. deal with the mental health problems encountered in the organizations.
ii. have adequate knowledge about the principles of ethical practice applicable to workplace counseling.
iii. understand the first aid that can be carried out in mental health problem among employees in an organization and also the need for referral

Unit-1: Introduction to mental health

Definition of mental health, Myths about mental illness and stigma attached to mental illness National mental health policy; In-house Mental Health and Wellness Programme; ethical and legal issues related to mental health; Psychological first aid; Role of HR department in dealing with a person with mental health issues. Multicultural issues in workplace that may contribute to mental illness; Psycho-education. Work- life balance of employees.

Unit-2: Mental illness and its Effects on the organization

Common mental health issues in workplace – depression; anxiety; Bipolar affective disorder; Schizophrenia; Personality disorders; Substance abuse.

Impact of mental illness on the organization - Burnout, absenteeism, employee turnover, Reduced productivity.

Unit-3: Stress and its impact on Health and work

Meaning and Definition; Types of stress – Eustress and Distress; The physiology of stress; Sources of stress – within the person—age; gender; personality; motivation; within the family—addition to the family, marital strain, divorce, illness, disability and death; Sources in the commUnity and society—jobs and stress; environmental stressors

Moderators of the stress experience – personality, social support, locus of control

Sources of Chronic Stress. Stress related illness – acute stress disorder, posttraumatic stress disorder migraine headache, digestive system disorders; asthma; hypertension, cardiovascular diseases, cancer Psychoneuroimmunology – autoimmune disorders ;

Unit-4: Theories of Stress and Measurment

Theories of stress – Early Theory (Walter Cannon); stress as a stimulus (Holmes and Rahe), stress as a response – General Adaptation Syndrome (Hans Selye) and stress as an interaction (Lazarus)

Measurement of stress; Rating scales – life events(Holmes and Rahe), Daily hassels ; physiological measurements – EMG; GSR;

Coping with stress – emotion-focused and problem focused coping;.

Unit- 5: Mental health interventions at work place and Organizational practices to improve employee mental health and productivity

Screening- Mental Status Examination (MSE). Process of referral to mental health professionals. Stress and burn out related interventions; Managing emergencies at the workplace- Crisis interventions . CBT, JPMR, Yoga, Meditation, Art based interventions, Gestalt therapy- empty chair technique.

Mentoring- Dimensions of mentoring, Forms of mentoring, Process of mentoring, Mentoring in Organizations:, Power Mentoring: How Successful Mentors and Protégés Get the Most Out of Their Relationships

Textbooks:

1. Carroll, M. & Walton, M. (eds.) (2003). Handbook of counselling in organizations. London: Sage Publications
2. Coles A. (2003). Counselling in the workplace. Milton Keynes: Open University Press.
3. Carroll, M. (1996). Workplace counselling. London: Sage..
4. Foster, B. & Seeker, K.R. (1998). Coaching for peak employee performance: A practical guide to supporting employee development. New Delhi: Wheeler Publishing.
5. 5. Jerome, Paul J. (1998). Coaching through effective feedback: A practical guide to successful communication. New Delhi: Wheeler Publishing.
6. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5thed.). Washington, DC: Author.
   7. World Health Organisation. (1992). ICD-10 Classifications of Mental and Behavioural Disorder: Clinical Descriptions and Diagnostic Guidelines. Geneva. Author.
7. Ahuja N (2002). A short text book of Psychiatry (5th edition). New Delhi. Jaypee Brothers.
   9. Sadock, B.J. & Sadock, V.A. (2003). Kaplan & Sadock's Synopsis of psychiatry: Behavioral sciences/clinical psychiatry (9th. Ed.). Philadelphia: Lippincott Williams & Wilkins.

Reference Books

1. Orlans, V. & Edwards, E. (2001). Counselling the organisation. Counselling at Work. Summer.
   2. Herriot, P. (2001). The employment relationship: A psychological perspective. London: Routledge
2. McLeod, J. (2001). Counselling in the workplace: The facts. A Systematic Study of the Research Evidence. Rugby: British Association for Counselling and Psychotherapy.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3		5	
CO4						6
CO5				4		

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – III Code:PAP 5479	ASSESSMENTS IN INDUSTRIAL SETTING	Credit: 4 MARKS: 80

This course is aims to familiarise the students about assessments at workplace. This course is also prepare the students to identify and understand appropriate assessment stratgiest. The students will be encouraged to read and discuss recent advancement in the field.

By the end of the course the learner will be able to

i. explain the concepts related to psychometric testing
ii. exhibit knowledge in administering, interpreting and communicating the results.
iii. Demonstrate the skills and knowledge in developing a psychological test.

Unit 1: Recruitment and Selection Assessment

Career Assessment – Personality, Interest, Ability and Values- SDS, MBTI, BIG 5 and 16 PF.

Unit 2: Individual & Group Tests

Intelligence & Aptitude Personality & Career Interest Learning & Motivation Creativity

Unit 3: Organizational

Interpersonal Relations Leadership - Work Culture - Stress & Well being

Unit 4: Test Construction

Steps in test construction, Item Writing: types of items, General guidelines for item writing Item Analysis: Meaning and Purpose, Item difficulty, Item validity, Internal consistency, Item analysis of Power and Speed Tests

Unit 5: Reliability & Validity

Meaning and Definition, Types, Administration on fresh sample, computing correlation coefficient, computing validity coefficients

Textbooks:

1. Kaplan, R.M. &Saccuzzo, D.P. (2012). Psychological testing: Principles, applications, and issues. Australia: Thomson Wadsworth.
2. Aiken, R.L. &Groth- Marnat, G. (2006). Psychological testing and assessment. USA: Pearson Education.
3. Anastasi, A. & Urbina, S. (1997). Psychological testing. N.D.: Pearson Education.
4. McIntire, SA and Miller, LA. (2007). Foundations of psychological testing: A practical approach. Sage Publications.

Reference Books

1. Singh, A.K. (2017). Tests, measurements and research methods in behavioural sciences. Patna: Bharati Bhavan
2. Whiston, S.C.(1999). Priniciples and applications of assessment in counseling. regory, R.J. (2005). Psychological testing: History, principles and applications. New Delhi: Pearson Education

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3		5	
CO4						
CO5				4		6

Mean = 3.5

M.Sc. PSYCHOLOGY	PART III MAJOR: CORE PAPER-1	5 Hrs Per week
Semester – IV Code: PAP 5402	ETHICS IN PSYCHOLOGICAL PRACTICES	Credit: 4 MARKS: 80

This course is aims to sensitise the students about ethics in psychological practices. This course is alsofamiliarise and encourage the students to understand ethical and legal procedures in different settings. The students will be encouraged to read and discuss recent advancement in the field.

At the end of the course, students will be able to

i. Know the problems and its types,
ii. Understand its characteristics,
iii. Explore various problem-solving strategies,
iv. Apply an effective intervention technique, and
v. Analyze the models of problem solving.

Unit 1: Introduction to Ethics
What are morals and ethics? Absolute and relative morals - Rights and values - Community or individual rights? - Moral and ethical development - Legal requirements and professional standards - Principles, guidelines and issues - Why study ethics?

Unit 2:Ethics and Precaution in Psychological Assessment: Ethics in test construction - Ethical and Professional standard for Tests, Culture and Gender issues in test use, Response biases: types – Acquiescence biases, Extreme and moderate responding, Social desirability, malingering, random Response and Guessing. Language in scale or questionnaire. Bias in test construction – construct and predictive biases, Test fairness. Precautions in test construction.

Unit 3: Ethics and Legal Issues in Counselling and Psychotherapy
The Role of Professional Values and standards; Ethical Issues- Client Welfare; Counsellors Competence; Confidentiality; Informed Consent; Personal Relationship with Clients; Legal Concern of Counsellors- Confidentiality, Competence and Malpractices; Counsellors as Expert witness, Third party Payments. Ethical issues – Consent, Confidentiality, reporting. Role of Psychotherapist in Counselling Setting, Legal provision concerns of psychotherapist. Ethical issues in Psychotherapy. Approval bodies for counselling Psychologist, Code of conduct of Counselling Psychologists.

Unit 4: Ethics in School Setting

Ethical code of conduct in school setting, considering the student's chronological and developmental levels, Identifying the moral principles, considering the counselling setting. Responsibility of students, parents, guardian, teachers, colleagues, professional associates in school. Ethical and legal consideration – member screening, confidentiality, guidelines & rules, consent, documentation, school policy and procedure.

Unit 5: Ethics in Group and Multicultural Setting
Ethical and professional code of conduct for practicing group and multicultural counselling- Professional standards and Ethical and Professional Issues in Group Counselling and Multicultural Group Counselling,

Textbooks:

1 APA Ethical Guideline Manual

2 Sye, D.W. -(2006) -Multicultural Competencies: Individual and Organizational Development -Sage Publication New Delhi.

3 Jeannine R Studer (2015) the essential school counsellor in a changing society. New Delhi: Sage publication.

4 Leslie A Miller, Robert L. Lovler and Sandra A McIntire (2013)4th ed. Foundations of Psychological Testing: A Practical Approach. New Delhi: Sage Publications.

5 Michael J Lambert (2013) Handbook of Psychotherapy and Behaviour Change. 6th ed. New Jersey: Wiley

Reference books:

1 Christoper Sink (2005) Contemporary School Counselling. Boston: Lahaska Press.

2 Susan X Day (2008) 2nd ed. Theory and design in Counselling and Psychotherapy. Boston: Houghton Mifflin Company.

3 Ronald Jay Cohen and Mark E Swerdlik (2002) 5th ed. Psychological Testing and Assessment: an introduction to Test and Measurement. Boston: McGraw- Hill companies, Inc.

4 Theresa J.B. Kline (2005) Psychological testing: a practical approach to design and Evaluation. New Delhi: Sage and Vistaar Publications.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3		5	
CO4						
CO5				4		6

Mean = 3.5

CASE STUDIES

Objectives:

On successful completion of the syllabus the student will be able to:

- **i.** Prepare the case studies related to the different areas of counselling
- ii. Apply the Counselling process in various clientele
- **iii.** Prepare a case report based with suggestive intervention.

Candidate should select at least 5 cases from different areas such as school counselling, family counselling, adolescent counselling, marital counselling, workplace counselling and geriatric counselling.

The case studies reports should include

1. Case history, e.g., Genogram of the Client

2. Identification of the problem

3. Psychological Assessment

4. Counselling strategies adopted for intervention

5. Verbatim report of all sessions

6. Summary and Outcomes

DISSERTATION

Objectives:

To enable the students to

i. Identify a research problem
ii. Adopt appropriate research design to undertake the research study
iii. Apply research methodology in selection of sample, finalization of tools for research
iv. Collect data and analyse the results
v. Present the research work in the form of dissertation

Suggested Format for Dissertation

Chapter – 1: Introduction

1.1. Conceptual Framework / Theoretical Framework
1.2. Need of the study

Chapter – 2: Review of Related Literature (Last ten years)

2.1. Introduction (Brief)
2.2. Studies on variables, sample and related variables and samples
2.3. Critical analysis of reviews collected

Chapter – 3: Method of Investigation

3.1 Introduction
3.2 Statement of the Problem
3.3 Objectives
3.4 Hypotheses
3.5 Research Design (Methodology)
3.6 Sample (Sample, Sample Size, Sampling technique & Delimitation)
3.7 Variables
3.8 Tools (Description of the Tools – Author(s), Year, Target Group, No of items, Scoring, Norms, Reliability & Validity)
3.9 Statistical techniques

Chapter – 4: Results and Discussion

4.1 Introduction
4.2 Tables followed with discussion

Chapter – 5: Summary and Conclusion

5.1 Summary (one and half pages)
5.2 Findings
5.3 Suggestions & Recommendations
5.4 Implications
5.5 Conclusion

BIBLIOGRAPHY (APA FORMAT)

APPENDICES (Tools used, item analysis if any, special diagrams, photographs if any)

FIELD VISIT GUIDE

INTRODUCTION

Field visits are an important component of the learning process at the American College. They often significantly enhance the content of a course by providing information that is hard to convey in the classroom. Field visits contextualize or enhance historical or scientific data; interviews with participants, or observation of species, phenomena, or events often become an important part both of course content and the study of a discipline's methodology. In order to promote the success and safety of all involved in field trips, Department of Psychology, The American College has framed these FIELD TRIP GUIDELINES to ensure safety and other Academic knowledge.

Purpose

These guidelines will provide the basis for the Department of Psychology, School of Behavioural Science at The American College to protect the health and safety of the students and reduce the potential for accidents. These guidelines are intended to supplement any existing college, school or department guidelines or procedures.

How to Minimize Field Trip Risks and Liability?

It is impossible to eliminate all risks entirely. However, advanced planning can help minimize the exposures to the supervisor and students of The American College. The following information is designed to serve as a guide to assist department of psychology faculty and staff in making a reasonable effort to ensure a safe educational experience for students participating in field trips under their guidance.

Careful consideration should be given to the potential for student injuries, employee injuries, injury and damage to others and damage to University property.

Most claims against colleges and universities associated with field trips can be attributed to the following:

- Lack of supervision
- Failure to enforce policies or rules
- Failure to provide proper or well-maintained equipment
- An unsuitable field

Definitions

A. Field Visit:

A University supervised educational or instructional journey or excursion away from the University campus, whether or not in University vehicles, involving two or more persons, that is organized and/or sponsored by a department or Unit of the University, or by a faculty member or other authorized employee of the University, for academic research or recreational purposes that are related to an approved academic program or area of study.

*”Field Trip” as referenced in this guide is not intended to include internships, practicums, co-operative education, service learning, volunteer activity not part of a University programme, study abroad, on-campus excursions, trips by University clubs, groups or organizations, and travel by University athletic teams and related personnel pursuant to approved policies of the Athletics Department.

B. Field Visit Participant:

University faculty, staff, and students connected with the academic course. Only students enrolled in the class or programme sponsoring the field visit may participate (i.e., no friends or relatives).

C. Student:

Students enrolled at the University and in the course that has the field trip as part of its requirements.

Conduct

Faculty should be guided by the University's rules and regulations. Compliance with University Policies Make sure all participants understand that university policies for faculty, staff and students apply to field trips regardless of the location. Instructional activities and settings should be consistent with department of psychology policies including but not limited to policies on alcohol and drug use, vehicle use, student misconduct, etc.

Approval

Obtain school and department approval for field trips where appropriate. The University through the school or department, should have complete information about the location, duration and transportation route for each field trip on file and accessible prior to the occurrence of the activity. The University, through the school or department, should have a complete list of all participating students including emergency contact information on file and accessible prior to the start of the activity. Exclude extra hazardous activities any from your field trips. If a trip includes substantial risks due to strenuous or unusual physical activity, lasts longer than a week, or includes travel out of state, a participant agreement instead of an Assumption of Risk/Waive form should be used so that conditions and risks are explicitly described.

Notifying Students of Field Visits/ Trips

Let Students Know Early

Whenever possible, Field Trips should be clearly identified in the course syllabus,(as to location, time, means of transportation, and with some reference to inherent risks associated with the particular activity. The syllabus should also identify the Field Trip as "required" if this is the case.

Field Trips Later in the Semester

If an unforeseen educational opportUnity arises later in the term, as soon as possible the faculty member should discuss it with the class. In that case, consider the other classes and workload of the students when requiring participation.

Informing Students

In the first class of the term, the faculty member should discuss with students in appropriate detail the schedule and activities that will take place, as well as any risks associated with the activities of the field trip and expectations for behavior during the field trip. Such a discussion should be repeated not less than a week in advance of the trip.

Pre-Field Trip Site Inspections

Familiarize with the Destination Site

• The faculty or staff member in charge of the field trip should be familiar with the site and prepare a site safety plan to present to participants.

• Whenever practical, the site of the field trip should be visited in advance by the faculty member, or an appropriate University official, to evaluate potential risks and to minimize, through effective planning, any risks associated with the location.

• Know the site where you are visiting and what geographic areas to avoid.

• The instructor or field trip supervisor should determine whether immunizations are required, what skills are necessary, what students should do to acquire those skills and how competency will be evaluated prior to the trip.

• The number of supervisors for the trip and their competency level should be based upon the number of students and range of their skill levels.

• Lodging premises and locations should be reasonably safe or written documentation provided concerning associated risks (i.e. inner city accommodations in high crime area).

Pre-Field Trip Risk Management

Itinerary

• Consider developing a detailed itinerary of the trip.

• Meet with all participants ahead of time to familiarize them with the itinerary and discuss in appropriate detail the risks associated with the site and the activity, relevant emergency preparedness information, as well as expectations for behavior during the field trip

Dealing with Hazards

• Provide information and training for reasonably foreseeable hazards involved with the activities related to the field trip such as crime, strenuous physical activities, falling hazards, dangerous animals, poisonous plants, etc.

• Identify any special requirements for participation in the field trip (special skills, fitness, or certification) as well as any hazards or dangers on the trip or at the site that might affect the health and safety of the participants.

• Be sure to provide the necessary orientation and training for participants.

• Consider the need for special clothing or equipment that may be needed because of environmental or weather conditions, or the general conditions of the site.

• Inform participants of requirements for personal protective equipment and supplies that be required or recommended to properly and safely participate in the activities of the field trip. This equipment may include hard hat, safety glasses, long sleeves, long pants, boots, sun block, glasses, hat, insect repellant, water, etc.

• Consider taking a first aid kit.

• Consider the trip leader to participant ratio.

• It is inadvisable to make any significantly risky field or research trip a ‘required’ or ‘mandatory’ class activity. Instructors should consider alternative assignments or activities in case a student declines a field trip for risk, expense, disability or health-related reasons.

Pre-Field Trip Orientation & Trip Expectations

Faculty and staff coordinating field trips need to provide the participants with some form of orientation prior to departure. The type of field trip will again dictate the level of detail needed in the orientation, but both verbal and written communication is essential.

Orientation materials should include the trip destination and purpose, a travel itinerary, route, rest and meal stops, lodging and transportation information, appropriate clothing or gear, and the established rules and protocols specific to the field trip. Orientation should also include any procedures for a "buddy system" and information on known risks as well as local cultural, custom and legal requirements. In addition, materials should include a summary of activities and physical requirements students will encounter, any known or unusual circumstances that would require advance preparation or equipment, any known unique hazards.

Visit/Trip Contingencies

Even with the best planning effort, things can still go wrong. Try to anticipate what complications could arise, and then develop contingency plans in advance. Examples include: a student needs to leave early because of a personal emergency; a student violates established rules; weather or transportation delays or cancellations. Understand any contract limitations or restrictions. Will the "unused portion" of pre-paid trip expenses be refundable?

Paperwork, Records and Documentation

Field Visit/Trip coordinators should consider the nature of the field trip and review documentation to ensure that language is clear and accurate when providing information to participants or preparing informed consent forms or release statements. The following are written records that should be obtained in advance of the field trip and easily accessible. We recommend that the field trip leader have copies, as well as maintain a back-up record in the departmental office.

• Trip Itinerary and Planning Form. Ensure documentation exists at the departmental level indicating that the trip is a university authorized program and retain a list of who is authorized to be involved in the trip.

• Pre-Field Trip Check List. Ensure this document exists at the departmental level indicating that the Field Trip Guidelines have been reviewed and all relevant aspects have been applied to the field trip.

• Field Course Field Trip Participant Contact Information. Prepare a list of participating students. Remember, authorized passengers in Auburn University vehicles must be a university employee or participants in an official University sponsored/authorized field trip.

• Medical Information Form. Ensure this document exists at the departmental level indicating any medical concerns for Field Trip participants. • Liability Waivers and Releases.

GENERAL GUIDELINES FOR STUDENTS

Conduct

Students participating in University sponsored field visit/trips are expected to conform to the same standards of behavior as published in the university handbook. Any violation of the student code of conduct or local, state, or central laws may result in disciplinary action or sanctions by the University. All participants are individually responsible for their personal conduct while on the trip. The University has no obligation to protect students from the legal consequences of violations of law for which they are responsible. Participants in University-sponsored field visits/trips may not possess, consume or use any alcoholic beverage, narcotic, illegal drug or other controlled substances while participating in field trip activities. While actually engaged in a field trip, the faculty member in charge may enforce the provisions of these guidelines and procedures by withdrawal or limitation of privileges, or, in the event of repeated violations, by excluding the offending student from further participation and arranging to return the student to the campus or to convey him/her to the nearest point of public transpiration for return to the campus. The cost of such return transportation is a proper charge against University funds, but the University reserves the right to obtain reimbursement from the offending student.

Deviating from Field Trip Itinerary

Students, who choose to travel to the site of a field trip early, remain at the site after the planned activity is completed, or who separate from the group, do so of their own freewill and at their own risk.

Outline of the Field Visit Report:

Name of the Student	:	
Registration Number	:	
Specialization (If any)	:	
No of Visit	:	
Date	:	
Location	:	
Monitored by (Faculty Detail)	:	
Contact Person in the field	:	
Address	:	
Objectives of the Field Visit		
Methodology		
Tools Used		
Observation		
Results and Discussion		
Recommendation and Suggestions		
Conclusion		
Annexure: Photographs and Certificates		

Answer the following Questions

1. About the organization visited
2. List the progress from the visit
3. Why the field visit is important?
4. What are the leanings from the field?
5. What are the challenges faced by the visitor?
6. How to improve the quality of the learning experience? I.e. suggestions to future visitors etc

Field Trip Planning and Itinerary Form

This form is used by the faculty or staff member leading the field trip. It should be completed as early as possible prior to the beginning of the semester in which the field trip is planned. A copy should be left with a designated emergency contact person in the department. A copy should be kept by the field trip leader and taken on the field trip itself.

1. Field Trip Faculty:
Designation:
Department:
Work Phone:
Cell Phone:
Email:
2. Class Information:
Number of Participants:
3. Departure: Date: Time: Location:
4. Return: Date: Time: Location:
5. Destination:
Name:
Address: City:
State: PIN:
Contact at Destination: Contact Phone Number:
6. Planned Route:
7. Purpose of Field Trip:
8. Transportation Arrangements:
Indicate the number of vehicles on the line beside the vehicle types:

- University Vehicle(s)
- Private Cars

9. Designated Department Emergency Contact:
Name: Contact Phone Number:
10. Emergency Services locations and contacts nearest to field trip site:
Police/Law Enforcement: Phone Number:
Fire Department: Phone Number:
Hospital: Phone Number:
Other: Phone Number:

Signed (Field Trip Leader): Date:

a. Copy to the Field Trip Leader to take on field trip.
b. Copy to University, School or Department under which the class having the field trip is located.
c. Copy to the nominated emergency contact person at the University

PAP 421V **Optimism** **2 Hrs/2 Credits**

Optimism is one of the important skills required for the psychology students to understand the impact of positive thought and emotions of clients in counselling setting. It helps the psychology students to develop optimistic skills in self and in their client. This course aims at enabling first year post graduate psychology students, who are expected to develop skills of optimism.

At the end of the course, students will be able to

i. Knowemotions, Positive emotions and optimism,
ii. Understand traits of optimistic persons,
iii. Explore benefits of being optimism in different settings,
iv. Apply effective techniques to nurture optimism, and
v. Analyze models in optimism.

Unit 1	Emotion, Positive Emotion and Optimism	(6)
Unit 2	Characteristics and components of Optimism	(6)
Unit 3	Various types, importance and benefits of optimism	(6)
Unit 4	Strategies and techniques of optimism and positivity	(6)
Unit 5	Optimism Approaches and Models	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. Christopher Peterson (2000). “The Future of Optimism” APA
2. ---- (2016). Creating on optimistic mindset retrieved from www.winona.edu/resilience
3. Carver, C. S., Smith, R. G., Antoni, M. H., Petronis, V. M., Weiss, S., &Derhagopian, RP. (2005). Optimistic personality and psychosocial well-being during treatmentpredict psychosocial well-being among long-term survivors of breast cancer. *HealthPsychology*, *24*, 508-516.
4. Marshall, G. N., & Lang, E. L. (1990). Optimism, self-mastery, and symptoms ofdepression in women. Journal of Personality and Social Psychology, 59, 132-139.

Mapping of Course Outcomes with Bloom’s Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3			
CO2		2	3	4		
CO3		2	3		5	
CO4			3	4	5	
CO5				4	5	6

PAP422V **Gratitude** **2 Hrs/2 Credits**

Gratitude is one of the important skills for the psychology students to perform better in the field of human understand and counselling. It helps the psychology students to nurture the skill of gratitude practices in day today life for wellness and mental health. This course aims at enabling first year post graduate psychology students, who are expected to develop skills of gratitude.

At the end of the course, students will be able to

vi. Know Gratitude meaning, definitions and its importance,
vii. Understand impact of gratitude practice on mental health and wellness,
viii. Explore strategiesfor practicing Gratitude,
ix. Apply effective gratitude strategies, and
x. Analyze various approaches in gratitude.

Unit 1	Gratitude, meaning, traits and importance	(6)
Unit 2	Factors of Gratitude and its types	(6)
Unit 3	Strategies and Techniques of gratitude	(6)
Unit 4	Effective gratitude practices for school children	(6)
Unit 5	Approaches and Models of gratitude	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. Colette Lafia (2016).21-Day Gratitude Challenge. Ebook
2. Inspired Authors (2008). How Gratitude change everything ebook
3. Summer Allen (2018). The Science of Gratitude. Retrieved from ggsc.berkeley.edu
4. Angeles Arrien (2011).Living in gratitude : a journey that will change your life. Sounds True, Inc: Boulder

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PAP521V **Self Control** **2 Hrs/2 Credits**

Self-control is one of the important skills required for the psychology students to understand and regulate their thought, emotions and behaviour of clients in counselling setting. It helps the psychology students to prepare their self-control skills. This course aims at enabling Final year post graduate psychology students, who are expected to develop skills of self-control.

At the end of the course, students will be able to

xi. Know self and self-control,
xii. Understand characteristics of self-controlled person,
xiii. Explore self-control benefits and importance,
xiv. Apply effective techniques to develop self-control, and
xv. Analyze various approaches in self-control.

Unit 1	Self-Control – meaning and definitions, Types	(6)
Unit 2	Characteristics self-controlled person	(6)
Unit 3	Various factors of self-control and its importance	(6)
Unit 4	Strategies and techniques of self-control	(6)
Unit 5	Self Control Experiments and Models	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. Wheeler, J. J., & Richey, D. D. (2005). Behavior Management: Principles and Practicesof Positive Behavior Supports. Upper Saddle River, New Jersey: Prentice-Hall.
2. Zirpoli, T. J., &Melloy, K. J. (2001). Behavior Management: Applications for Teachers(3rd ed.). Upper Saddle River, New Jersey: Prentice-Hall.
3. Self Regulation strategies (2011) www.charactercounts.org/ccweek/index.php

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PAP522V **Self-Compassion** **2 Hrs/2 Credits**

Self Compassion is one of the important skills for the psychology students to perform better in the field of human understand and counselling. It helps the psychology students to nurture the skill of compassion in self and the clients in future. This course aims at enabling final year psot graduate psychology students, who are expected to develop skills of Resilience.

At the end of the course, students will be able to

xvi. Know Compassion and Self Compassion and its importance,
xvii. Understand various factors of self-compassion,
xviii. Explore strategies of self-compassion,
xix. Apply effective self-compassion strategies, and
xx. Analyze various approaches in self-compassion.

Unit 1	self-compassion, meaning, traits and importance	(6)
Unit 2	Factors of self-compassionand its types	(6)
Unit 3	self-compassion Strategies and Techniques	(6)
Unit 4	Effective self-compassion strategies for school children	(6)
Unit 5	Approaches and Models of self-compassion	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. Baer, R. A. (2010). Self-compassion as a mechanism of change in mindfulness- and acceptance-basedtreatments. In R. A. Baer (Eds.), Assessing mindfulness and acceptance processes in clients: Illuminatingthe theory and practice of change (pp. 135–153). Oakland, CA: New Harbinger Publications.
2. Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, &interventions.Review of General Psychology, 15, 289–303.
3. Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself.Self and Identity, 2, 85–102.
4. Neff, K. D. (2011). Self-compassion. New York, NY: William Morrow.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

POSTGRADUATE DEPARTMENT OF VISUAL COMMUNICATION

w.e.f. 2020-2021

Sem.	Course Code	Course Title	Hr/ week	Cr.	Marks
1	PGV4401	Basics of Visual Communication	6	4	80
1	PGV 4501	Corporate Communication	6	5	80
1	PGV 4403	Professional Photography	6	4	80
1	PGV 4405	Radio Production (Practical)	6	4	80
1	PGV 4407	Digital Graphic Design (Practical)	6	4	100
		Total	**30**	**21**	**420**
2	PGV 4402	Media Laws and Theories	6	4	80
2	PGV 4404	Contemporary Media Trends	6	4	80
2	PGV 4406	Film Semiotics	6	4	80
2	PGV 4408	Animation and Visual Effects (Practical)	6	4	80
2	PGV4502	Media Analysis	6	5	100
		Total	**30**	**21**	**420**
3	PGV5501	Video Production Techniques	6	5	100
3	PGV 5503	Writing for Media	6	5	100
3	PGV 5505	Communication Research Methods	6	5	100
3	PGV 5401	Editing Technology (Practical)	6	4	80
3	PGV 5507	Theatre Forms	6	5	100
		Total	**30**	**24**	**480**
4	PGV5602	Research Project	10	6	120
4	PGV 5604	Pre Internship	5	6	120
4	PGV 5606	Internship	5	6	120
4	PGV 5608	Post Internship	10	6	120
		Total	**30**	**24**	**480**

VALUE ADDED COURSE

SEM	COURSE CODE	COURSE NAME	HOURS	CREDITS
1	PGV421V	Gender and Media	2	2
2	PGV422V	Media Campaign	2	2
3	PGV521V	Photo Journalism	2	2
4	PGV522 V	Event Management	2	2
		Total	**8**	**8**

Programme Specific Outcomes (PSOs) for M.Sc., Visual Communication

On completion of the program, the Postgraduates of Visual Communication will be able to

1. Communicate in visual forms by adopting the concepts, designs, methods, models, theories and techniques of visual communication
2. Contribute knowledge, understanding and skills in corporate communication in connection with advertising, publicity, public relations, market management and social responsibility
3. Utilize theories, ethics, laws, analytical techniques and analytical applications of media with social, cultural, ethical and legal responsibility for the betterment of society
4. Evaluate the status, trends, challenges, opportunities and impacts of new media, multimedia and social media
5. Employ individuality, competency and creativity in writing for media, designing for media research, writing research report, providing different theoretical approaches of films and utilizing applied concepts in film analyses
6. Assimilate technical skills in various domains of visual communication with contemporary command in the subject
7. Perform in media field for media production, media management and media education through industrial internship programme
8. Practice in media industry as photographer, videographer, animator, web designer, app creator, set designer, layout designer, script writer, proofreader, editor, sound engineer, costume designer, theatre artist, short film maker, documentary maker, cinematographer, assistant director, film critic and other media related personals
9. Pursue higher studies or employ entrepreneurial skills in advertising, editing, animation, visual communication and other multidisciplinary courses
10. Explore, educate and equip by themselves in this media centered century

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
PGV4401	✓		✓		✓	✓	✓		✓	
PGV 4501	✓	✓		✓		✓			✓	
PGV 4403	✓		✓			✓		✓		
PGV 4405		✓		✓	✓	✓		✓	✓	
PGV 4407	✓	✓	✓		✓			✓		✓
PGV 4402	✓		✓	✓		✓		✓		
PGV 4404		✓	✓		✓	✓		✓	✓	✓
PGV 4406	✓			✓		✓		✓		✓
PGV 4408		✓		✓		✓		✓		
PGV4502	✓				✓		✓			✓
PGV5501		✓		✓		✓		✓	✓	
PGV 5503		✓		✓		✓		✓		✓
PGV 5505	✓		✓		✓			✓	✓	
PGV 5401	✓		✓		✓			✓		
PGV 5507		✓		✓		✓		✓	✓	
PGV5602		✓		✓		✓		✓		✓
PGV 5604	✓	✓	✓		✓		✓	✓	✓	
PGV 5606		✓	✓	✓	✓		✓		✓	
PGV 5608	✓			✓		✓		✓		✓

Mapping of Programme Specific Outcomes (PSOs) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓	✓		✓	✓			✓	✓	
PSO2	✓		✓	✓		✓		✓	✓	
PSO3	✓	✓	✓		✓		✓			✓
PSO4	✓	✓		✓	✓		✓		✓	
PSO5	✓	✓	✓	✓			✓			✓
PSO6		✓	✓		✓			✓	✓	✓
PSO7	✓	✓	✓		✓	✓	✓			
PSO8	✓		✓	✓	✓		✓	✓		
PSO9	✓			✓		✓	✓		✓	✓
PSO10		✓	✓		✓		✓	✓	✓	

PGV 4401 Basics of Visual Communication 6 Hours / 4 Credits

Course Objectives:

This course is designed to introduce the basic concepts of visual communication. It is also designed to focus the usage of communication processes, models of communication and body language. It is as well designed to improve the quality of interpersonal communication in a variety of contexts such as in relationships, groups, organizations, public settings and diverse cultures.

Course Outcomes:

At the end of the course, the students will be able to:

i. Recognize the importance of communication in social life
ii. Explain the process and models of communication
iii. Use color psychology and theory in communication
iv. Differentiate the verbal and non verbal level of communication
v. Create the skills of perception and sensation

Unit I

Communication: Definition and Scope -Elements of Communication -Importance of Communication - Types of communication -Functions of Communication - Verbal and Non-verbal Communication -Emerging trends in Communication **13 Hrs**

Unit II

Communication process: Sources, Message, Channel, Receiver and Feedback - Noise: Types of noise - Encoding and decoding process -SMCR Model - Lass well model - Shannon and Weaver Model - Wilbur Schramm model - Osgood Model - Helical Dances model - Aristotle model - George Gerbner Model-Body Language **18 Hrs**

UnitIII

Principles of Visual and Sensory Perceptions: Gestalt Theory - Color psychology - Definition, Optical / Visual Illusions –Theory (Some aspects) - Design and concept development process - Source of concept, Process of developing ideas - Verbal, visual, combination and thematic, visual thinking, associative techniques, materials, tools, design execution, and presentation

20Hrs

UnitIV

Semiotics: Definition, Nature and Scope, Objects of Semiotics - Defining the Sign, Structural Properties, Types ofSigns, Nonverbal Communication, General Features of Signs, Six Species of Signs, Signal - Study of the Verbal Sign, Verbal and Nonverbal Sign **15Hrs**

Unit V

Perception and Sensation Process - Selection, Organization, Interpretation, Influences on Perception, Sensation -Cognitive abilities, Social roles and cultural factors, Guidelines for developing skills **16Hrs**

Text Books:

1. Seema Hasan, 2016, Mass Communication Principles and Concepts, CBS Publishers and Distributors Private Ltd, New Delhi, India
2. Keval .J. Kumar, 2013, Mass Communication in India, Jaico Publishing House, Mumbai, India

Reference Books

1. Denis Mcquail, 2011, Mass Communication Theory (Sixth edition), Sage Publications Ltd, New Delhi, India
2. Susan.B.James, 2017,An Introduction to Visual Communication, Peter Lang Publications, Oxford, USA
3. Shukla,S.K., 2006, Mass media and Communication,Cybertech Publishing, New Delhi, India
4. Seetharam K.S., 1991, Communication and Culture -A world view, McGraw Hill, New Delhi, India

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3		5	
CO 3			3	4		6
CO 4				4	5	6
CO 5			3		5	6

Mean: 4.14

PGV 4501 Corporate Communication 6 Hours / 5 Credits

Course Objectives:

This course aims at introducing the basic concepts of communication. It also aims at focusingthe importance of communication in corporate sector. It as well aims at concentrating the concepts of public relations, advertising and crisis communication.

Learning Outcomes:

At the end of the course the students will be able to:

i. Understand the basic concepts of communication
ii. Describe the effects of advertisement
iii. Analyze the public relation tools and campaign process
iv. Compare the corporate communication strategies of different organization
v. Create a campaign for an organization for efficient corporate dealing

Unit I

Communication: Types, Modes, Channels of Communication- Structure of an Organization, Organizational Communication - Corporate Communication - Nature and Scope- Elements of Public Relations- Corporate Communications as a management tool **13Hrs**

Unit II

Introduction to Advertising: Meaning, Types, Functions and Scopes - Social and Economic Impacts of advertising- Brand promotion, USP, Brand positioning- Advertising agency and its role- Social Marketing- Marketing Management- Public Service Advertising- Direct marketing, Public affairs- Lobbying **16Hrs**

UnitIII

Publicity: Propaganda- Sales Promotion- Tools of Public Relations- Writing Press Release- House Journals – Publics-Internal and External- Organizing a Campaign- Corporate Communicator- Role and Qualities-Ethics of Public Relations **15Hrs**

UnitIV

Public Relations in private and public sectors - Public relations in Non-Government and voluntary organizations- Investor and Relation with Public Organizations-Ministry of Information Broadcasting- Press InformationBureau (PIB)- Press Conference- All India Radio- Doordarshan **20Hrs**

Unit V

Corporate Identity: Corporate strategies- Crisis Management- Case Studies of Crisis in an organization- CorporateSocial Responsibility (CSR)- Changing Business Scenario- New Trends in Corporate Communication- Laws and ethics in PR- PRSI code- Code of Athens

18Hrs

Text Books:

1. PragyanRath, Shalini &Debankita Ray, 2018, Corporate Communication, Cengage Learning India Private Ltd
2. Jethwaney,J., 2010, Corporate Communication: Principles & Practices, Oxford University Press, India

Reference Books:

1. Asha Kaul, 2000, Business Communication, Prentice Hall ofIndia, New Delhi, India
2. Paul A. Argenti, Corporate Communication,Sixth Edition, McGraw Hill, New Delhi
3. Gupta Ruchi, 2012, Advertising Principles and Practice,S.Chand& Company Ltd, New Delhi, India
4. Kotler Philip, 1997, Marketing Management,Ninth Edition, Prentice Hall of India, New Delhi, India
5. Rayudu, C.S., 1997, Media and Communication Management,Tenth Edition, Himalaya Publishing House, Mumbai, India
6. Sailesh Sengupta, 2005, Management of Public Relations and Communication, Vikas Publishing House, Chennai, India

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1				4	5	
CO 2		2	3			6
CO 3		2	3	4	5	
CO 4			3	4	5	6
CO 5			3		5	6

Mean: 4.12

PGV4403Professional Photography 6 Hours/4 Credits

Course Objectives:

This course is designed to train the students in the field of photography.It is also designed to provide the applications of lighting, filters, pixels, resolution and composition in photography. It is as well designed to provide the applied concepts of photography for their usage in various fields and photo manipulation.

Course Outcomes:

At the end of the course the students will be able to:

i. Understand the functions, working methods and applicationsof DSLR camera
ii. Compare the effects of shutter speed, aperture, ISO and depth of focus in photographs
iii. Analyze types of shots required for scenes
iv. Evaluate the essential requirements for photography
v. Createphotographsin adherence with photographic laws

Unit I

Introduction to camera: Types of camera, Digital camera, SLR, DSLR and Camcorders - Focusing -Aperture, Shutter speed, ISO, Depth of field, Depth of focus and Exposure Components of Camera - Lenses, Light meters, Filters, Flashes and accessories - Digital Photography -Digital Camera Functions and techniques, computer aided application and creativity **18Hrs**

Unit II

Principles and Fundamentals of Photography: Need for the light in Photography - Light sources - Natural light, Sunlight, Moon light, Ambient Light, Artificial Light sources, Flood light, Spot light and Halogen light photography - Visual Art - Visualization - Principles of visualization - Composition - Golden mean - Centre of interest - Horizon - Effectof direction - Understanding exposure and lighting techniques -Indoor and outdoor **20 Hrs**

Unit III

Shots - Subjective angles, Objective angles, Point of view angles, Close-up, Extreme close-up, close shot, TV close shot, mid shot, mid long shot, long shot, full shot - Fixing master shot and cut shots - Over the shoulder shot, Imaginary line, Shot continuity **14 Hrs**

Unit IV

Lens-Choice of angle, depth of field and angle of coverage -Micro and Macro lens -Micro zoom, Macro zoom, Height of the camera, Eye level, Low angle, High angle, Top angle, Bird eye view, Point of view, Warms view, Camera angle for mood and Camera angle for emotion

15 Hrs

Unit V

Photography law -Photographs as evidence, Ownership of photography, Digital images and snap shotsof illegal act - Court room rules -Libel and photography - New digital dilemma -Legal consequences and remedies **15 Hrs**

Text Books:

1. Grant Scott, 2015, Essential Student Guide to Professional Photography, Brown Owl Press, UK
2. Marc Newton, 2018, The Complete guide to Photography, Paberback Press, Missouri

Reference Books:

1. DSLR for Beginners, 2015, Well Being Publishing House, Kindle Edition
2. Al Judge, 2014, Understanding DSLR Lenses, Subtle Vision Media, Kindle Edition
3. Al Judge, 2013, The Art of Photography, Subtle Vision Media, Kindle Edition
4. Al Judge, 2014, Mastering Digital Cameras, Subtle Vision Media, Second Edition
5. Scott Kelby, 2013, The Digital Photography, Second Edition, Peach pit Press, USA
6. Mitchell Bearley, John Hedgeese's new introductory photography course, Reed consumer books Ltd, London, 1998.

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2			5	
CO 2		2	3	4	5	6
CO 3		2	3	4	5	6
CO 4			3	4		6
CO 5			3		5	6

Mean: 4.11

PGV4405 Radio ProgrammeProduction 6 Hours/4Credits

Course Objectives:

This course is designed to provide the theoretical and experimental aspects of radioprogramme production. It is also designed to provide the contents on radio journalism, radio formats and radio techniques. It is as well designed to provide hands on experience in writing of scripts, recording, dubbing and editing in the production processes.

Course Outcomes:

At the end of the course the students will be able to:

i. Recognize theradioprogrammes, broadcast formats and techniques
ii. Identify the works of production in field, studio and studio console
iii. Apply the skills to write scripts for all radio programs
iv. Analyze the different stages of radio production
v. Create audio broadcasting programmes

Unit I

Introduction to Radio Journalism: Radio programme production process and techniques - Different aspects of sound recording -Types of microphones and their uses -Field recording skills - Radio feature production - Radio documentary production - Studio chain - Live studio broadcast with multiple sources -News production -Broadcast Formats - Public service advertisements -Jingles - Radio magazine-Interview - Talk Show -Discussion -Feature - Community radio -Broadcast ProductionTechniques **18 Hrs**

Unit II

Radio Formats and Techniques:Usage of sound bites and actualities - Spacebridge with field sources of news - Studio production of radio newsreel and current affairs programmmes - Formats of radio programmes - Interviews-Studio discussions -Phone-in programmes-O.B. production of Sporting and Mega events –Workingin Production Control Room and Studio: Types and functions,Acoustics, Input and output chain - Studio console - Recording and mixing **20 Hrs**

Unit III

Writing for Radio: Writing in spoken language pattern - Writing for radio commercials - Illustrating copy with sound effects - News writing - Structuring radiocopy - Editing agency copy - Reporter's copy - Compiling radio news programmes - Writing intro to bites - Writing headlines, Teasers and Promos **15 Hrs**

Unit IV

Stages of Radio Production: Pre-Production (Idea, research, Radio script) - Creative use of Sound- Listening - Recording - Post-Production -Editing - Creative use of Sound Editing - Production process **14 Hrs**

Unit V

Voice Training: Effective use of voice -Enunciation - Flow - Pronunciation - Modulation - On-line interview techniques - Moderating skills for radio discussion programmes - Handling interactive live transmission **15 Hrs**

Text Books:

1. Robert Mc Leish, 2005, Radio Production, Fifth Edition, Focal Press, United States
2. Stewart, P., and Alexander, R., 2016, Broadcast Journalism, Techniques of Radio and Television News (Seventh Edition), Routledge Publisher, London, United Kingdon

Reference Books:

1. Carl Hausman, Fritz Messere, Philip Benoit and Lewis O' Donnell, 2012, Modern Radio Production-Production, Programming and Performance (Ninth Edition), Wadsworth Series, London, United Kingdom
2. Broussard, E. J., and Holgate, J. J. 1982, Broadcast News. MacMillan Publishing Company, Chennai, India
3. McleishRobert, 1994, Radio Production-A Manual for Broadcasters. Wadsworth Series, London, United Kingdom

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2			5	
CO 2			3	4	5	6
CO 3			3	4	5	6
CO 4			3	4		6
CO 5			3	4	5	6

Mean: 4.13

PGV 4407DigitalGraphic Design6 Hours/4Credits

Course Objectives:

This course aims at providing applied concepts on digital graphic design. It also aims at providing hands on training in designing visiting cards, invitations, layouts of poster, advertisements, newspapers and magazines. It also aims at providing hands on training in multimedia tools for developing logo designs, posters, web pages, web Ads and digital art.

Course Outcomes:

At the end of the course the students will be able to:

i. Recognize the design software and usage of software
ii. Identify the applications of software for specific functions
iii. Explain the elements, principles and aesthetics of design
iv. Analyze the dynamics of color, composition and clarity of graphic design outputs
v. Create print ads, digital arts, pamphlets, magazines, booklets and web

Unit I

Introduction of Graphics: Design software - Interface of software - Dynamic Design Tool - Digital Designing works –Front-Page design - Making Clipart - Tracing techniques **15Hrs**

Unit II

Creating Dynamic Outputs:Design and making of Logo- Business cards - Banners and Posters - Usage of shapes and lines to complete digital works - Digital Painting and Vector Design

14 Hrs

Unit III

DesignPrinciples and Text: Vector Art Design Principles - Flier Design - Working with Text - Color and Graphics and Layout - Handling Page Elements - Multiple Pages - Typography for any digital work like brochures - Pamphlets **20 Hrs**

Unit IV

Title Design and AnimationCharacter design:Creating cartoon characters with color and shades - Character preparation in animation - Compositing of images - Making of Print ads - Title Design - Graphic Filters **18 Hrs**

Unit V

Booklet Making: Creating booklets - Magazines - Catalogs and Prospectus by using Photo placing and Page alignment - Page setting and Wrapper design - Page setting for printing - Color processing and printing process **15 Hrs**

Text Books:

1. Bob Gordon & Maggie Gorden, 2005, Complete Guide to Digital Graphics, Paperback, United States
2. Robert Bring Hurst, 2013, The Elements of Typographic Style: Version 4.0, Hartley and Marks Publishers, Canada.

Reference Books:

1. Adrian Shaughnessy, 2013, How to Be a Graphic Designer without Losing Your Soul, Princeton Architectural Press, New York, USA.
2. Susan M. Weinschenk, 2014,100 Things Every Designer Needs to Know about People, New Riders Publishing, San Francisco, USA.
3. David Airey,2013, Logo Design Love: A Guide to Creating Iconic Brand Identities, 2013, Adams Media, UK.
4. Austin Kleon,2014, Show Your Work: 10 Ways to Share Your Creativity and Get Discovered, Workman Publishing Company, USA.

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2				
CO 2		2		4	5	
CO 3			3	4	5	6
CO 4			3	4	5	6
CO 5			3	4	5	6

Mean: 4.18

PGV 4402Media Laws and Theories 6 Hours / 4 Credits

Course Objectives:

This course intends to provide applied concepts of media laws, ethics and theories. It also intends to focus on the availability, accessibility and practice of different acts and ethics in media. In addition, it intends to concentrate on contemporary concepts of normative theories of mass media, general theories of media and general theories of society

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize the applied concepts of laws, ethics and theories of media
ii. Identify the fundamental rights and code of ethics of different media
iii. Explain the ethics in advertising, broadcasting and public relations
iv. Analyze the different theories of communication
v. Create database on short- and long-term effects of media

Unit I

Fundamental Rights - Right to Information - Freedom of Press - Contempt of Court - Defamation - Libel and Slander - Press and Registration of Books Act - Indian Telegraphy Act - Copy right Act - Official Secrets Act - Indecent Representation of Women (Prohibition) Act - Indian Penal Code - Press Council **18Hrs**

Unit II

Ethics of Advertising and Public Relations - Ethics in Advertising - ASCI (Advertising Standards council of India) Code - Ethics of Public Relations - Code of ethics for Radio, TV and Cinema - Chanda Committee - Verghese Committee - Ethics of Broadcasting - CBFC - Film Censorship -Prasar Bharathi -Vividh Bharathi - Joshi Committee - Broadcast Regulation Bill - Cable TV Act **20Hrs**

UnitIII

Internet -Information Super Highway - Convergence of Media - Cyber Laws - Information Technology legislation -Right to Information -Obscenity - Plagiarism -Media Council and Media Ombudsmen in the world **16Hrs**

UnitIV

Normative theories of Mass media: Authoritarian theory - Libertarian theory - Social Responsibility theory - Soviet Communist theory - Development media theory - Democratic participant media theory -Functionalist theory - Political Economic theory - Development theory - Information theory and cultural theory **15 Hrs**

Unit V

Media effects -Comstock model -Long term and short-term effects-Media audience -Types of audience - Audience positioning - Audience Research **13Hrs**

Text Books:

1. Dennis Mc Quail, 2010, Mass Communication Theory, Sixth Edition, Sage Publication, New Delhi, India
2. Neela Malar, 2010, Media Laws & Ethics, PHI Learning PVT Ltd, New Delhi, India

Reference Books:

1. Stanley J.Baren, 1999, Introduction to Mass Communication, Mayfield Publications, London, UK
2. Yashada, Right to Information Act 2005, 2006, Tata McGraw- Hill Publishing Company Limited, New Delhi
3. Paranjoy Guha Thakurta, MediaEthics, 2012, Oxford University Press, New Delhi
4. Shweta Jaswal Vikram Singh Jaswal, Cyber Crime and Information Technology Act 2000, 2014, Oxford University Press, New Delhi
5. Kant Mani, A Practical Approach to Cyber Laws, 2017, Kamal Publishers, New Delhi

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2			5	
CO 3			3	4		6
CO 4			3	4	5	6
CO 5			3	4	5	6

Mean: 4.13

PGV 4404Contemporary Media Trends 6 Hours / 4 Credits

Course Objectives:

This course is aimed at providing trends of media in society. It is also aimed at providing role, characteristics and impacts of new media, multimedia, social media and social networking in society. In addition, it is aimed at providing the responsibility of media in social issues.

Learning Outcomes:

At the end of the course the students will be able to:

- **i.** Recognize the usage of media in day to day life
- ii. Identify media for its everyday applications
- **iii.** Analyze the trends of traditional media and new media
- iv. Apply social media and analyze its effects
- v. Create the responsibility of media on social issues

Unit I

Media in everyday life: Characteristics of TV- Newspapers, Radio, Internet as a mass medium - Introduction to New Media - Characteristics of New Media - Traditional Vs. New media - New Media and Convergence - Blogging and Twittering - Citizen Journalism **14Hrs**

Unit II

Multimedia: Multimedia Elements - Multimedia Systems - Multimedia Systems Architecture - Digital Signal Processing - Multimedia File Formats - Internet Technology - Overview of OSI model - History of World Wide Web - Web Documents - Web Servers, Browsers and Web Spiders -Search Engines and Applications - Active Server Pages - Personal Home Pages **15 Hrs**

Unit III

New Media: Introduction -Characteristics -Visual Culture - New Media Technology - Communication Revolution - New Media Vs Old Media - E-Governance Process - Social and Legal Frameworks - Social Networking - Types of social networking - Characteristics of social networking - Positive and negative factors of social networking - Social networking and its impacts on youths **18 Hrs**

UnitIV

Social Media: Concepts -Types -Characteristics and Roles of Social Media -Evolution of Social Media - Attributes of Social Media - Blog - Social Networks - Content Sharing Communities - Wikis -Tweeters - Book Marking -Podcasts - Impact of Social Media **15 Hrs**

UnitV

Media and Social Issues: Problems of Girl child and Women, LGBT Movement - Violence against Women - Rights of Children and Adolescents -UNCRC - Child Labor - Exploitation of Children and Reform Process - Protection of Children against Sexual offences - Reflection of the issues in Media **20 Hrs**

Text Books:

1. Keval. J.Kumar, 2013, Mass Communication in India, Jaico Publishing House, Mumbai, India
2. Seema Hasan, 2016, Mass Communication: Principles and Concepts, CBS Publishers Distributors andPrivate Ltd, New Delhi, India

Reference Books:

1. Denis Mcquail, 2011, Mass Communication Theory (Sixth edition), Sage Publications Ltd, New Delhi, India
2. Graham Meikle, Sherman Young, 2012, Media Convergence: Networked Digital Media in Everyday Life, Red Globe Press, New Delhi,India
3. Campbell, Richard and Martin, Christopher R., 2015, Media & Culture: Mass Communication in a Digital Age, Bedford/St. Martin's, New Delhi,India
4. S. Guruswamy, 2009, Human Rights and Gender Justice, APH Publishers Pvt. Ltd,NewDelhi,India
5. Mcquail, Denis and Windahl, Sven, 1993, Communication Models for the Study of Mass Communications, Routledge Publisher, London

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3	4	5	6
CO 3			3		5	6
CO 4				4		6
CO 5			3	4	5	6

Mean: 4.18

PGV 4406 Film Semiotics 6 Hours / 4Credits

Course Objectives:

This course is designed to provide applied concepts on semiotics, films and film analyses. It is also designed to provide different theoretical approaches of films. It is as well designed to provide disparate analyses and divergent approaches of scholars to cinema.

Course Outcomes:

At the end of the course the students will be able to:

i. Recognize the applied concepts of Semiotics
ii. Identify the narratives and their usages
iii. Explain the theories and their patterns of analysis
iv. Apply different analysis on films
v. Create classic films using the techniques

Unit I

Semiotics: History of Semiotics - Usage of Signs in Films - Denotation and Connotation - Enigma code- Connotative code –Action code -Symbolic code - Cultural code - Filmic Semantics - Cinematographic Connotation and Denotation - Semiotics of Filmic Perception - Semiotics of Filmic Montage - Semiotics of Moving Camera - Semiotics of Filmic Sound - Semiotics of Filmic Movement, Time and Space - Subjectivity and Objectivity - Signifier and Signified - Relevance of Semiotics in Media
18Hrs

Unit II

Introduction to Cinema - Cinema and Society -Screenplay -Story - Plot - Screen Duration - Structure -Beginning, Middle and End -Characterization - Character functions - Restricted and Unrestricted Narration - Open and Closed Narrative - Linear and Non Linear Narrative - Voice over - Objective and Subjective Narrative - Alterative Narratives - Structuralist Approaches to Narrative - Narrative Codes - New Forms of Spectatorship **16Hrs**

Unit III

Theoretical Approaches: Marxist Theory - Post Structuralism - Social Apparatus Theory – Miscen-Scene - Montage - Colonialism - Post colonialism -Surrealism - Colonialism - Post-Modern - Modern - Feminist Theory - Queer Theory - Film Theory -Form and Function - Film Analysis - Auteur Theory - Role of Cahiers Du Cinema –Effects of Auteur -Apparatus Theory - Formalist Theory and Psychoanalytical Theory of Films **15Hrs**

Unit IV

Types of analysis: Syntagmatic -Paradigmatic - Content Analysis - Sociological Aspects- Gender, Caste, Sex portrayal - Uses and Gratification theory - Digital Aesthetics - Music and Choreography - Film Genre - Advent and Popularity of Web Series - in Digital era - Trends in Contemporary Indian Cinema **13Hrs**

Unit V

Scholars' Approaches to Cinema: Study of Classic Films -Contributions of D. W. Griffith, Alfred Hitchcock, Francois Truffaut and Jean Du Godard - Deleuzian Filmic Semiotics - Metzian Filmic Semiotics - Films for Viewing: The Birth of a Nation (1915),Vertigo (1958), Psycho (1960), Breathless (1960), Grease (1978),The Dollar Trilogy, Face Off (1997), No Country for Old Men (2007). Semiotics of the Film Seven (DavidFincher; 1995) **20Hrs**

Text Books:

1. Johannes Ehrar P., 2004, Cinema and Semiotic: Film Aesthetics, Narration and Representation, University of Toronto Press, Canada
2. Metz, Christian, 1990, Film Language: A Semiotics of the Cinema. University of Chicago, Chicago, United States of America

Reference Books:

1. Miry, Jean and Christopher King, 2000, The Semiotics and the Analysis of Film, Indiana University Press, Indiana
2. Wollen, Peter, 1973, Signs and Meanings in the Cinema. Indiana University Press, Indiana
3. Andrew, Dudley. 1976, The Major Film Theories: An Introduction, Oxford University Press,Oxford
4. Boggs, Joseph M. & Petrie, Dennis W., 2008, The Art of Watching Films, Seventh Edition, McGraw-Hill,New York

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3	4	5	
CO 3			3		5	6
CO 4				4	5	6
CO 5			3	4	5	6

Mean: 4.18

PGV 4408 Animation and Visual Effects 6 Hours / 4Credits

Course Objectives:

This course aims at providing the applied techniques of interior design and decor, animation, TV graphics, set design and 3D presentations. It also aims at providing practical practices Modeling, Texturing, Lighting, Rendering, Tracking, 2D and 3D compositing and Rotoscopy. It as well aims at providing practical practices of 3D Set Modeling, Human Modeling and Automotive.

Course Outcomes:

At the end of the course the students will be able to:

i. Recognize the applied techniques of animation
ii. Identify the specific functions of animation software
iii. Explain the usage of light, render and composite
iv. Analyze the visualization effects in 2D and 3D animation
v. Create the moving objects

Unit I

Introduction to 2D Animation -Apple Final Cut Pro-Character Modeling- Rigging - Video Editing and Compositing- 2D Compositing10 Rotoscopy-Green Matte Removal -Matte Extraction-2D Tracking -2D Title Animation - Video Manipulation - Color Correction - Color Grading and Wire Removal and Image Composition **18Hrs**

Unit II

Basics of 3D Pipeline - Digital Methodologies - Lighting and Texturing -Media Encoder - Introduction to 3D Software and Interfaces -Polygon Model -Nubs Model -Inorganic Model and Organic Model -Texturing -Creating Bump and Reflection Maps from Bitmap - Material preparation -UV Unwrapping **15Hrs**

Unit III

3D Animation and Dynamics - Basics of Character Animation - Title Animation - Experiment on Principle of Animation- Logo Formation- Concept of Key Frames - Particle of Animation in Dynamics and Cloth Stimulations - Keying- Portfolio Developments – Rotoscopy-Render Layer - Movie Merchandising **14 Hrs**

Unit IV

Lighting and Rendering - 3D Lights - Ambient, Spot, Point, Direction and Sky light in Photometric and Standard Systems - Shadow Pass and Reflection Pass -3D Rendering -Adding a Camera-Using Multiple Viewports to Position the Camera -Rendering Still Images- Animating the Camera Movement - Lighting -Rendering and Composition– Animation – Modeling-Matte painting- Compositing **20 Hrs**

Unit V

Importing 3D Rendered Footage - Adding Multiple Pass -Depth Map - Working 3D Camera in Compositing -3D Tracking - Adding Filter to Text and Logo Animation-Particle and Emitter in Compositing Software - Color Matching -Exporting Video Output Formats - Special Effects: Match Move (motion tracking)-FX Simulation-Fire-Water-Explosions-Cloth-Hair **15 Hrs**

Text Books:

1. Sham Tickoo, Autodesk Maya 2020: A Complete Guide, 12th Edition
2. Sham Tickoo, The Foundry Nuke x7 for Compositors

Reference Books:

1. Routlege, 2016, Masters of Visual Effects: Behind the scenes with Geniuses of Visual and Special Effects, Ian Failes.
2. Kelly L. Murdock, 2017, Autodesk Maya 2018: Basics Guide, SDC Publications.
3. Chris legaspi, 2015, Anatomy for 3D artist: The Essentials Guide for Computer Graphics professionals, 3D total publishing.
4. Lee Lanier, 2015, Compositing Visual Effects in After Effects: Essential Techniques, Routlege Publisher, London
5. Lee Lanier, 2014, Creating Visual Effects in Maya: Fire, Water, Debris, and Destruction, RoutlegePublisher, London
6. Kelly L. Murdock, 2015, Autodesk 3ds Max,Basics Guide, SDC Publications

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2			5	
CO 3			3	4		6
CO 4			3	4	5	6
CO 5			3	4	5	6

Mean: 4.13

PGV 4502 Media Analysis 6 Hours / 5 Credits

Course Objectives:

This course is designed to provide fundamental concepts of media analysis. It is also designed to provide the applied concepts of print, electronic and social media. It is as well designed to provide disparate analyses on contents, audience and impacts of media

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize basic concepts of media analysis, its importance and its purpose
ii. Explain analytical techniques used in print media
iii. Apply content analysis method to get audience response on radio and TV
iv. Make comparison among different analytical techniques
v. Create the content and disseminate in social media

Unit I

Media: Definition - Types of media - Importance, uses and purpose of media analysis - Structure of media - Methods and tools used for media analysis - Media monitoring - Audience study

15 Hrs

Unit II

Print media:Definition- Types of print media - Structure and Departmental activities in print media - Content analysis – Definition of content analysis- Content analysis in print media - Types of content in print media -Discourse analysis: Definition –Discourse analysis in print media - Media analysis vs Media circulation - Audience analysis in print media **20 Hrs**

Unit III

Radio: Definition -AM vs FM -FM Vs AIR - Genres in radio - Content analysis in FM and AIR - Methods and tools used for content analysis - SWOT analysis - Audience analysis in radio- Audience response **15 Hrs**

Unit IV

Television: Introduction - Structure of television medium – Content analysis vs. Discourse analysis in television medium -Impact of content among society -SWOT analysis - Audience analysis -Audience participation **18 Hrs**

Unit V

Social media: Definition - Types of social media -Impact of social media – Types of audience – Content dissemination in social media-Impact of social media on youth and children**14 Hrs**

Text Books:

1. Arthur Asa Berger, 2012, Media Analysis Techniques, Sage Publications, New Delhi, India
2. Gillian Rose, 2012, Visual Methodology, Sage Publications India Pvt. Ltd., New Delhi, India

Reference Books:

1. Marcell Denesi, 2004, Messages, Signs and Meanings, Canadian Scholars Press Inc. Torond, Canada
2. KuntherKress, 2006, Reading Images: The Grammar of Visual Design, Routledge, New York, USA
3. Monaco, 2009, How to read a film: Movies Media and Beyond (Fourth Edition), Oxford University Press, New York, USA

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2			5	
CO 3			3	4	5	6
CO 4			3	4	5	6
CO 5			3	4	5	6

Mean: 4.18

PGV 5501 Video Production Techniques6 Hours / 5 Credits

Course Objectives:

This course aims at introducing the concepts of video production and it also involves knowing the technical and aesthetic aspects in visual making. It enhances the approaches of contemporary concepts in connection with Television, Film, New Media and OTT platforms.

Course Outcomes:

At the end of the course the students will be able to:

i. Understand the basic concepts of mass media broadcasting

ii. Describe the mechanism of Video productionin several formats

iii. Analyze the different contentsin mass media

iv. Compare media in terms of the content creation and broadcasting

V.Createprogrammes using video Editingsoftwares.

Unit I

Introduction to Video Camera – Functions and Parts of Video Camera: Lens and Filters – Camera Angles and Camera Movement –Colour Temperature – Monochrome - TV Standards Formats –Aspect Ratio for various media – PCR and MCR - CameraControl Unit –Equipments used in Video Production **15 Hrs**

Unit II

Indoor and Outdoor Production (ENG and EFP Production) – Equipments used for indoor and outdoor production – Fiction and Non-Fiction in Video Production –Cues in Video Production – PA System – Functions and types of Microphones – Usage of microphone in various production

Unit III

Introduction to lighting – types of lighting in Video production –lighting techniques for indoor and outdoor production – Production Crew members – Jobs and Responsibility of Production Crew Members – Video continuity and its types

Unit IV

Sound controls – Sound aesthetics – Digital Audio Workstation – Dubbing – Re-recording – Sound Continuity – Consoles and mixers in sound production – Basic sound editing techniques

Unit V

Editing Techniques: Linear and Nonlinear Editing – Basic transitions –Chromakey techniques Time and Space in Video Editing – Cuts in Editing – Time code Editing – EDL – Rough Cut and Final Cut – File transferring techniques – import and export files.

Text Books:

1. Herbert Zett, 2014, Television Production Handbook, 12th Edition, Wards worth Publishing House, United States of America
2. Ted White 2013, Broadcast News Writing, Reporting and Production, Focal Press, London, United Kingdom

Reference Books:

1. S.C. Bhatt, 1993, Broadcast Journalism-Basic principles. Haranand Publications Pvt Ltd
2. Dr. Anil K. Rai ‘Ankit, 2008, Understanding Digital Media and Weblog Journalism, Shree Publishers, New Delhi
3. Alan Wetzel 1983, Television Production, Second Edition, McGraw Hill Book Company New York
4. Alken Glyn, 1989, Sound Techniques for Video and TV, Focal Press, London
5. Blumenthal, Howard J, 1987, Television Producing &Directing, Barnes& Noble, New York
6. Srivastav Raj Kumar, 2001, A Text Book of Internet & Web Page Design, Dominant Publishers and Distributors, New Delhi

Bloom’s Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3		5	
CO 3			3	4		6
CO 4				4	5	6
CO 5			3		5	6

Mean: 4.14

PGV5503 Writing for the Media 6 Hours /5 Credits

Course Objectives:

This course aims to introduce the concept of writing content for various media. It also aims to inculcate writing contents for different media in standard formats, techniques and platforms.It is as well designed to provide hands on experience in writing by adhering the ethics, guidelines and responsibilities

Course Outcomes:

At the end of the course the students will be able to:

i. Understand the concept of writing for media
ii. Describe the different formats of writing for various media
iii. Analyze the diverse techniques involved in writing
iv. Compare the scripting techniques for film and television formats
v. Create scripts for the web platforms

Unit I

Writing for media: Responsibility - Media ethics: Print mediaand Press council guidelines - Broadcast code and ethics- False light and distortion of sound and visuals - Principles of Journalism - Responsibilities of Journalist and Editor -Broadcaster and TV Producer. Ombudsman **15 Hrs**

Unit II

Writing for Print: Writing a newsreport: Structure of a news report-5 W's and 1 H - Intro\Lead - Inverted Pyramid structure -Dateline- Feature writing-Articles - Book reviews - Opinion and editorial writing **14 Hrs**

Unit III

Writing for Radio: Writing for the ears - Language - Use of words structure of sentences and phonetics -Writing for radio features and documentaries: Structure and writing with special effects and sound bites - Writing for Radio news copy: Basics of writing for radio news - Style and content writing for dispatches **18 Hrs**

Unit IV

Writing for Television and Films: Writing for visuals: Storyboard and visualization - Writing TV production scripts: Features - Soap operas - Documentaries and commercials - Writing for TV News: Structure of TV news - Structure of TV report -PTC - Bytes - Developing ideas and structures of Film Story - Character sketch -Format of script and screenplay – Dialogues

20 Hrs

Unit V

Writing for the Web: Basics of writing for online media - Structure and content writing for internet - Editing and rewriting - Characteristics of social media writing -Broadcasting - Interaction-Engagement - Web Articles - Content Writing - Difference between newspaper writing and writing for the net - Brevity and providing appropriate links - Special interest writing on the net -Content and services developing - Developing a News Portal**15 Hrs**

Text Books:

1. Syd Field, 2005, Screenplay, The Foundations of Screenwriting: Penguin Publishing House
2. Srivastava K.M., 2012, News Reporting & Editing, Sterling Publishers Pvt. Ltd

Reference Books:

1. Williamson D.R., 1975, Feature Writing for Newspaper, New York: Hastings House
2. Ronald De Walk, Introduction to Online Journalism: Publishing News and Information by J. J. Astor, Art of Modern Journalism
3. Tom Koth, Journalism in the 21stCentury: Online Information, Electronic Databases and the News, Adamantine Press Ltd.
4. Charnley M.V., 1975, Reporting, Third Edition, Holt, Rinehart and Winsten
5. Kamath M.V., 1980, Professional Journalism, Vikas Publishing House Pvt. Ltd.
6. Ted White, 1993, Broadcast News Writing and Reporting, St Martin's Pr.

Bloom's Taxonomy	**Course outcomes**					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3	4	5	
CO 3			3	4		6
CO 4				4	5	6
CO 5			3		5	6

Mean: 4.14

PGV 5505 Communication Research Methods 6 Hours / 5 Credits

Course Objectives:

This course is designed to introduce the applied methods of communication research. It is also designed to inculcate the procedures of research, collection of data for research and sampling methods adhered in communication research. It is as well designed to inspire indata analysis, data analytical process and preparation of research report

Course Outcomes:

At the end of the course the students will be able to:

i. Recognize the importance of communication research and the phases of media research

ii. Explain the media research problems with suitable hypotheses

iii.Adoptvarious methods for collecting the data

iv. Differentiate the research methods of sampling and analysis and evaluate research procedures

v.Create research report as per standard formats

Unit I

Communication as a field of Research: communication as social science research - Phases of media research - Research Design - Research Procedure -Protocols - Pilot Study - Research Problem - Research questions**15 Hrs**

Unit II

Research procedure: Steps in doing research -Media Research problems -Review of media studies - Sources of Secondary Data -Hypothesis- Types of Hypothesis**14 Hrs**

Unit III

Data collection methods: Primary data and secondary data - Types of secondary data - Survey data, Observation data - General accuracy of data collected - Questionnaire method - Structured and non-structured - Telephone and personal interviews - Questionnaire construction method

20 Hrs

Unit IV

Sampling: Types of sample -Random -Cluster - Stratified Systematic - Probability and non – probability -Convenience -Judgment - Quota - Sampling problems - Sample error - Choosing a sample design- Content analysis**18 Hrs**

UnitV

Preparation and tabulation of collected data: Data analysis - Identifying interdependencies - Steps involved in writing a research paper/report - Written research report - Evaluation of the Research procedure**15 Hrs**

Text Books:

1. Berger Arthur Asa, 2010, Media and Communication Research Methods: An Introduction to Qualitative and Quantitative Approaches, Sage Publications, London, United Kingdom
2. Hansen, Anders et al., 2013, Media and Communication Research Methods. Macmillan. London, United Kingdom

Reference Books:

1. Krippendrof, K., 1980, Content Analysis: An Introduction to its Methodology, Beverly Hills Calif: Sage
2. Kothari,C.R., 2003, Research Methodology : Methods and Techniques. Chennai:WishwaPrakashan
3. Hansen, Cottle, Negrine& Newbold., 2004, Mass Communication Research Methods, London, Macmillan Press Limited

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3		5	6
CO 3			3		5	6
CO 4				4	5	6
CO 5			3	4	5	6

Mean: 4.13

PGV 5401 Editing Technology 6 Hours /4Credits

Course Objectives:

This course aims atprovidingtechnical information in editing processes. It also aims at providing the language of editing, sound of editing and styles of editing process. It as well aims at providing the knowhow of the technology used in editing processes

Course Outcomes:

At the end of the course the students will be able to:

i. Understand the techniques that the editors use to construct stories.

ii. Gain a thorough working knowledge of non-linear editing software.

vi. Analyze high quality motion graphics

vii. Apply sound editing techniques for all video formats

viii. Create professional style of color correction.

Unit I

Introduction to Editing - Principle of Video Editing -Evolution of editing **14 Hrs**

Unit II

Editing Procedure -Assembling Shots - symbolic editing - editing errors and rectification **18 Hrs**

Unit III

Language of editing -shooting -editing –types of cut and transmission **15 Hrs**

Unit IV

Sound in editing -categories of sound -VFX and SFX -voice over and narration -music -dubbing **20 Hrs**

Unit V

Technology and editing -non -linear -storage -rendering -YouTube videos -YouTube channels **15 Hrs**

Text Book:

1. Ken Dancyger, 2010, The Technique of Film and Video Editing, Fifth Edition, Focal Press, UK

Reference Books:

1. Robert M, 2002, Coodman& Patrick McCrath, Editing Digital Video

2. Gorham Kindem & Robert B. Musburgerm, 2005, Introduction to Media Production: The path to digital media production, Focal press, Burlington

3.Michael K. Hughes, 2012 Digital Filmmaking for Beginners A Practical Guide to Video Production

4. Charlotte Worthington, 2009, Basics Film making of Producing, AVA Publishing, Switzerland

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO 2		2	3		5	
CO 3			3	4		6
CO 4				4	5	6
CO 5			3		5	6

Mean: 4.14

PGV 5507 Theatre Forms 6 Hours / 5 Credits

Course Objectives:

This course aims to introduce the current concepts of theatre and the functions of the director. It also aims to concentrate on the trends of development of theatre, construction of a play, costume designing, stage direction and theatre script. In addition, it aims to provide the applied concepts of set design, costume design and lighting design along with production of plays.

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize current concepts of theatre and audience

ii. Explain diverse aspects of theatre and theatre script

iii. Analyze play in terms of production and identify suitable costume for the play

iv. Evaluate act and theatre script

v. Create set, costume, lighting and stage for different plays

Unit I

Theatre - Definition - Elements of theatre - Theatre as an art and performance - Types of theatre (Proscenium, Thrust and End) - Audience - Types of audience - Audience role in theatre performance- Ancient Indian Drama -An Introduction - Socio political history of India from the point of view of Dramatists - Modernity in India: Impact on Art - Modernism in Indian Drama some trends**18 Hrs**

Unit II

Development of the Director - The Modern Director as an Artist - Director's Craft - The Directors Functions - Analyzing the play in term of production - Interpreting the script - Fixing the style - Choosing the theatre & working with Actors - Designing the Play Production - Rehearsal to Performance**14 Hrs**

Unit III

Costume**:** Introduction -Costume and Costume Properties - Discuss the Costume Designer and their role - Costume Chart for a Play - Costume design for a character from a script/story/song, etc. - Costume Color - Draw and paint in class: Copy projects in-class -Color matching - Discuss Fabric, Fabric drape sketching in-class **15 Hrs**

Unit IV

Physical stage and its auditorium stage - geography- areas - Terms for the stage and its equipment - Six side of the stage and their various requirements - Plan & cross –section of a stage - Floor plan-conventional plan symbols - Measuring & Cutting Project - Orthographic & Isometric Exercise - Scale Rule Exercise - Stair Design Exercise - Flat Framing Exercise - Drafting Project - Design Project - Stage Properties:- Set properties - Hanging Properties

20Hrs

UnitV

Introduction to make-up - Difference between Day Make-Up and Stage Make- up -Facial Anatomy, Shapes of Head Shapes of Face-Facial proportions - Introduction of Make-up materials - Shading places –- Straight Make-up, Character Make-up - Introduction of Mask Like Make-Up and Mask Making (Paper Mash, Plaster of Parries and Cut Mask) - Special effects, Preparing the Crepe Hair**15 Hrs**

Text Books:

1. Suzi Zimmerman, 2003, Introduction to Theatre Arts, Paperback Press, United States
2. Alan Read, 2018, Theatre in the Expanded Field: Seven Approaches to Performance, Methuen Drama, India

Reference Books:

1. Constantin Stanislavsky, 2013, An Actor Prepares, Aristophanes Press, Asia - Pacific Holdings Private Limited
2. Thomas H. Dickinson, 2018, The Insurgent Theatre, Trieste Publishing
3. Rebecca Cunningham, 1993, The Magic Garment: Principles of Costume Design, by, Waveland Press
4. Tina Bicat, 2006, Handbook of Stage Costume, Cordwood Press Limited
5. Motley and Michael Mullin, 1992, Designing and Making Stage Costumes by Herbert Press Great Britain

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2** Understanding	**K3** Applying	**K4** Analyzing	**K5** Evaluating	**K6** Creating
CO1				4	5	
CO 2		2	3			6
CO 3		2	3	4	5	
CO 4			3	4	5	6
CO 5			3		5	6

Mean 4.13

PGV 5602 Research Project 10 Hours/ 6 Credits

Course Objective:

This project intends to provide hands on experience in writing the dissertation. It also intends to focus on identifying the research problem, selecting the methodology, testing the hypothesis, collection of primary and secondary data and analyzing the data. In addition, it intends to provide hands on experience to tabulation of data and write research report.

Learning Outcomes:

At the end of the course the students will be able to:

i. Identify the research problem and frame the outline
ii. Explain the importance of methodology in research
iii. Use sampling method, content analysis method for the collection of data
iv. Analyze the primary data and the secondary data
v. Create the research report

Individual project in any one of the fields of Visual Communication shall be carried out. Based on the research report submitted by the student, a viva voce will be conducted based on which marks will be awarded.

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO1				4	5	
CO 2		2				6
CO 3		2	3	4	5	
CO 4			3	4		6
CO 5			3	4	5	6

Mean: 4.13

PGV 5604 Pre - Internship 5 Hours/ 6 Credits

Course Objective:
This Pre internship intends to provide hands on experience in print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience to create script, edit shots, design layout and take photos in different fields.

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize the basic concepts of pre - internship

ii. Explain the importance of internship

iii. Implement skills in different platform

iv. Analyze the gap between laboratory and land

v. Create a course of action in media and apply creativity

Internship training takes the students to the next level of growth in their career giving them a chance to exhibit their talents. As the internship enacts as a platform for employment, the students get opportunities not only to continue their career but also to work of their own choice. Before attending the Internship, the student has to submit a small report regarding his /her field of interest.
Each student should undergo internship training for not less than ten weeks in a reputed media organization during the period December to March. Before attending the internship training, the student has to submit a report in about 5 to 10 pages, which includes their field of interest, the field he/she is going to undergo internship and the acceptance letter from the particular reputed media organization.

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO1				4	5	
CO 2		2	3			6
CO 3		2	3	4	5	
CO 4			3	4	5	6
CO 5			3		5	6

Mean: 4.12

PGV 5606 Internship 5 Hours/ 6 Credits

Course Objective:

This internship intends to provide hands on experience in print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience to create script, edit shots, design layout and take photos in different fields.

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize the basic concepts of pre - internship

ii. Explain the importance of internship

iii. Implement skills in different platform

iv. Analyze the gap between laboratory and land

v. Create a course of action in media and apply creativity

The Internship training takes the students to the next level of growth in their career giving them a chance to exhibit their talents. As the internship enacts as a platform for employment, the students get opportunities not only to continue their career but also to work of their own choice.

The internship period is for a minimum of period is from December to March. The student can undergo internship in their field of interest. As soon as the internship is over, the acquired knowledge, experience and creativity of the students will be assessed so as to give a clear picture of where they stand in the growth ladder.

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2** Understanding	**K3** Applying	**K4** Analyzing	**K5** Evaluating	**K6** Creating
CO1				4	5	
CO 2		2	3			6
CO 3		2	3	4	5	
CO 4			3	4	5	6
CO 5			3		5	6

Mean: 4.12

PGV 5608 Post Internship 10 Hours/ 6 Credits

Course Objective:

This post internship intends to provide hands on experience the students gained from different field such as print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience the students gained to create script, edit shots, design layout and take photos in different fields.

Learning Outcomes:

At the end of the course the students will be able to:

i. Recognize the basic concepts of post - internship
ii. Explain the importance of internship report writing
iii. Implement skills in different platform
iv. Analyze the gap between laboratory and land
v .Create a course of action in media and apply creativity

Each student will be assigned a teacher supervisor, who would counsel the student in identifying the right media organization and the method by which the student can pursue the internship. Based on the submitted report, a viva voce will be conducted based on which marks will be awarded. The internship report should contain Company history and ownership structure, a brief description of the company, including a description of the department or unit in which they undergo the internship work.

Personal reflection: what you are able to learn about the industry and company or organization through techniques of observation and reflective analysis.

Students are expected to submit the following details while submitting the internship report:

The acceptance letter, Completion Letter, Evaluation Report and the photographs and video clipping of the company where they undergone the internship and also the program copy etc. along with the detailed log report.

Bloom's Taxonomy	Course outcomes					
	K1 Remembering	**K2** Understanding	**K3** Applying	**K4** Analyzing	**K5** Evaluating	**K6** Creating
CO1		2		4		
CO 2		2	3		5	
CO 3			3	4		6
CO 4				4	5	6
CO 5			3		5	6

Mean: 4.14

VALUE ADDED COURSE

PGV421V **Gender & Media** **2 Hrs /Wk- 2 Credits**

Course Objectives

The course will aid the students not only in learning process but also grasping the inequality meted out to everyone in the society. As would be media professionals, studying gender in detail is essential for the students to become sensitive and churn out sensitive content in their workplace. This is not only important for professional reasons but will enlighten the students psychologically as well. The aim of these subjects is to impart the notions of femininity, masculinity, media's portrayal of women, men and LGBT Members with respect to different mass media forms.

Course Outcomes

At the end of the course the students will be able to:

i. Recognize the basic concepts of Gender, sex, society

ii. Explain the prevailing discrimination in the society

iii. Be sensitive towards both the professional and personal values

iv. Produce gender sensitive content which will work towards uplifting the society

v. Evaluate the stereotypes in the media content

Unit 1: History of Indian Press - Current status of Indian Media - New trends in Indian Media - Globalisation and the Indian Press. **6 HRS**

Unit 2: Understanding the concept of Gender - Gender and Sex - Femininity and Masculinity – Patriarchy - Status of Women in India - Gender Inequality in the society - Women Empowerment **6 HRS**

Unit 3: Women in Print media - Women in Electronic Media - Media coverage of women's issues - Status of women professionals in the media. **6 HRS**

Unit 4: Understanding the roles and Images of Women in Media such as Newspapers – Magazines – Television – Radio – Cinema – Advertising - Impact of stereotyped image upon the society - Women as Sex Objects - Male Objectification. **6 HRS**

Unit 5: Challenges ahead – Prospects - Women Empowerment: Do's and Don'ts's of the Media - Gender sensitisation **6 HRS**

Reference Books

1. Anu Aneja (2019), Women's and Gender Studies in India: Crossings, Taylor and Francis, ISBN – 10: 0367360950, ISBN – 13: 978-0367360955
2. Nivedita Menon (2001), Gender and Politics in India: Themes in Politics, OUP India, ISBN – 10: 0195658930, ISBN – 13: 978-0195668934
3. Tomaselli Shahul (2020), Misinterpreted: What Newspaper Says about Rape in India, RIACME, ISBN – 10: 819429231X, ISBN – 13: 978 – 819429319
4. Maria Trexler Segal & Vasiliki Demos (Eds) (2018), Gender and Media: Women's Places: 26 (Advances in Gender Research), Emerald Publishing House, ISBN 13: 978-1787543300.
5. Desai Neera&MaithreyiKrishnaraj (1987), Women and Soceity in India, Ajanta Publication, ISBN -13: 978-8120201880

Bloom's Taxonomy	**K1: Remembering**	**K2: Understanding**	**K3: Applying**	**K4: Analyzing**	**K5: Evaluating**	**K6: Creating**
CO1	1					
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean: 3

PGV 422V **Media Campaign** **2Hrs/Wk- 2 Credits**

Course Objectives

This course is intended to assist students in acquiring the intellectual skills need in developing well-planned and effective media strategies, but in practice, this course is designed to focus on application. The purpose of this course is to provide students with hands-on opportunity to develop an advertising campaign plan for a client.

Course Outcomes

At the end of the course, the students will be able to

i. Develop the skills used in creative advertising and marketing communications, focusing on strategies, copy and design, media selection
ii. Apply the budgeting techniques and procedures used in the business of media communications and advertising
iii. Make a decision and make the best out of ATL and BTL integrated communications tools
iv. Understand the latest trends in digital communications and choose them wisely
v. Solve an actual advertising problem and develop a campaign plan and proposal for "Client Pitch"

UNIT 1 **6 HRS**

Introduction to Media Campaign – Advertising Objectives – Media Types and Vehicles – The Planning Cycle: Varying Strategies in promoting products/Brand Positioning objectives

UNIT 2 **6 HRS**

Budget Setting: Factors Determining Budget – Budget Plan and Execution – Measurement of Results: Sales – Awareness – Purchase Intention – Emotional Impact – Pre and Post Testing

UNIT 3 **6 HRS**

Understanding Integrated Communication: Concept – Definition – Creating an integrated marketing communication plan – Traditional Difference between ATL and BTL

UNIT 4 **6 HRS**

Hybrid Marketing – Integrating Digital Marketing with conventional marketing – Determining Media Objectives – Media/ Media Options

UNIT 5 **6 HRS**

Developing choosing the right media Strategy: Consideration in Strategy Planning competitive – strategy – Scheduling Strategy and Tactics – Schedule – Developing a Media Plan

Reference Books

1. Bhatia K. Tej (2007), Advertising and Marketing in Rural India, Macmillan India Ltd
2. Ogilvy David: Ogilvy on Advertising (1997), Prison Books, London
3. Menon Arpita (2010), Media Planning and Buying Principles and Practice in the Indian Context, Tata Mc Graw Hill Education Pvt. Ltd.,
4. Ronald D. Geskey (2011), Media Planning and Buying in 21st Century, Amazon Digital Services
5. Arpita Menon (2017), Media Planning and Buying: Principles and Practice in Indian Context, Mc Grawill Education

Bloom's Taxonomy	**K1: Remembering**	**K2: Understanding**	**K3: Applying**	**K4: Analyzing**	**K5: Evaluating**	**K6: Creating**
CO1			3		5	
CO2			3			
CO3					5	
CO4		2				
CO5		2				

Mean: 3.3

PGV521V **Photo Journalism** **2Hrs/Wk – 2 Credits**

Course Objectives

This course aims to learn the technical and aesthetic skills required for photo journalist and also explore the various branches in photo journalism.

Course Outcomes

At the end of the course, the Students will be able to

i. Identify the definition and elements of photojournalism and to administer the functions of camera
ii. Interpret the photographs captured in field and assemble it to create the story
iii. Analyse the layout in print media and plan the photograph to fit into the columns
iv. Examine the fields of photojournalism
v. Incorporate the technical aspects in contemporary photo journalism

UNIT 1 **6 HRS**

Photo Journalism – Definition – Elements of Photo journalism – Camera and its functions – Functions of camera: Aperture – Shutter – ISO – Focal Length – Depth of Field

UNIT 2 **6 HRS**

Elements of visual storytelling – Principles and ethics of photojournalism

UNIT 3 **6 HRS**

Layout in print media - Preparing story through photographs – noise in photograph

UNIT 4 **6 HRS**

Fields in photo journalism - photographs for news, feature and article

UNIT 5 **6 HRS**

Digital photo journalism – Image Processing

Reference Books

1. Martin Keene (1993), Practical Photojournalism: A Professional Guide, Butter worth – Heinemann Ltd.
2. Brain Horton (n.d), Guide to Photojournalism, 2nd Edition, Associated Press
3. Balakrishna Aiyar (2005), Digital Photojournalism, Author press
4. Jennifer Good (2017), Understanding Photojournalism, Routledge
5. Enzo Dal Verma (2016), Storytelling for Photojournalists: Reportage and Documentary Photography Techniques, Amherst Media

Bloom's Taxonomy	**K1: Remembering**	**K2: Understanding**	**K3: Applying**	**K4: Analyzing**	**K5: Evaluating**	**K6: Creating**
CO1		2	3			
CO2				4		
CO3				4		
CO4				4		
CO5					5	

Mean: 3.6

PGV522V **Event Management** **2Hrs/Wk – 2 Credits**

Course Objectives

This course enhances the students' managerial and organizing skills in the field of various types of events. The course also highlights the communication skills required for event managers and understand about the marketing strategies and budget management in the field.

Course Outcomes

At the end of the course, the students will be able to

i. Understand and analyse the basic concepts of event management
ii. Interpret the communication skills and leadership trait involved in organizing events
iii. Plan and organize for various types of event planning
iv. Generalize the event marketing techniques and analyse about public relations
v. Manage the budget for organizing various events

UNIT 1 **6 HRS**

Introduction to event management – types of event management – field involved in event management – responsibility of event planners – agenda setting theory

UNIT 2 **6 HRS**

Event leadership and communication – Leadership skills – group development – Managing meetings – Various types of communication – communication skills for event manager

UNIT 3 **6 HRS**

Event planning and team management – preparing for event proposal – Protocols – dress codes – leadership, traits and characteristics of event management

UNIT 4 **6 HRS**

Event marketing techniques – Advertisement strategies in event management – Relationship between event management and public relation

UNIT 5 **6 HRS**

Budget management for various events

Reference Books

1. Judy Allen (2002), The Business of Event Planning: Behind-the-scenes secret of successful special events (1st Edition), Wiley
2. Joe Goldblatt (2010), Special Events: A New Generation and the Next Frontier (6th Edition), Willey
3. Judy Allen (2010), Event Planning Ethics and Etiquette: A Principled approach to the business of special event management
4. Nicole Ferdinand & Paul J Kitchin (2016), Events Management: An Internal Approach, Sage Publication
5. Joe Goldblatt and Kathleen S Nelson (2001), The international dictionary of Event Management, Wiley

Bloom's Taxonomy	K1: Remembering	K2: Understanding	K3: Applying	K4: Analysing	K5: Evaluating	K6: Creating
CO1		2		4		
CO2				4		
CO3				4	5	
CO4					5+5	
CO5			3			

Mean: 4

POSTGRADUATE DEPARTMENT OF FOOD SCIENCE & NUTRITION

(w.e.f. 2020-2021)

Semester	Course Code	Course Title	Hours	Credits	Marks
I	PFN 4401	Advances in Food Science	5+1	4	80
	PFN 4403	Food Chemistry	5+1	4	80
	PFN 4305	Applied Physiology	4+1	3	60
	PFN 4407	Advanced Food Microbiology	5+1	4	80
	PFN 4309	Laboratory in Advances in Food Science	3	3	60
	XXX 0000	Elective	4	3	60
		Total	**30**	**21**	**420**
II	PFN 4402	Nutrition Through Life Cycle	5+1	4	80
	PFN 4404	Advanced Nutritional Biochemistry	5+1	4	80
	PFN 4406	Food Investigation Techniques	5+1	4	80
	PFN 4308	Research Methodology and Biostatistics	4+1	3	60
	PFN 4310	Laboratory in Food Analysis	3	3	60
	XXX0000	Elective	4	3	60
		Total	**30**	**21**	**420**
		Summer Internship			
III	PFN 5501	Drug- Nutrient Interactions	5+1	5	100
	PFN 5503	Food Packaging	5+1	5	100
	PFN 5405	Functional Foods and Nutraceuticals	5+1	4	80
	PFN 5407	Food Biotechnology	5+1	4	80
	PFN 5309	Laboratory in Food Biotechnology and Microbiology	3	3	60
	PFN 5311	Project work	3	3	60
		Total	**30**	**24**	**480**
IV*	PFN 5504	Clinical Nutrition and Diet Therapy	5+1	5	100
	PFN 5302	Laboratory in Clinical Nutrition and Diet Therapy	4	3	60
	PFN 5304	Food Processing and Preservation	4	3	60
	PFN 5506	Industrial visit and Report	5+1	5	100
	PFN 5810	Project report	10	8	160
		Total	**30**	**24**	**480**

* Electives (Any two)

Courses offered by the Department of Food sciences to Non-Major Students:

Elective Courses

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	PFN 4311	Exercise and Sports Nutrition	4	3	60
	PFN 4313	Food Service Management	4	3	60
II	PFN 4314	Obstetrics and Neo Natal Nutrition	4	3	60
	PFN 4316	Nutrition in mental health	4	3	60
	PFN 4318	Ethnic foods (Tamil Traditional Foods)	4	3	60
Total			**8**	**6**	**120**

(Any two electives per year)

Certificate Courses offered by the Department of Food sciences & Nutrition:

Value Added Courses

SEM	Course No.	Course Title	Hrs/ wk	Cr
I	PFN 421V	Value added products from millets	2	2
III	PFN521V	Nutrition Counseling	2	2
Total			**4**	**4**

Programme Outcomes (Pos) for Postgraduates

Postgraduate programmes are expected to have developed in postgraduates the following graduate attributes:

i. Academic Excellence: Being a member of the academic community with advanced discipline-specific knowledge and professional skills in the relevant field with the prowess to communicate complex ideas and to engage in current critical debates with all sensitivity and fairness.

ii. Higher Order Thinking Skills: Ability to critically think, analyse, evaluate, and create new knowledge and skills both in the chosen discipline and across other fields.

iii. Subscription to Quality Research: Ability to design and carry out independent research, to update oneself with current research trends and contemporary inputs in the discipline, and to evaluate research contributions.

iv. Lifelong Learning: Ability to learn, unlearn, and relearn knowledge and skills in the emerging areas of the field of specialization.

v. ICT Literacy: Ability to be digital natives so that they can access a wide range of technologies for personal, academic and professional use and to be members of online communities enjoying the unlimited access blending transparency with accountability and fair practices.

vi. Good Communication: Ability to participate in public discourse on varied themes and topics in one's mother tongue as well as in English as a global link language.

vii. Individuals as Assets: To be academically honest, intellectually curious, ethically responsible, professionally competent, and spiritually inspiring citizens.

viii. Civic and Social Responsibility: Ability to function as matured democratic citizens with participation in issues of equity, gender equality, social justice, sustainable development, and poverty alleviation.

ix. Continuous Professional Development: Ability to continuously develop oneself professionally and to critically improve one's self with a view to taking appropriate decisions in diverse professional and real life environments.

x. Global Citizenship: Ability to work effectively and to live responsibly in a global context of cross-cultural life and capability, to value human diversity and lead life of timeless learning and endless opportunities.

Program Specific Outcomes (PSO)

At the end of the PG Food Science & Nutrition program, the student will be able to:

i. Apply the basic principles in food processing, food preservation, food chemistry, food microbiology and foodbiotechnology.

ii. Critically evaluate the issues in food processing, food quality and food safety

iii. Explain the importance of nutraceuticals, food safety and food laws.

iv. Contribute in creating nutritional awareness in making policies for government.

v. Extend the knowledge on various food processing technologies by further research.

vi. Design project in formulation, standardization of new products and clinical supplementation for starting Small Scale Industries (SSI) or Medium Scale Industries (MSI).

vii. Gain proficiency to become dieticians, food analyst and to be employed in government and private sectors.

viii. Develop strategies to apply theoretical concepts in clinical interventions, nutritional assessment, diet planning and for health promotion.

ix. Solve complex problems and acquire analytical skills using latest techniques and tools to find out the solution for food, environmental safety.

x. Articulate legal and cultural impacts of policy making.

Mapping of Programme Specific Outcomes (PSOs) with

Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO 1	✓					✓			✓	
PSO 2	✓		✓		✓			✓		
PSO 3	✓									
PSO 4	✓	✓			✓			✓		✓
PSO 5	✓		✓							
PSO 6	✓		✓	✓					✓	✓
PSO 7	✓			✓			✓	✓	✓	
PSO 8		✓		✓					✓	✓
PSO 9	✓	✓	✓		✓		✓		✓	
PSO 10	✓						✓	✓	✓	

Mapping of Courses with Programme Specific Outcomes

Course Title	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
PFN 4401	✓	✓			✓	✓	✓	✓	✓	
PFN 4403	✓				✓	✓	✓			
PFN 4305			✓	✓		✓	✓	✓		
PFN 4401	✓	✓		✓	✓	✓	✓	✓	✓	✓
PFN 4309	✓					✓	✓	✓	✓	
PFN 4402			✓	✓		✓	✓	✓		
PFN 4404	✓	✓			✓	✓	✓	✓	✓	✓
PFN 4406	✓	✓	✓		✓	✓	✓		✓	
PFN 4308		✓		✓		✓		✓	✓	✓
PFN 4310	✓				✓			✓	✓	✓
PFN 5501			✓	✓		✓	✓			✓
PFN 5503	✓	✓	✓		✓					✓
PFN 5405	✓	✓			✓	✓	✓	✓		
PFN 5407		✓	✓	✓	✓	✓	✓	✓	✓	✓
PFN 5309	✓			✓	✓			✓	✓	✓
PFN 5311	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PFN 5504			✓	✓	✓	✓	✓			✓
PFN 5302			✓	✓	✓	✓	✓			✓
PFN 5304	✓	✓	✓			✓	✓			✓
PFN 5506			✓			✓	✓		✓	✓
PFN 5810	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PFN4311			✓	✓		✓	✓	✓		
PFN4313			✓			✓	✓	✓		✓
PFN4314			✓	✓		✓	✓			✓
PFN 4316		✓	✓		✓	✓	✓			
PFN4318		✓	✓		✓	✓		✓	✓	

PFN 4401 Advances in Food Science (5+1=6hrs/wk) (4cr)

The course aim at introduce the effect of food processing on bioactive compounds in various aspects and also helps to implement strategies of food waste management and pollution control in industrial basis.

Course outcomes

i. Identify the foods with its nutritional properties and the scope in future foods.
ii. Analyze thescience of starches and sweetener.
iii. Revise the properties of food especially sensory characteristics.
iv. Select appropriate method for the formulation of value added food products.
v. Evaluate the applications and strategies of food waste management.

Unit 1: (12 hrs)

Basic food groups & Specific foods – Composition and nutritive value of Cereals, pulses, nuts & oilseeds, fruits & vegetables, fats & oils, Milk & meat products. Specific foods: Bee products: honey, bee pollen, royal jelly, propolis. Spirulina, Blue-Green algae, Marine phytoplankton, Aloe vera, Hempseed, Coconuts, Camu camu berry, Chlorella, Kelp, Noni, Yacon.

Unit 2: (17 hrs)

Science of starches and sweetener- Modified food starches, Structure and characteristics of polysaccharides-Non starch Polysaccharides- cellulose, hemicellulose, pectin, gums, animal polysaccharides.

Chemistry of sweetener- Sweetening agents- Colligative properties, Textural contribution, Fermentation, Structural relationship to sweetness perceptions.

Unit 3: (17 hrs)

Sensory Science- Nutritional Value of Food, Sensory Properties of Food and evaluation methods, Recent Development in sensory science - Introduction to sensory science - Panel selection methods in sensory analysis, Instrumentation - Recent Development in sensory science - Colour and texture of foods - Colour measuring systems- CIE system, tintometers - Physical characteristics of foods - Texture measurement- instrumental methods - Texture profile analysis - Rheology of foods - Flow behaviour of fluid foods - Viscosity measurement- consistometers and viscometers - On-line viscosity measurement.

Unit 4: (15 hrs)

Value added products - Extrusion - cold and hot extrusion, production of pasta, principles- extrusion cooking, applications, - value addition by Flaking, Puffing, Parching. Encapsulation – micro and nano level process and methods, selection of core and wall materials, quality of encapsulated products. Coating – coating materials and equipment, battering and breading, seasoning. Foods for future- Space foods.

Unit 5: (14 hrs)

Food waste management- Quantities of lost and wasted food and impact on food and nutrition security, Prospects, Origin of food waste and food loss, Management and valorization strategies, Treatment of food waste, Recovery and applications of enzymes from food wastes. Energy auditing and pollution control in food industries, Policy recommendations, Regulations on pollution control.

Text Book:

1. Visakh. P. M, Laura B. Iturriaga, and Pablo Daniel Ribotta, Advances in Food Science and Nutrition, Copyright c 2014 by Scrivener Publishing

References:

1. Stanier R Y (1986). General Microbiology, Macmillan, India.
2. Frazier and Westhoff. (1978). Food Microbiology.3rd Ed. Tata McGraw Hill,
3. Fellows, P. (1988). Food Processing Technology. Ellis Horwood International Publishers, Cambridge.
4. Marcus Karel Owen R. Fennema and Daryl B.Lund. (1975). Principles of Food science Part II, Physical principles of Food Preservation, Marcel Dekker, Inc. Newyork.
5. Charis Galanakis, Food Waste Recovery 1st Edition, Processing Technologies and Industrial Techniques, Hardcover ISBN: 9780128003510, eBook ISBN: 9780128004197
6. Srilakshmi B (2005) Dietetics. New Age International Publishers, New Delhi.
7. David Wolfe, Superfoods: The Food and Medicine of the Futu… (Kindle Edition)

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1		2		4		
CO 2		2		4	5	
CO 3			3	4		6
CO 4			3	4	5	6
CO 5			3	4	5	6

Mean- 4.12

PFN 4403 Food Chemistry (5+1=6hrs/wk) (4cr)

The course aims at introduction, methods of analysis, chemistry of carbohydrates, amino acids, proteins, lipids, plant pigments and essential oils.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Analyse the components present in food using various instruments
ii. Explain the Structure and properties of carbohydrates
iii. Discuss the classification and properties of aminoacid and proteins
iv. Demonstrate the chemistry various lipids and plant pigments
v. Utilize the enzymes in food industries

Unit 1: (16 hrs)

Introduction to chemistry of foods: Composition and factors affecting the composition of foods, Proximate Composition of Foods; Instrument and methods used in food analysis, Colorimetry, Spectrophotometry, Fluorimetry, Atomic absorption spectroscopy and Chromatographic methods

Unit 2: (15 hrs)

Carbohydrates: Occurrence and classification; structure determination, diagrammatic representation of isomers, sugar derivatives; caramelization; Chemistry of cellulose, starches and other polysaccharides; starch degrading enzymes; commercial sources gel formation and starch retrogradation; pectic substances: their occurrence, structure, properties and use in foods; gums, mucilages and their commercial sources. Metabolism of carbohydrates.

Unit 3: (15 hrs)

Amino acids and proteins: Classification of proteins, chemical and physical properties of proteins, structure of proteins and techniques used in elucidation of protein structure; denaturation of proteins; forces involved in protein conformation, functional properties of proteins in foods, hydrolysis of proteins, major food proteins and their sources; changes in proteins during processing- Metabolism of proteins.

Unit 4: (15 hrs)

Lipids and plant pigment: Chemistry, occurrence, classification and composition; physical and chemical properties of fats. Emulsions-types of emulsions, emulsifying agents; metabolism of lipids. Plant pigments: their occurrence, chemistry, functions and changes during processing, Plant acids, acid and taste relationship; Essential oils: Chemistry, occurrence and extraction; Terpeneless oils and their use in foods.

Unit 5: (14 hrs)

Enzymes: Classification, nomenclature, general properties, mechanisms of enzyme action, regulation of enzyme activity. Role of Coenzymes and Cofactors in enzyme activity. Factors affecting enzyme activity Enzyme inhibition, Isoenzymes, immobilized enzymes, clinical significance of enzyme assays.

Text Book:

1. Owen R. Fennema (1996) Food Chemistry Third Edition Marcel Dekker, Inc. New York

References:

1. H.D.Belitz, W.Grosch, P.Schieberle (2009) Food Chemistry 4th revised and extended edition Springer publishers.
2. Potter, N.N. and Hotchikiss, J.H. (2006), Food Sciences, Fifth edition, CBS publishers and Distributors, New Delhi.
3. Fennema, O.R, 2006, Food Chemistry, Academic Press.
4. Meyer, L.H. 1987. Food Chemistry. CBS publishers and Distributors, New Delhi.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4		
CO 2	1	2		4	5	
CO 3		2	3	4	5	6
CO 4	1	2	3		5	6
CO 5	1	2	3	4	5	6

Mean = 3.33

PFN 4305 Applied Physiology (5hrs/wk) (3cr)

The course aimed at the students to understand the structure and basic physiology of various organs of the body. The students will obtain better understanding of the principles of Foods and Nutrition through the study of physiology.

Course Outcomes

Upon completion of this course, the student will be able to:

I. Compare the digestive and excretory system and infer the mechanisms of digestion and excretion in human beings.
II. Explain the functions of circulatory system.
III. Communicate the structure and functions of respiratory system in man.
IV. Analyze the relationship between nervous system and sense organs
V. Discuss the role of hormones and functions of human reproductive system.

Unit 1: (15 hrs)

Cell: General Character, Structure, Cell Membrane, Cytoplasm, Lysosome, Peroxisomes, Mitochondria, Ribosomes, Nucleus, Deoxyribonucleic Acid, Ribonucleic Acid

Muscle physiology: Muscle, Skeletal Muscle, Changes during Muscular Contraction, Neuromuscular Junction, Smooth Muscle

Unit 2: (12 hrs)

Digestive system: Digestive system, Enzymes and hormones, Salivary Secretion, Gastric Secretion, Pancreatic Secretion, Liver and Bilary System, Functions and Secretion of Small Intestine and Large Intestine, Dysfunction of liver,pancreas and gall bladder.

Renal physiology: Function of Kidney, Nephron, Renal Circulation, Urine Formation, Renal Function Test, Role of kidney in maintaining pH of blood. Water, electrolyte and acid base balance, diuretics.

Unit 3: (16 hrs)

Blood and body fluids – Body Fluids, Blood, Plasma Protein, RBC, erythropoiesis, Haemoglobin, WBC, Platelets, Blood Coagulation, Blood Groups, Blood Transfusion, Use of blood for investigation and diagnosis of specific disorders.

Cardiovascular system: Heart, Properties of Cardiac Muscle, Cardiac Cycle, Heart Sound, ECG, Cardiac impulse, coronary circulation, pulmonary circulation, cerebral circulation, hepatic circulation, renal circulation, cutaneous circulation and skeletal muscle circulation.

Unit 4: (16 hrs)

Endocrinology: Endocrine System, Hormones, Pituitary Gland, Thyroid Gland, Parathyroid Gland, Pancrease - Islets of Langerhans and Insulin, Adrenal Gland, Emphasis on physiology of Diabetes and stress hormones.

Respiratory system: Types of Respiration, Pulmonary Circulation, Respiratory Movement, Pulmonary Function Test, Lung Volume, Lung Capacity, Respiratory Gases, pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training.

Unit 5: (16 hrs)

Nervous system: Neuron, Nerve Fibrosis, EEG, CSF, ANS, properties, myelin sheath, nerve endings, synapse, neuro transmitters, The role of Hypothalamus in various body functions – obesity, sleep, memory, Blood Brain Barrier

Sense organ: sensation of vision, hearing, taste and smell.

Text Book:

1. Ahuja (2001). Textbook of Physiology, CBS Publishers

References:

1. Chatterjee C C (1988). Text Book of Medical Physiology. W B Sounder's Co. London.
2. Elaine N and Marie R N (1997) Human Anatomy and Physiology. Addison Wesley Longman, Inc., UK
3. Ganong (1995). Review of Medical physiology. Prentice Hall international, London.
4. Guyton, A. C, (2009). Function of the Humanbody, 4th Edition, W .B. Sanders Company, Philadephia.
5. Guyton, A. C, and Hall., J. B. (2010). Text Book of Medical Physiology, 9th Edition, W. B. Sanders company, Prime Books (Pvt.) Ltd., Bangalore

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1	1	2	3	4		6
CO2	1	2	3	4	5	
CO3	1		3	4		6
CO4	1	2	3	4	5	
CO5	1	2	3		5	6

Mean = 3.20

PFN 4407 Advanced Food Microbiology (5+1=6h/wk) (4cr)

The course aims at providing information on basic microbiology, food spoilage and preservation, food borne bacterial and viral diseases and food borne parasitic diseases. It also provides information on use of microorganisms in food preparation.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Outline the importance of microorganisms and the factors responsible for their growth
ii. Discuss the spoilage and deterioration mechanisms in foods and methods to control deterioration and spoilage
iii. Identify the conditions for the growth of food borne bacterial and viral diseases
iv. Compile the conditions for prevalence of food borne and parasitic diseases.
v. Explain the beneficial role of microorganisms in fermented foods and in food processing.

Unit 1: (12 hrs)

Overview of Basic Microbiology: Importance and significance of microorganisms in food science. Introduction to Microbiology – Scope of microbiology - Ancient Microbiology - Refutation of a biogenesis: discovery of penicillin: discovery of vaccination: proposal of one gene one enzyme hypothesis - Major contribution of scientists– Leeuwenhoeck, Edward Jenner, Alexander - Flemming, Joshep Lister, Robert Koch, Louis Pasteur, Hargobind Khorana. Modern Microbiology - Landmark achievements in 20th century - Microbial Taxonomy - Definition and systematics, Nomenclatural rules and identification. Haeckel's three kingdom classification, Whittaker's five kingdom approach - Woese domain system. Major characteristics used in taxonomy – morphological, physiological and metabolic, genetic and molecular taxonomy. Bergey's Classification of bacteria.

Unit 2: (16 hrs)

Determination of microorganisms and their products in food: Sampling, sample collection, transport and storage, sample preparation for analysis. Microscopic and culture dependent methods- Direct microscopic observation, culture, enumeration and isolation methods; Chemical and Physical methods-Chemical, immunological and nucleic acid based methods; Culture independent techniques – PCR Based, DGGE, Metagenomics, etc.; Analytical methods for microbial metabolites- microbial toxins and metabolites.

Unit 3: (15 hrs)

Biology of Microorganisms: Differences between prokaryotic and eukaryotic cell. Biology of bacteria - cell structure, size, shape, arrangement membrane, cell wall, cytoplasmic inclusions, mesosomes, flagella and motility, slime, capsule, pili, chemotaxis, endospore - biology of fungi, structure, physiology and classification – biology of yeast – reproduction - virus (bacteriophages) structure, life cycle (lytic and lysogenic) – biology of algae – Mycoplasma – prions.

Unit 4: (16 hrs)

Food borne diseases: Bacterial food borne diseases (Staphylococcal intoxification, Botulism, Salmonellosis, Shigellosis, Enteropathogenic Escherichia Coli Diarrhoea, Clostridium Perfringens gastroenteritis, Bacillus cereus Gastroenteritics) Food Borne Viral

Pathogens (Norwalk virus, Norovirus, Reovirus, Rotavirus, Astrovirus, Adenovirus, Parvovirus, Hepatitis A Virus) Food Borne Animal Parasites Protozoa – Giardiasis, Amebiasis, Toxoplasmosis, Sarcocystosis, Cryptosporidiosis. Cysticercosis/Taeniasis. Roundworm – Trichinosis, Anisakiasis. Mycotoxins: Aflatoxicosis, Deoxyni valenol Mycotoxicosis, Ergotism

Unit 5: (16 hrs)

Microorganisms and Food Preparation Fermentation process-kinetics of fermentation process. Prebiotics-Probiotics and single cell proteins. Dairy products (cheese and yoghurt) and traditional Indian fermented foods and their health benefits. Fermented Beverages- wine, beer, toddy and vodka. Natural Toxins in Food: Natural toxins of importance in food- Toxins of plant and animal origin; Microbial toxins (e.g. Algal toxins, bacterial toxins and fungal toxins). Natural occurrence, toxicity and significance. Food poisoning; Mycotoxicosis of significance. Determination of toxicants in foods and their management.

Text Book:

1. Frazier Food Microbiology 4thedi. Tata McGraw-Hill Education

References:

1. James Jay, Loessner, Martin J., Golden, David A., Modern Food Microbiology - Springer publishers
2. Bibek Ray &Arun Bhunia Fundamental Food Microbiology, Fifth Edition CRC Press
3. M. R. Adams, M. O. Moss Food Microbiology Royal Society of Chemistry

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4	5	
CO2		2		4		6
CO 3	1		3	4	5	
CO 4				4		6
CO 5	1	2	3		5	6

Mean = 3.35

PFN 4309 Laboratory in Advances in Food Science (3h/wk) (3cr)

Course Outcomes

Upon completion of this course, the student will be able to:

i. Analyze the colour and viscosity of foods.
ii. Apply the role of different methods of processing of foods.
iii. To identify the texture profile of fresh and processed foods.
iv. To demonstrate the chemical and biochemical oxygen demand for different waste products.
v. To evaluates different types of food using five basic senses.

Laboratory Experiments

1) Sensory Evaluation …… (Same as per given syllabus) Analysis and Interpretation of sensory data.
2) Minimal processing of fruits and vegetables.
3) Color measurement
4) Viscosity measurement
5) Textural Profile Analysis (TPA) of fresh and processed foods
6) Value added product using extrusion technology and quality assessment.
7) BOD and COD analysis of waste
8) Case study on energy auditing of a food industry
9) Visit to a modern food industry.

Text Book:

1. Potter,N.N., Joseph,H., Hotchkiss. (1997). Food Science. CBS Publishers and Distributors. New Delhi.

References

1. Balasubramanian, P. (2013) Energy Auditing made Simple, Consultancy Services Publishers, India.
2. Fellows, P. (1988). Food Processing Technology. Ellis Horwood International Publishers, Cambridge.
3. Marcus Karel Owen R.Fennema and Daryl B.Lund. (1975). Principles of Food science Part II, Physical principles of Food Preservation, Marcel Dekker, Inc. Newyork.

Bloom's Taxonom y	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1			3			
CO4 2				4		
CO 3				4		
CO 4		2				
CO 5					5	

Mean = 3.6

PFN 4402 Nutrition Through Life Cycle (5+1=6hrs/wk) (4cr)

The course aims at helping the students to have basic understanding on the nutritional needs from birth to oldage. It provides necessary theoretical background for the field of child guidance.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Evaluate changes in human life span and to predict there changes needed for lifecycle.
ii. Plan a healthy food choice for physical, physiological psychological aspects in infancy.
iii. Discuss the impact of socioeconomic, cultural and psychological factors on food habits of school going children.
iv. Identify socioeconomic and cultural barriers to meet nutrient needs of adolescence and adults.
v. Determine nutrient requirements during oldage.

Unit 1: (15 hrs)

Nutritients in food - Definition for Nutrition, Nutrient, Health, Guidelines of good health, Recommended dietary intake, Factors affecting RDA, Uses of RDA, Sources of nutrients in food, Balanced diet.

Nutrition deficiency disorder – Protein Energy Malnutrition, Vitamin deficiency disorder, Mineral deficiency disorder, Current nutrition programmes in India.

Unit 2: (15 hrs)

Nutrition in pregnancy: Food and nutrient requirements RDA, Physiological changes in pregnancy, Foetal under nutrition and consequences, developmental stages of the embryo, physiological cost of pregnancy and complications in pregnancy.

Nutrition in lactation: Food and nutrient requirements RDA, Physiological adjustments during lactation, Diet of lactating women and nutritional requirements, composition of breast milk.

Unit 3: (18 hrs)

Nutrition during infancy: Nutrition during for infancy Physiologic development, RDA, nutrient requirements composition of human milk and cow milk, Anti infective factors, formula preparation, weaning, supplementary and complementary feeding, growth monitoring, feeding and BW and premature infants.

Nutrition during preschool: Food and nutrient requirements RDA, eating habits and behaviour, growth, packed lunch, Children growth and development during preschool.

Unit 4: (15 hrs)

Nutrition in adolescence and adult: Food and nutrient requirements RDA, changes in growth pattern, puberty, menarche, changes in food habits, nutritional disorders, psychological and peer group pressure on eating habits, factors influencing food intake, nutritional concerns – PEM, Anemia, Dental caries, obesity, anorexia and bulimia.

Nutrition in old age: Nutrition requirements during old age, physical activity and energy relationship, RDA, theories of aging, physiologic changes, nutritional needs, community nutrition programme for oldage.

Unit 5: **(12 hrs)**

Nutrition in fitness and sports – definition, fitness and its measurements, measurement of body composition, methods of measuring energy expenditure, sources of energy, Guidelines for sports person, allowances of nutrition for sports by NIN, Pre-competition, during competition and post competition meal for sports, importance**,** Nutrient requirement in athletes, dietary supplements for athletes.

Nutrition in Space Nutrition – History, Nutrient requirement in space nutrition, advances in space foods, types of space food.

Text Book:

1. Swaminathan M (1985) Advanced Text Book on Food and Nutrition. Vol.II. BAPPOO, No.88, Mysore Road, Bangalore.

References:

2. Whiteny EN and Cataldo CB (1983)Understanding normaland clinical Nutrition. West Publishing Company, NewYork.
3. Krause M V and Mohan L K (1984) Food, Nutrition and Diet Therapy. W. B. Saunders company, Philadelphia.
4. Passmore R and East Wood M A (1987) Human Nutrition and Dietetics. English Language Book Society/ Chruchill, Livingstone.
5. Robinson C H, Lawber M R, Chenoweth W L and Garwick A E (1986) Normal and Therapeutic Nutrition. Seventh Edition, Mc Millan Publishing company, NewYork.
6. Srilakshmi B. (2018) Dietetics, New Age International (P) Ltd, Publishers.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4	5	6
CO2		2	3	4		
CO3	1	2		4	5	6
CO4	1	2	3	4		
CO5		2	3		5	6

Mean=3.33

PFN4404 Advanced Nutritional Biochemistry (5+1=6hrs/wk) (4cr)

The course aims at deals with the metabolism and biochemistry of the carbohydrates, lipids, proteins and other related compounds. It enables an understanding of the physiological mechanisms of action of various nutrition related processes.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Understand the basic knowledge of the regulation of integrated metabolic pathways within cells and tissues and about bioenergetics.
ii. Discuss the metabolism of proteins and biosynthesis of nucleotides.
iii. Explain about the lipid metabolism and oxidative stress.
iv. Summarize the regulation of metabolism.
v. Identify the significance of enzymes in food metabolism.

Unit 1: (15 hrs)

Metabolic pathways: Carbohydrates – Aerobic and anaerobic degradation, glycogenesis, glycogenolysis, gluconeogenesis, HMP shunt pathway. Hormonal regulations of blood glucose. Bioenergetics – Principles of bioenergetics, free energy – endergonic and exergonic process, role of high energy compounds in energy storage, formation of ATP- Biological oxidation and electron transport chain.

Unit 2: (16 hrs)

Protein and amino acids: Protein degradation, fate of nitrotgen (urea cycle), metabolism of aromatic, sulfur containing, BCAA and other amino acid pool. Glutamine and alanine cycle, protein biosynthesis. Nucleic acids- metabolism of nucleic acid components, biosynthesis of nucleotides.

Unit 3: (16 hrs)

Lipids: Metabolism of triaclyglycerol, oxidation of fatty acids, cholesterol. Regulation of lipid metabolism and ketone bodies. Oxidative stress and antioxidants – Free radicals – definition, formation in biological systems, defense against free radicals. Role of free radicals and antioxidants in health and disease. Determination of free radicals, lipid peroxides and antioxidants.

Unit 4: (12 hrs)

Regulation of metabolism: Interrelationship of carbohydrate, protein and lipid metabolism, Role of Vitamins and Minerals in Metabolism, metabolic adaptation during starvation, exercise, stress and diabetes mellitus.

Unit 5: (16 hrs)

Significance of enzymes in food metabolism: Classification, Chemical nature - Enzyme inhibition, enzyme pattern in diseases. Hormones: Classification – synthesis - regulatory functions and mechanism of hormone action - Prostaglandin – structure, biosynthesis, metabolism and biological action and their role in pathology.

Text Book:

1. Murray, R.K., Graner, D.K., Mayes, P.A. and Rodwell, V.W. (2000): 25th Ed. Harpers Biochemistry Macmillan Worth Publishers.

References:

1. Nelson, D.L., and Cox, M.M. (2000): 3rd Ed. Lehninger's Principles of Biochemistry, Macmillan Worth Publishers.
2. Conn, E.E., Stumpf, P.K., Bruening, G. and Doi, R.H. (2001): 5th Ed. Outlines of Biochemistry, Heinemann Medical Books Ltd.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2		4		
CO 2		2		4	5	
CO 3		2	3		5	
CO 4		2			5	
CO 5	1	2	3	4		6

Mean = 3.18

PFN4406 Food Investigation Techniques (5+1=6hrs/wk) (4cr)

The course aims at Food analysis is a diverse and interdisciplinary field of research that has a significant health, societal and economic impact. It aims to characterize food products in terms of chemical composition, traceability, safety, quality, sensory perception and nutritional value. Food analysis approaches are used by industry, government/control agencies and academia.

Course outcomes

Upon completion of this course, the student will be able to:

1. Apply statistically valid sampling techniques to food materials having widely diverse properties and volumes;
2. Evaluate the principles and methods for the proximate analyses of foods. Evaluation of test methods;
3. Demonstrate competency in the use of standard techniques of food analysis and the treatment of experimental data;
4. Identify modern instrumental methods to analyze chemical and physical properties of foods;
5. Analyze the latest equipment's in food analysis.

Unit 1: (15 hrs)

Food Sampling Techniques and statistical evaluation. Concepts of food analysis; Rules and regulations of food analysis,Definition of sampling, purpose, sampling techniques requirements and sampling procedures for liquid, powdered and granular materials, tools and containers, sampling for microbiological analysis of food, routine versus investigational sampling. Enzymatic inactivation and microbial act, and reporting results of given samples.

Unit 2: (15 hrs)

Techniques for food analysis: Physical and rheological properties of food analysis, Determination of Total fat in foods by different methods; Quality standards, and adulterants; different methods of determination of ash, moisture, protein and amino acids in foods; determination of total carbohydrates, starch, disaccharides and simple sugars in foods.

Unit 3: (15 hrs)

Spectroscopic techniques: Basic Principles- Spectrophotometric analysis of food additives and food Components -IR Spectroscopy in online determination of components in foods; AAS and ICP-AES in mineral elements and toxic metals analysis; use of fluorimeter in vitamin assay- specific use of Tintometer in vanaspati analysis.

Unit 4: (15 hrs)

Chromatographic Techniques- Basic principles and types of Paper chromatography, thin layer chromatography, column chromatography, Ion exchange chromatography, HPTLC, HPLC, UHPLC, GC,GC-MS, Types of detectors,Uses and applications of chromatographic techniques.

Unit 5: **(15 hrs)**

Separation techniques: Basic Principles, application of electrophoresis in food analysis, refractive indices of oils and fats, total soluble solids in fruit juice and honey, specific rotation of sugars, estimation of simple sugars and disaccharides by polarimeter; Ultrafiltration, Ultracentrifugation, Sedimentation, Solid Phase Extraction, Supercritical Fluid Extraction, Immunoassay techniques and its applications in foods.

Text Book:

1. Fung, D.Y.C. and Matthews, R. (1991): Instrumental Methods for Quality Assurance in Foods, Marcel Dekker, Inc. New York.

References:

1. Skoog, D.A., Holler, F.H. and Nieman (1998): Principles of Instrumental Analysis Saunders College Publishing, Philadelphia.
2. Gruenwedel, D.W.; Whitaker, J.R. (editors) (1984): Food Analysis Principles and techniques, Volumes 1 to 8, Marcel Dekker, Inc., New York.
3. Herschdoerfer, S.M. (ed) (1968 – 1987): Quality Control in the Food Industry, Vols. 1 to 4, Academic Press, London.
4. Pomeranz, Y. and MeLoan, C.E. (1996): Food Analysis: Theory and Practice; 3rd Edition, CBS Publishers and Distributors, New Delhi.
5. Wilson and John Walker, Principles and Techniques of Biochemistry and Molecular Biology (2010), Keith Wilson and John Walker, Cambridge University Press.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1		3			6
CO 2				4	5	
CO 3	1	2				
CO 4			3			
CO 5			3	4		6

Mean = 3.45

PFN 4308 Research Methodology and Biostatistics (4+1=5h/wk) (3cr)

The course aims at two parts. First part deals with research methodology, research problem and methods of data collection. The second part deals with statistics and data analysis using statistical tools.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Outline various kinds of research, objectives of doing research, research process, research designs and sampling
ii. Demonstrate qualitative, quantitative and mixed methods research, as well as relevant ethical and philosophical considerations
iii. Apply measurement & scaling techniques as well as the quantitative data analysis in research
iv. Analyse the criteria that can be used to select an appropriate statistical test to answer a research question or hypothesis
v. Discuss the link between quantitative research questions and data collection and how research questions are operationalized in educational practice

Unit 1: (12hrs)

Research Methodology: Meaning, objectives and Significance of research. Types of research, research approaches and scientific methods. Research process and criteria of good research. Definition and Identification of a Research Problem: Selection of research problem, Justification, development of hypothesis, basic assumptions. Limitations and delimitations of the problem.

Unit 2: (12 hrs)

Methods of Data Collection: Schedules and questionnaires; Interview, Case study, Home visits, scaling methods, Reliability and validity of measuring instruments, Statistical issues, Basic principles and regulations in humans and animal research, Analysis and reporting of data.

Unit 3: (10 hrs)

Introduction to statistics - meaning and scope, basic ideas, population sample parameter, variable, statistic, estimate and notation. Frequency distribution, histogram, frequency polygon and curve, ogives, symmetric and asymmetricdistributions.Concept of skewness and kurtosis. Measures of central tendency - mean, median, mode - calculations and applications. Finding combined mean, weighted mean. Finding median and mode graphically. Measures of variation - absolute and relative measure - use of range and standard deviation. Introduction to statistical package for social sciences (SPSS)

Unit 4: (10 hrs)

Data Analysis: Hypothesis Testing, Paired Comparison Designs, Pairwise Ranking Test: Friedman Analysis—Comparing Several Sample, Multisample Difference Tests — Block Designs, Simple Ranking Test: Friedman Analysis — Randomized (Complete) Block Design, Parametric Tests: t-test, z-test, chi-squares test, ANOVA.

Unit 5: (16 hrs)

Framing Proposal for acquiring grants: The question to be addressed – Rationale and importance of the question being addressed – Empirical and theoretical framework –

Presenting pilot study / data or background information - Research proposal and time frame – Specificity of methodology – Organization of different phases of study – Expected outcome of study and its implications – Budgeting - Available infra-structure and resources - Executive summary

Text Book:

1. Kothari C.R. (2014) Research Methodology Methods & Techniques, New age international publisher.

References:

1. Myra L. Samuels, Jeffrey A. Witmer, Andrew Schaffner. (2012). Statistics for the Life Sciences, 4th edition. Prentice Hall.
2. John A. Rice. (2010). Mathematical Statistics and Data Analysis, Duxbury Press.
3. John M. Lachin. (2010). Biostatistical Methods: The Assessment of Relative Risks, 2nd Edition, Wiley-Blackwell Pub.
4. Snedecor, George, W.Cochran and William, G. (1967). Statistical Methods, Sixth edition, Oxford and IBH Publishing Co., Oxford.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4		
CO 2	1	2	3	4		
CO 3				4	5	6
CO 4	1	2	3	4	5	6
CO 5		2	3	4	5	6

Mean = 3.45

PFN 4310 Laboratory in Food Analysis (3h/wk) (3cr)

The course aims at relies on scientific analysis to identify problems with food products. It provides analytical data on the quality of a product or production process to support quality control in the HACCP system. The objective of quality control is to identify contaminants in raw material, or contamination after a product is produced and before it is placed on the market.

Course Outcomes

Upon completion of this course, the students will be able to:

i. Summarize food analysis experiments, analyzing data and reporting their findings.
ii. Understand basic principles of food analytical procedures
iii. Estimate the chemical composition, structural and physical properties of native and processed food materials.
iv. Evaluate the standard experimental techniques.
v. Choose the appropriate and accurate methods for various food quality characteristics.

Laboratory Experiments

1. Preparation of Primary and Secondary solutions
2. Proximate analysis of marketed food products (Moisture,Ash,Crude, Fat, Crude Protein, Crude Fibre and Carbohydrates)
3. Vitamin estimation (Ascorbic acid)
4. Mineral estimation (Calcium, Phosphorus,iron)
5. Determination of chemical constituents in foods (PH, TA, TSS, RS, Non-RS, Total sugar, Total phenolic compounds)
6. Detection of adulteration in food products (milk, ghee, honey, spices, pulses, oils etc)
7. Detection of non-permitted food additives in market food samples.
8. Identification of antinutritional factors found in food sample.
9. Food adulteration and consumer awareness campaign – Know your food quality.
10. Visit to a state food testing laboratory.

Text Book:

1. Raghuramulu,N.Nair,K.A.AndKalyanasundraram, A.(1983) A manual of Laboratory Techniques, National, Institure of Nutrition, Silver Prints, Hyderabad.

References:

1. Oser, B.L.,(1954) Hawke's Physiological Chemistry, XIV Edition, Tata MC Graw Hill Publishing Company Ltd, Mumbai.
2. Jayaram.J.(1996), Laboratory Manual In Biochemistry, New Age International Ltd, Publishers, New Delhi, Fifth Reprint.
3. The Food Chemistry Laboratory: A Manual for Experimental Foods, Dietetics, and Food Scientists, Second Edition-Connie M. Weaver, James R. Daniel
4. Food Chemistry: A Laboratory Manual -Dennis D. Miller
5. Hand Book of Food Analysis by Nollet&Toldra, CRC publishing ltd.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4	5	6
CO 2		2	3	4	5	
CO 3	1	2		4	5	6
CO 4	1	2	3	4	5	
CO 5	1		3		5	6

Mean = 3.45

PFN 5501 Drug -Nutrient Interactions (5+1=6hrs/wk) (5cr)

The course aims at overview of drug nutrient interactions, pharmacology, nutrigenomics, drug nutrient interactions in specific conditions in order to optimize drug efficacy.

Course Outcomes

Upon completion of this course, the student will be able to:

1. Discuss the significance of food and drug interactions in the present clinical scenario.
2. Apply this knowledge in prescribing individualized dietary regimen for various therapeutic conditions in order to optimize drug efficacy.
3. Analyze clinically possible interactions between drugs and nutrients in patients who are on enteral and parenteral nutrition.
4. Explain the importance of nutritional genomics in improving health outcomes.
5. Compile knowledge of pharmacology, gene- nutrient and drug- nutrient interactions into the nutrition care process.

Unit 1: (15 hrs)

Overview of drug nutrient interactions: Drug- definition, Dosage forms (powders, capsulses, tablets, liquids, rectal dosage forms, topical agents, injections), routes for drug delivery (enteral, parenteral and topical). Basic concepts of Pharmacokinetics - absorption, Factors affecting absorption, distribution, metabolism and elimination; Pharmacodynamics- mechanism of drug action, combined effect of drugs (synergism and antagonism), Factors modifying drug action; Pharmacogenomics.

Unit 2: (18 hrs)

Influence of nutritional status on drug disposition and effect: Effect of malnutrition on drug disposition. Influence of food or nutrients on drug disposition and effect. Interactions of frequently used drugs with nutrients- Analgesics, antibiotics, hypoglycemic agents, cardiovascular agents (diuretics, anticoagulants, antihypertensives, antihyperlipidemics), antacids, respiratory agents (bronchodilators, corticosteroids), immunosuppressants, psychotropic agents.

Unit 3: (15 hrs)

Drug nutrient interaction by life stage: Drug–Nutrient Interactions in Infancy and Childhood, Drug–Nutrient Interaction considerations in Pregnancy and Lactation, Drug–Nutrient Interactions in the elderly. Drug–Nutrient Interactions in Nutrition support - (Enteral and parenteral Nutrition)

Unit 4: (15 hrs)

Nutrigenomics: Basics of Nutrigenomics, Tools of Nutrigenomics- Genomics, Transcriptomics, Proteomics, Metabolomics. Interaction between nutrient and gene- direct interactions, epigenetic interactions, genetic variations. Chronic disease and nutritional genomics. Role of nutrigenomics in coronary heart disease.

Unit 5: (12 hrs)

Drug nutrient interactions in specific conditions: HIV/AIDS, organ transplantation, impact on mineral status and cancer. Diet counseling to prevent food and drug interactions, Computers in Nutrient- Drug Interaction management.

Text Book:

1. Joseph I. Boullata, Vincent T. Armenti, (2004), Handbook of Drug-Nutrient Interactions, Humana Press, Totowa. ISBN: 978-1-4757-5359-2 (Print) 978-1-59259781-9 (Online).

References:

1. Beverly J. McCabe, Eric H. Frankel and Jonathan J. Wolfe, (2003) Hand book of food and drug interactions, CRC press, Boca Raton (online).
2. Tripathi K.D, (2003), Essentials of medical Pharmacology, Ed 5, Jaypeebrothers , Medical publishers Pvt., Ltd., New Delhi.
3. Srilakshmi B, Nutrition Science, Ed 5, New Age International (P) Ltd., New Delhi.
4. Sumathi R. Mudambi, M.V. Rajagopal. Fundamentals of food, nutrition and diet therapy, Ed. 6, New Age International (P) Ltd., New Delhi.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4	5	6
CO2	1	2	3	4		
CO 3		2	3	4	5	6
CO 4	1	2	3	4	5	
CO 5	1		3		5	6

Mean = 3.37

PFN 5503 Food Packaging (5+1=6hrs/wk) (5cr)

The course aims at Food packaging includes introduction, packaging materials and their properties, packaging systems and methods, packaging aspects of fresh and processed foods and packaging design and environmental issues in packaging.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Outline the functions of packaging along with the influence of various factors on food
ii. Compile about the different packaging materials like cans, bottles, flexible films etc.
iii. Discuss about the various methods of packaging and the equipment's used for packaging.
iv. Outline about the different metal container like tin, aluminium, physical testing of polymer packaging materials.
v. Explain about the dairy products like bakery, beverages, frozen foods etc.

Unit 1: (12 hrs)

Introduction to food packaging: Packaging terminology- definition. Functions of food Packaging, Packaging environment. Characteristics of food stuff that influences packaging selection.

Unit 2: (18 hrs)

Packaging material and their properties: Glass, Paper and paper board, Corrugated fiber board (CFB), Metal containers: Tin and Aluminum, Composite containers, Collapsible tubes, Laminations, Metalized films, Co extruded films, physical testing of polymeric packaging materials. Food Packaging Polymers (Polyethylene, PET, PVC, Polypropylene, Polystyrene & Nylon).

Unit 3: (12 hrs)

Packaging Systems and methods: Canning-Vacuum Packaging, controlled atmospheric packaging, modified atmospheric packaging, Aseptic Packaging, Retort processing, Active Packaging, intelligent packaging, shrink and stretch packaging-cling.

Unit 4: (15 hrs)

Packaging aspects of fresh and processed foods: Packaging of Fruits and vegetables, Fats and Oils, Spices, meat, Poultry and sea foods, Dairy Products, Bakery, beverages, Dehydrated and frozen foods. Liquid and powder filling machines – like aseptic system, form and fill (volumetric and gravimetric), bottling machines. Form Fill Seal (FFS) and multilayer aseptic packaging machines.

Unit 5: (18 hrs)

Packaging Design & Environmental Issues in Packaging: Food marketing and role of packaging-Packaging aesthetic and graphic design; Coding and marking including bar coding; Consumer attitudes to food packaging materials; Packaging Laws and regulations, safety aspects of packaging materials; sources of toxic materials and migration of toxins into food materials; Packaging material residues in food products; Environmental & Economic issues, recycling and waste disposal.

Text Book:

1. Gardon L. Robertson (2012) Food Packaging: Principles and Practice, Third Edition, CRC Press, India.

References:

1. Richard Coles, Derek McDowell,.Mark J. Kirwan.(2003).Food Packaging Technology, Blackwell Publishers.
2. Aaron L. Brody, E. P. Strupinsky, Lauri R (2001). Active Packaging for Food Applications, CRC Press, U.S.A.
3. Ahvenainen, R. (Ed.) 2003 Novel Food Packaging Techniques, CRC Press,.
   Han, J.H. (Ed.) 2005 Innovations in Food Packaging, Elsevier Academic Press

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2		4	5	
CO 2		2	3	4	5	6
CO 3		2	3	4	5	6
CO 4		2	3	4		6
CO 5	1	2			5	

Mean = 3.57

PFN 5405 Functional Foods and Nutraceuticals (5+1=6hrs /wk) (4cr)

The course aims at enables to gain knowledge on sources of functional foods and nutraceuticals. It also helps to understand the role of functional foods, nutraceuticals and dietary supplements in health and disease.

Course outcomes

i. To enable students understand the relation between Functional Foods, Nutraceuticals to Food and Drugs along the regulatory aspects
ii. To introduce them to various functional food groups of plant origin
iii. To enable students understand the functional component of animal origin
iv. Discuss the role of prebiotic and probiotics in gut health
v. Study about the herbs and flowers as a source of bio active compounds in treating certain diseases

Unit 1: (15 hrs)

Introduction to Functional Foods and Nutraceuticals: Functional foods and Nutraceuticals – Definition and history.Teleology – definition, primary and secondary metabolites.Organisational Models for Nutraceuticals - a) Food Sources b) Mechanism of Action: c) Chemical Nature. Consumer Marketing - Factors for marketing functional foods and nutraceuticals.

Unit 2: (18 hrs)

Functional Components from Plant Sources: i) Nutrient Molecules: (Phospholipids,Vitamin K,Carbohydrate Derivatives- Dietary fiber - Types and sources, Physical and Physiological properties. Minerals – Zinc, Selenium. ii) Non Nutrient Molecules: Phenolic compounds (Phytoestrogens - Isoflavones, Lignans. Flavonoids – Quercetin,kempferol, Flavones – limonene.Flavols – Catechin), Phenolic acid – Ellagic acid, Caffeic acid), Phytosterols and phytostenols, Saponins, Tannins, Carotenoids(Lycopene, Beta-carotene, Lutein and zeaxanthin).iii) Hypocholesterolemic and antidiabetic components.

Unit 3: (15 hrs)

Functional Components from Animal Sources: Major and minor components in cow's Milk and Human Milk.Proteins – lactalbumin, lactoglobulin, lactoferrin, immunoglobulins, Derived peptides – casein phospho peptides, glycomacro peptides, Lactose, Fat. Mineral – zinc, selenium, Calcium. Dietary lipids - Conjugated Linolenic Acid, linoleic acid, oleic acid, GLA. Omega 3 and Omega 6 Fatty Acids. Structured Lipids

Unit 4: (12 hrs)

Microbes as Functional Foods: General Functions of Intestinal Microflora.Prebiotics - Definition, role of prebiotic as functional ingredient, examples.Probiotics - Definition, role of probiotic as functional ingredient, examples.Symbiotics - Definition, functions, examples.

Unit 5: (15 hrs)

Herbs and Flowers as Functional Foods: Action of Herbs and Efficacy on**:**a) Nervous System-Ginseng, St.John's wort, Ginkgo biloba.b) Heart and Circulatory System-Hawthorn plant**.** c) Immune System –Echinacea**.** d) Digestive System-Ginger valerian root fennel**.** e) Respiratory System-Licorice root, kava kava**.** f) Urinary System-Cranberry, Saw palmetto**.** g) Musculoskeletal System-Fever few.

Flowers - Medicinal values, nutritional importance, culinary uses, effect of cooking of Edible flowers – Drumstick, Neem, Agathi, Plantain. Ornamental edible flowers – Hibiscus, lotus, rose

Text Book:

1. Mary K Schmidl and Theodore P.Labuza, Essentials of Functional Foods, Culinary and Hospitality Industry Publications Services 2000.

References:

1. G.Mazza Functional Foods Biochemical Processing Aspects , Culinary and Hospitality Industry Publications 1998.
2. Israel Goldberg Functional Foods Designer Foods Pharma Food, Nutraceuticals ,Culinary and Hospitality Industry Publications 2001.
3. Robert E C Wildman Handbook of Nutraceuticals and Functional Foods ,Culinary and Hospitality Industry Publications 2001.
4. David H Watson Performance Functional Foods ,Culinary and Hospitality Industry Publications 2001

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2		4	5	
CO 2	1	2	3	4	5	6
CO 3	1	2	3			
CO 4			3	4	5	6
CO 5	1	2	3	4	5	6

Mean = 3.39

PFN 5407 Food Biotechnology (5+1=6hrs/wk) (4cr)

The course aims at Food Biotechnology deals with use of genetic engineering, cloning and cell culture in Food Biotechnology, prospects, traditional applications, xenobiotics and its elimination and role of Biotechnology in food industries.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Apply the techniques of molecular biology, biotechnology and r-DNA for the development of food products
ii. Discuss the role of genetically modified plants and animal cells to produce desired food components
iii. Explain the role of nanomaterials for the development of food packaging
iv. Identify different types of food toxicants including xenobiotics
v. Utilize the wastes released from the food industries

Unit 1: (12 hrs)

Prospects of Biotechnology: Definition, scope and applications. Application of biotechnology in food. Basic principles of molecular biology and biotechnology: Recombinant DNA Technology.

Unit 2: (18 hrs)

Genetic Engineering, cloning and cell culture: Fundaments of molecular biology and genetics. Central dogma. Concept of genetic engineering and molecular cloning. Plant and animal culture, transgenic plants, application of genetic engineering in food science and technology. Genetically modified foods – concept, types and application.

Unit 3: (15 hrs)

Food Nanotechnology: Nanomaterials - Definition - History – Properties. Food Nanotechnology: Current developments and future prospects; Nanotechnology and applications in food safety; Nanotechnology for food: delivery system; Nanostructured encapsulation systems: food antimicrobials. Barrier Packaging – Antimicrobial Packaging- Antimycotic Packaging- Bio-based Packaging- Bio-degradable Packaging- Active Packaging – Smart Packaging. Safety of Nanomaterials in Food

Unit 4: (15 hrs)

Xenobiotics: Definition, components, drug adverse reactions, nutrient drug interactions, industrial chemicals, Bio- dynamics of xenobiotics, overall metabolic fate of xenobiotic in the body Naturally occurring food toxicants and its elimination: Sources, toxicity, elimination- protease inhibitors, goitrogens, haemagglutinins, glucosinolates, cyanogens, saponins, gossypols, lathyrogens, favism and carcinogens.

Unit 5: (15 hrs)

Role of Biotechnology in Food Industries: Production of organic acids**,** vitamins, amino acids- downstream processing-Food additives, synthesis, sweeteners – glucose syrup and High Fructose Corn Syrup (HFCS): thickeners and gelling agents, xanthan gums. Food industry solid waste management – utilization and disposal, effluent treatment: resource recovery, recycle, reuse, treatment and disposal.

Text Book:

1. Green P.J (2002), Introduction to Food Biotechnology, CRC press, U.S.A

References:

1. Mansi, EMT, Bryce, CFA, Demain,A.L and Allman, R (2003) Fermentation Microbiology and Biotechnology, Taylor and Francis, NewYork,.
2. Primrose, S.B (2001), Molecular Biotechnology, second edition, Panima Publishing Corporation, New Delhi.
3. Satyanarayana, U, (2007). Biotechnology, Books and Allied (P) Ltd., Kolkata.
4. Fischer, A and F. Kampers (2011). Nanotechnology in the Agri-Food Sector: Implications for the Future - Wiley-VCH.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4		
CO 2	1	2	3	4	5	6
CO 3	1	2	3	4	5	6
CO 4		2	3		5	6
CO 5	1		3	4	5	

Mean = 3.37

PFN 5309 Laboratory in Food Biotechnology and Microbiology (3hrs/wk) (3cr)

The course aims at food biotechnology deals with isolation of DNA, isolation of lymphocytes, determination of Total Antioxidant Activity and identification of common adulterants. It also deals with fermentation and enzyme immobilization techniques. The laboratory course also focuses on microbiology of food, to detect the food born pathogens.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Ability to apply knowledge in determining the total antioxidant activity in biological samples.
ii. Assess knowledge of adulterants in foods.
iii. Evaluate on fermentation and enzyme immobilization techniques on foods.
iv. Evaluate the physical and chemical properties of Food Pathogens.
v. Apply methods to detect pathogens in foods.

Laboratory Experiments:

1. Isolation of chromosomal DNA from plant
2. Isolation of lymphocytes from whole blood
3. Determination of Total Antioxidant Activity
4. Enzyme immobilization techniques
5. Fermentation monitoring and control
6. Preparation of common laboratory media and special media.
7. Precautions and safety regulations, sterilization techniques
8. Microbiology of milk.
9. Microbiology of water.
10. Dilution and Plating by spread –plate and pour –plate techniques.
11. Isolation of specific culture
12. Identification of important molds and yeast.

Text Book:

1. Nollet, L. Marcel Dekke (2004). Handbook of food analysis : Methods and instruments in applied food analysis r Inc., New Delhi.

References:

2. Iranpur, V.M., Esmailizadeh, A.K., 2002. Rapid Extraction of High Quality DNA from Whole Blood Stored at 4°C for Long Period, Department of Animal Science, Faculty of Agriculture, Shahrekord University, Shahrekord, Iran (Protocol online).
3. Panda, S. K. and Ravindran, B. (2013). Isolation of Human PBMCs. *Bio-protocol* 3(3): e323. DOI: 10.21769/BioProtoc.323.
4. Benzie, I. F., & Strain, J. J. (1996). The ferric reducing ability of plasma (FRAP) as a measure of "antioxidant power": the FRAP assay. *Analytical biochemistry*, *239*(1), 70-76.
5. Prescott, Harley and Klein- Microbiology-5 th edition; Publisher: McGraw Hill science 2002.
6. John G. Holt, Bergey's Manual of Determinative Bacteriology. Lippincott Williams & Wilkins, 1993.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1	1	2	3	4		
CO 2	1	2	3	4		6
CO 3		2	3	4	5	6
CO 4	1		3	4	5	
CO 5	1	2	3	4	5	6

Mean = 3.33

PFN 5504 Clinical Nutrition and Diet Therapy (5+1=6hrs/wk) (5cr)

The course aims at providing an exposure on the study of aetiology, symptoms and medical nutrition therapy in various diseases. They easily learn the method to plan and prepare diet for various diseases.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Plan and prepare standardized hospital diet for the needed patients.
ii. Select specific foods for management of disease condition.
iii. Apply nutrition principles to health promotion and the prevention of l diseases.
iv. Compare the food exchange list in the control of diseases.
v. Identify the relationship between diet and disease.

Unit 1: (15 hrs)

Therapeutic diets – Principles, Objectives and Diet Therapy, Functions of Indian Dietetic Association, routine hospital diet, different types of diet

Infection, fever, lungs – Fevers and Infection, Typhoid, Tuberculosis, Asthma, Chronic Bronchitis, Emphysema, Injury and Burns

Metabolic disorder –Diabetes Mellitus, Hypoglycaemia, Hypothyroidism, Hyperthyroidism, Gout, Phenylketonuria, Maple Syrup Urine Disease, Galactosemia

Unit 2: (15 hrs)

Hepatic disorder - jaundice, Hepatitis, Cirrhosis, Hepatic Coma, Gall Bladder, Pancreatic Disease, Cystic Fibrosis, Cholecystitis, Cholelithiasis, Acute and Chronic Pancreatitis.

Pancreatic disease - Acute Pancreatitis, Tropical Pancreatitis, Chronic Pancreatitis, Non Calcific, Cystic Fibrosis, Pancreatic Fistulae

Unit 3: (15 hrs)

Disease of oesophagus, gastrointestinal tract, stomach and small intestine - Oesophageal Obstruction, Esophagitis And Hiatus Hernia, Gastro Oesophageal Reflux Disease, Hypochlorhydria, Acute and Chronic Gastritis, Peptic Ulcer, Ulcerative Colitis, Dyspepsia, Constipation, Diarrhoea, Flatulence, Tropical Sprue, Celiac Sprue, Crohns Disease, Irritable Bowel Syndrome, Inflammatory Bowel Disease

Unit 4: (15 hrs)

Renal disease - Glomerulonephritis, Nephritic Syndrome, Nephrosclerosis, Nephrolithiasis, Hyperkalemia, Urinary Calculi, Acute Renal Failure, Chronic Renal Failure, Nephrosis, Uremia, Kidney Transplants

Cardiovascular disease - Myocardial infraction, Atherosclerosis, Hyperlipidemia, Hyperlipoproteinemia, Angina Pectoris**,** Acute And Chronic Cardiac Disorders, Congestive Heart Failure, Hypercholesterolemia

Unit 5: **(15 hrs)**

Inflammatory disease of the mucosa – Regional Enteritis (Crohns Disease), Diverticulosis, Ulcerative Colitis, Diverticulosis, Diverticulitis, Regional Enteritis, Malabsorption Syndrome, Sprue, Glucose Enteropathy

Inborn errors of metabolism – Phenylketonuria, Tyrosinemia, Maple Syrup Urine Disease, Homocystinuria, Histidinemia, Leucine Induced Hypoglycaemia, Galactosemia, Hereditary Fructose and Lactose Intolerance, Wilsons Disease, Gout, Addison Disease.
Immune System Dysfunction, AIDS, Allergy, Cancer, Stress, Surgery, Trauma, Arthritis.

Text Book:

1. Corinne H Robinson, Marilyn R Lawler, Wanda L Chenoweth, Ann E Gerwick, 1989. Normal and therapeutic nutrition, Mac Millan Publishing Company, New York.

References:

1. Garrrow J.S, James W.P.T. and Ralph A, (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London
2. Mohan K.L. and Krause M.V (2002). 2nd edition Food, Nutrition and Diet Therapy, W.S. Suders Co, Philadelphia.
3. Robinson C.H, Lawler M.R, Cheweth W.L and Gaswick A.E (1990). Normal and Therapeutic Nutrition, Seventeenth Edition, Mac Milan Publishers. New York.
4. Shubhangini A Joshi, 2006. Nutrition and dietetics, Tata Mc Graw-Hill Publishing Limited, New Delhi, Second Edition.
5. Sumati R. Mudambi, M.V. Rajagopal, 2012. Fundamentals of foods, nutrition and diet therapy, New Age International Publishers, 6th Edition.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO2				4	5	6
CO3		2		4		
CO4			3		5	
CO5	1				5	

Mean = 3.72

PFN 5302 Laboratory in Clinical Nutrition and Diet Therapy (4hrs/wk) (3cr)

Course Outcomes

Upon completion of this course, the student will be able to:

i. To demonstrate in the method to plan and prepare diet for various diseases.
ii. To design the principles of meal planning, diet therapy, therapeutic diets and nutrition support.
iii. To create skill development in planning therapeutic diets using food exchange lists.
iv. To evaluate the concept of food groups and exchanges for planning and preparing a balanced diet for various age groups and physiological conditions.
v. To make appropriate dietary modifications for various disease conditions based on the path physiology.

Laboratory Experiments (Any two diet plan in each)

1. Planning and preparation of Diet for Metabolic disorders
2. Planning and preparation of Diet for Hepatic disorders
3. Planning and preparation of Diet for Pancreatic diseases
4. Planning and preparation of Diet for Disease of oesophagus/ gastrointestinal tract/ stomach and small intestine
5. Planning and preparation of Diet for Renal diseases
6. Planning and preparation of Diet for Cardiovascular diseases
7. Planning and preparation of Diet for AIDS/ allergy/ cancer/ stress/ surgery/ trauma/ arthritis

Text Book:

1. Anderson, L *et.al.*, Nutrition in Health and Disease, Seventh edition, J.B. Lipincott & Co. Philadelphia.

References:

1. Anita F. P. (2002) Clinical Dietetics and Nutrition, Fourth Edition, Oxford University Press, Delhi.
2. Gopalan C, Ram Sastri B.V, and Bal Subramaniam S.C, (2006).Nutritive Value of Indian Foods, Hydrabad, National institute of nutrition, Indian council of medical research.
3. Mahan,L.K. and Arlin, M. T (1972) Kranse's Food, Nutrition and Diet Therapy. 8th edition, W.B. Saunders Company, London.
4. Raheena, B (2009) A Textbook of Food, Nutrition and Dietetics, Sterling Publishers, New Delhi.
5. Robinson. C.H. *et. al.*, (1986) Normal and Therapeutic Nutrition, Seventh edition, Mac Milian Publishing Co.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1	1	2	3	4	5	
CO 2	1	2	3		5	6
CO 3			3	4		6
CO 4	1	2	3	4	5	6
CO 5	1	2	3	4	5	6

Mean = 3.64

PFN 5304 Food Processing and Preservation (4/wk) (3cr)

The course aims at food processing and preservation include principles of food storage, processing and preservation by heat and removal of water. It also includes cold preservation, preservation using irradiation, chemical preservatives and non-thermal methods.

Course outcomes

Upon completion of this course, the student will be able to:

i. Understand pre & post-harvest technologies and its role in providing better quality produce to the consumer.
ii. Plan a processing method to increase the shelf life using Thermal and non-thermal method of processing techniques.
iii. Choose the best processing techniques to be used for a specific group of produce.
iv. Compare the novel technologies with the traditional methods in food preservation.
v. Critique the importance of fermentation and pickling process to enrich the food for diversity of flavour and nutrients and eliminate the antinutrients.

Unit 1: (10 hrs)

Pre & post-harvest processing: Nature of harvested crop, plant & animal products. Maturity index – definition, principle, Assessment methods for various crops. Principles of storage: storage of grains – conditions and effects of cold storage on quality.

Unit 2: (10 hrs)

Processing and preservation by heat: Blanching, Pasteurization, sterilization and UHT processing, canning, extrusion cooking, dielectric heating, microwave heating, roasting and frying. Retort processing. Drying – types, principles, drying curve, water activity, microbial spoilage due to moisture. Dehydration of fruits, vegetables, and animal products – ultra filtration, reverse osmosis.

Unit 3: (10 hrs)

Preservation using low temperature: Refrigeration, freezing, CA, MA & freeze-drying-principles, mechanism of action, and effect on the quality of food product quality, advantages and disadvantages.

Unit 4: (15 hrs)

Food irradiation and chemical preservation: Food irradiation – history and mechanism, forms of radiant energy, principles of using electro-magnetic radiation in food processing, ionizing and non-ionizing radiation, advantages and disadvantages, regulations in food irradiation. Food additives and chemical preservatives- GRAS and permissible limits for chemical preservatives, advantages and disadvantages.

Unit 5: (15 hrs)

Processing and principles using Non-thermal methods: High-pressure processing, Pulse Electric field technology, Cold plasma technology, Power ultra sound, Dense phase CO2, SPF, hurdle technology – principles, advantages and disadvantages. Use and application of enzymes and microorganism in processing and preservation of foods. Food fermentation, pickling and smoking.

Text Book

1. Das, H. “Food Processing Operations Analysis”, Asian Books, 2005.

References:

1. Rao, M.A., S.S.H. Rizvi and A.K. Datta “Engineering Properties of Rood”, 3rd Edition, Taylor & Francis, 2005.
2. Majumdar, A.S. “Dehydration of Products of Biological Origin”, Oxford & IBH Publication, 2004.
3. Fellows, P.J. (2005). Food processing technology: Principle and Practice. 2nd Ed. CRC Publishers
4. Desrosier NW & James N. (2007). Technology of food preservation. AVI. Publishers

Bloom’s Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2				
CO 2	1	2	3	4	5	6
CO 3		2	3			
CO 4	1	2	3	4	5	
CO 5	1	2	3	4	5	6

Mean = 3.09

PFN 4311 Exercise and Sports Nutrition (4 hrs/wk) (3 cr)

The course aims at providing the Learners a complete knowledge to understand the Science of Exercise that will have an improved physiological understanding of how your body responds to exercise. It will give you the knowledge and skills you need in order to achieve your sports nutrition and athletic performance goals.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Explain the body's adaptation to exercise and understand the physiology of exercise.

ii.Compile the importance of nutrition and its impact on sport performance.

iii.Critique the quality of protein and its importance in athlete's diet.

iv.Outlinethe effect of Ergogenic aids, nutaceuticals and herbal diuretics in sports nutrition.

v.Comprehensive understanding of how hydration status effects performance and exact recommended requirement of fluid pre, during, and post-exercise.

Unit 1: (10 hrs)

Introduction to Exercise: Definition – Types of Exercise - Physiology of Exercise - Fuels for Exercise - Acute Adaptations to Exercise (Cardiovascular Responses, Pulmonary System Adaptations, Hormonal Responses to Exercise, Immunological Adjustments) - Chronic Adaptations of Exercise (Skeletal Muscle Adaptations, Ligament and Tendon Adaptations, Metabolic Adaptations) - Absolute Contraindications to Exercise - Precautions with Exercise.

Unit 2: (12 hrs)

Introduction to Sports Nutrition: Definition and scope of Sports Nutrition - Diet and Performance - Importance of Sports Nutrition -Digestion, Absorption & Assimilation - Definition of Energy and ATP Measuring energy expenditure - Measuring Physical activity - Types of Competition/ event/ sport - Athletics - Track & Field - Team Sports - Individual Sports.

Unit 3: (12 hrs)

Protein needs of athletes: Complete and incomplete proteins - assessing the quality of protein - dietary sources of protein - proteins found in dietary supplements (gelatin protein, wheat protein, pea protein, beef, poultry, and fish protein, soy protein, egg protein, milk protein, whey protein, casein, bovine colostrum, fast and slow-proteins)- protein supplementation during training (egg protein, soy protein, milk protein, whey protein, bovine colostrum).

Unit 4: (14 hrs)

Ergogenic Aids: Definition, Benefits & Side effects- Anti doping agency - list of banned drugs/substances - Nutritional Ergogenic Aids - Ergogenic value of carbohydrates & High fibre carbohydrates, Ergogenic value of fat-related nutrients.Nutraceuticals (Beta-D-Glucan, Chitosan, Dietary Fiber, Guar Gum, Gum Arabic, Inulin, Pectin, Psyllium, Phaseolus Vulgaris Extract) – Herbal diuretics.

Unit 5: (12 hrs)

Dehydration & Performance: Assessing Fluid loss - Proper Pre-Hydration, Rehydration / fluid replacement - Electrolytes - Role of electrolytes in Muscular contraction- Electrolyte loss & exercise - Maintaining / Restoring electrolyte Balance - Sports &Energy drinks - Osmolality &osmolarity - Hypotonic, Isotonic, Hypertonic – Acclimatization.

Text Book:

1. Richard B. Kreider, 2019. Essentials of Exercise & Sport Nutrition: Science to Practice Kindle Edition.Lulu publishing services.

References:

1. Heather Mangieri ,2017.Fueling Young Athletes, Versa Press, United states of America.
2. O'Halloran, P and Bhogal, G (Eds). Exercise Medicine for Students: A one-stop resource for the knowledge and promotion of physical activity.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3	4		
CO2	1	2	3	4		6
CO 3	1	2	3	4	5	
CO 4		2	3	4	5	
CO 5	1	2		4	5	6

Mean = 3.17

PFN 4313 Food Service Management (4h/wk) (3cr)

The course aims at the basic principles of organization and management in the food service units and develops skills in food selection, purchase, storage and service of food and train students in implementing sanitary procedures in food services.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Discuss about the scope of food industries.
ii. Explain the function of management organization.
iii. Plan about the developing of kitchen plant.
iv. Compare the electrical and non-electrical equipment's for food storage.
v. Outline the sanitation of plant and safety.

Unit 1: (12 hrs)

Food Service: Introduction, Definition of food service industry, principles of food service industry, objectives, types of food service industry.

Unit 2: (12 hrs)

Tools of management: Definition, classification – tangible tools, intangible tools, Organization chart, structure, function, work improvement techniques.

Unit 3: (12 hrs)

Kitchen Layout: Factors in menu planning for large groups, systems for maintaining quality in food preparation and service, types of kitchen, kitchen control and maintenance of Kitchen records.

Unit 4: (12 hrs)

Financial Management: Definition, managerial accounting,
Costing: definition of costing, cost, cost components, behavior of cost,
Cost control: food cost concept, method of controlling food cost,
Food cost analysis: pricing, definition, methods of pricing – cost plus and rate of returning, calculation of food cost statement, costing of dishes and meals

Unit 5: (12 hrs)

Personnel management: Definition, scope, concept of personnel management, approaches of personnel management, personnel policies, staff employment, training, placement, promotion, personnel records, work appraisals.

Text Book:

1. Bessie W B and Levelle W (1988). Food Service in Institutions. Sixth Edition. Mac million Publishing Company NewYork.

References:

1. Mohini S (2005). Institution Food Management. New Age International Publishers. New Delhi.
2. Mohini Sethi and Surjeet Malhan, 2015. Catering Management An Integrated Approach,New Age International Publishers, 3rd Edition.
3. Thangam Philip (2008). Modern Cookery for Teaching and Trade. Part I & II Orient Longman, Chennai.

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Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1	1	2				
CO2	1	2	3			
CO3	1	2	3	4	5	6
CO4		2	3	4	5	
CO5		2	3	4	5	6

Mean = 3.2

PFN 4314 Obstetrics and Neo Natal Nutrition (4hrs/wk) (3cr)

The course deals with the basic sciences relevant to obstetrics and gynecology. It provides effective and adequate care and diet to the obstetrical and neonatal diseases.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Explain the biochemical and endocrine changes during pregnancy.

ii. Discuss the signs and symptoms along with complications.

iii. Outline the anatomy and physiology of foetus and the principles of diet and nutrient modifications for the growth and development of foetus

iv. Outline the importance of lactation in neo natal nutrition and awareness on the immunization schedule.

v. Compute the required RDA as per ICMR guidelines for Pregnancy, Lactation and infancy.

Unit 1: (12 hrs)

Pre-natal Period: Signs & symptoms, Biochemical and endocrine changes during pregnancy, complications – Food fads & taboos.

Unit 2: (12 hrs)

Foetal Growth and Development: Anatomy of foetus, foetal physiology and foetal circulation - Development, structure and function of placenta, umbilical cord and amniotic fluid- importance of micro nutrients.

Unit 3: (12 hrs)

Postpartum Period: Risk in Labour- Still birth -Pre-mature - cord around the neck- Crosssection.

Unit 4: (12 hrs)

Neo natal nutrition: Lactation -Importance of breast feeding - Infant Formula – identify normal and sick neonates – immunization schedule.

Unit 5: (12 hrs)

Nutritional and Food Requirements: ICMR guidelines for Pregnancy, Lactation and infancy - nutritional needs and diet plan.

Text Book:

1. Chatterjee CC (1988) Text Book of Medical Physiology. W B Saunder's Co. London.

References:

1. Srilakshmi B (2014) dietetics, 7thedition, New Age International (P) Ltd, Publishers

2. Guyton (1991) Human physiology and Mechanism of diseases. W.B Saunders andCo.London.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1	1	2		4		
CO 2	1	2				
CO 3	1	2	3	4	5	
CO 4		2	3	4	5	6
CO 5	1	2	3	4	5	6

Mean = 3.14

PFN 4316 Nutrition in Mental Health (4 hrs/wk) (3 cr)

The course aims at providing a wide knowledge on common mental illness and the way to manage through foods and specific function and effects of its components. This course also deals with the food addiction and stress management.

Course outcomes

- Discuss on food addiction and mental health problems in various age groups.
- Analyze the role of food in mental health.
- Identify the role of lipids for a healthy mind.
- Outline the different mental disorders and role of nutrients for prevention and management.
- Critique the stress and its effect on mental health.

Unit 1: (6 hrs)

Mental health problems and food addiction- Mental health problems in adults, children, adolescence, pregnancy and aging.Food addiction- Alcohol addiction, Caffeine addiction.

Unit 2: (6 hrs)

The role of food in mental health problem- The role of diet in relation to specific mental health problem, Nutritional factors affecting mental health; The intersections of nutrition and the mind, Nutrition for the brain, Contents of meal affect the brain.

Unit 3: (6 hrs)

Role of lipids in mental health- EFA, anger & anxiety, violent behavior and EFA, effect of cholesterol in mental health and cholesterol lowering drugs and nutrients.

Unit 4: (6 hrs)

Role of nutrients in mental disorders- Nutrients and autism- Role of lipids, proteins, carbohydrates, vitamins & minerals, Nutrients in attention deficit hyperactivity disorder- Role of lipids, carbohydrates, vitamins and minerals.

Unit 5: (6 hrs)

Nutrition in stress- Stress and food carvings, glucocorticoids and the brain, Essential fatty acids and the brain, Nutrition and stress and the developing fetus.

Text Book:

1. FeliceJacka, Brain Changer: The Good Mental Health Diet, Macmillan Publishers Aus., 26-Feb-2019 - Health & Fitness

References:

1. Patrick Holford, Optimum Nutrition for the Mind, ReadHowYouWant.com, 21-Apr-2009 -Health & Fitness
2. Ruth Leyse-Wallace, Nutrition and Mental Health, CRC Press, 29-Jan-2013 - Medical
3. Shlomo Yehuda, David I. Mostofsky, Nutrients, Stress and Medical Disorders, Springer Science & Business Media, 2006 - Medical

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1		2		4		6
CO 2		2			5	
CO 3		2	3	4		
CO 4		2	3	4	5	
CO 5		2	3	4	5	

Mean = 3.5

PFN 4318 Ethnic Foods (Tamil Traditional Foods) (4hrs/wk) (3cr)

The course aims at to understand the historical perspective of traditional foods. It critically evaluates the methods of preparation of ethnic foods.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Understand the historical perspective of nutrient requirements
ii. Explain the emerging concepts in nutrition.
iii. Critically evaluate the methodology and derivation of requirements for specific macronutrients.
iv. Apply the importance of nutrition immunity interactions and their implications.
v. Identify various measures for enhancing nutritional quality of diets

Unit 1: (10 hrs)

Traditional food style: History – Concept and Principles of Traditional Foods – Benefits and nutritional content of Traditional Foods.

Unit 2: (12 hrs)

Healthy aspects of traditional foods: National health benefits - impacts of consuming traditional foods.

Unit 3: (14 hrs)

Religious and Ethnic diversity: Food in Christianity, Hindu. Halal Requirements for Meat, Poultry and Seafood based on religious and cultural practices. Halal Certification.

Unit 4: (12 hrs)

Fermented Ethnic Foods: Traditional fermented foods and drinks. Principles of downstream processing and Product recovery.

Unit 5: (12 hrs)

Traditional Cooking Methods: Traditional chimney kiln, modern mechanical fish smoking kiln, examples of smoked and dried products.

Text Book:

1. Kristbergsson K and Oliveira J (2016) Traditional foods: general and consumer aspects. Springer,New York.

References:

1. Pathak YV (2011) Handbook of nutraceuticals Volume 2, CRC Press, USA.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1	1	2	3	4	5	
CO4 2	1	2	3	4	5	
CO 3	1	2		4		
CO 4	1	2	3	4	5	6
CO 5	1	2	3		5	6

Mean = 3.12

Value Add-on Courses

PFN 421V Value Added Products from Millets (2hrs/wk) (2cr)

This course aims to obtain knowledge on millets their nutritive value and health benefits along with different product developments by incorporating millets. After learning this course the students develop skills in formulation of traditional recipes, bakery products, ready to eat stuffs and instant food mixes using various millets.

Course outcomes:

Upon completion of this course, the student will be able to:

i. Identify different millets and know its composition & nutritive value.

ii. Experiment the traditional food preparations with addition of millets.

iii. Utilize millets in bakery products.

iv. Demonstrate various Ready to eat preparations with millets.

v. Analyze the sensory attributes of Instant food mixes .

Unit 1: Introduction to Millets (8 hrs)

Definition, types, Compositon & Nutritive value: finger millet (Eleusine coracana), kodo millet (Paspalum scrobiculatumi), little millet (Panicum sumatrense), foxtail millet (Setaria italic), proso millet (Panicum miliaceum) and barnyard millet (Echinochloa frumentaceae)

Unit 2: Traditional recipes (6 hrs)

Breakfast food: Idli, Dosa, Idiappam, Rotti, Pittu, Upma, Adai, Porridge, Khakra, Paniyaram and Chappathi.

Sweets: Halwa, sweat kolukattai, Adhirasam, Kesari, Nutritious ball and Kheer.

Snacks: Vadai, Pakoda, Ribbon pakoda, Omapodi, Murukku, Thattu vadai, Hot kolukattai and Vadagam.

Unit 3: Bakery and Pasta products (6 hrs)

Bakery products - Incorporation of millet flour in the preparation of Bread, cookies, Changes in the sensory attributes.

Pasta products - Methods of extrusion for vermicelli, noodles, macaroni, Sensory attributes.

Unit 4: Flaked and Popped products (6 hrs) Ready-To-Eat Value added products from millet flakes - aval uppma, kitchadi, payasam, masala flakes, boli, sweet balls, lemon bath, tamarind bath and tomato bath.

Value added products from popped small millets - uppma, bhelpoori, masala corn, cheeian.

Unit 5: Instant Food Mixes (4 hrs)

Method of preparation Instant Foods (adai, pittu, idiyapam, kali, roti, and kesari), Sensory attributes.

References:

1. Dayakar Rao B, Sangappa, Vishala A.D, Arlene Christina G.D and Tonapi V.A. 2016. Technologies of Millet Value Added Products. Centre of Excellence on Sorghum, ICAR- Indian institute of Millets Research. Rajendranagar, Hyderabad, India. pp 1 – 64

2. Karuppasamy Packiyam, Kanchana S, Hemalatha G 2015. Development and Standardization of Value Added Products from Millets. Scholars' Press, India.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2				
CO 2			3			6
CO 3			3	4		
CO 4		2			5	
CO 5			3			6

Mean=3.77

PFN 521V Nutrition Counseling (2 hrs/week) (2cr)

This course aims at the students to understand the concept of nutrition counseling. It is helping to develop the counseling skills among the students with appropriate strategy.

Course Outcomes:

Upon completion of this course, the student will be able to:

i. Outline the process and types of counseling.

ii. Understand the theories relates to counseling.

iii. Identify the importance of nutrition counseling

iv. Analyze required skills for nutrition counseling.

v. Discuss the various counseling strategy.

Unit 1: Introduction to Nutrition counseling (5 hrs)

Definition – Development and goals- preparation - Counselor-counselee relationship- counseling process: Steps – purposes of counseling.

Unit 2: Theories related to nutrition counseling (5 hrs) Behaviour modification, cognitive behavioural theory and rational-emotive theory (RET), social learning theory, standard behavioral therapy, transtheoretical model, person-centered therapy, theory of planned behavior and theory of reasoned action, gestalt therapy, family therapy, self-management approach, the health belief model, developmental skill training.

Unit 3: Nutrition care process (7 hrs)

Importance of nutrition counseling in nutrition care process- system approach to nutrition counseling,

Unit 4: Counseling skills (7 hrs)

Communication skills, Counseling, Nutrition assessment, Nutrition diagnosis, Nutrition intervention, Monitoring and evaluation.

Unit 5: Counseling strategy (6 hrs)

Motivational interviewing, Expressing empathy, Developing Discrepancy, Rolling with Resistance (Legitimation, Affirmation), Supporting Self-Efficacy, Supporting Self-Efficacy, Establishing Rapport, Assessment Results.

References:

1. Robert J.Gatchel, Andrew Baum & David S.Krantz, An introduction to Health Psychology, 2nd Edition, McGraw Hill, NY,1989.
2. Linda G. SnetselaarNutrition Counseling Skills for the Nutrition Care Process, Jones & Bartlett Learning, 2009.
3. Kathleen. L Mahan and Janice L Raymond, Krauses Food And Nutrition Care Process, 14th Edition, Elsevier Science, 2010.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO1		2		4		
CO2		2		4		
CO3			3	4	5	
CO4			3	4		6
CO5			3	4	5	

Mean= 3.7

UNDERGRADUATE DEPARTMENT OF TAMIL

W.e.f. 2020-2021

SEM	PART	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.	Marks
I	I	TAM /TAS 1261	பொதுத்தமிழ் - I	3	2	30
I	II	ENG		3	2	30
I	IIIC	TAM 1431	மொழிஅடிப்படை	4	4	60
I	IIIC	TAM 1533	கவிதைஅடிப்படை	5	5	75
I	IIIC	TAM 1435	இலக்கியவரலாறு– I	4	4	60
I	LSI	TAM 1239	தொடர்பியல்	3	2	30
I	IVE	TAM 1241	தமிழ் இலக்கியவரலாறு	3	2	30
I	III SUP	TAM 1441	தொல்லியலும் சுற்றுலாவியலும்	5	4	60
				30	25	375

SEM	PART	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.	Marks
II	I	TAM /TAS 1262	பொதுத்தமிழ் - II	3	2	30
II	II	ENG		3	2	30
II	IIIC	TAM 1432	இக்காலக் கவிதை	4	4	60
II	IIIC	TAM 1534	புனைகதை	5	5	75
II	IIIC	TAM 1436	இலக்கியவரலாறு–II	4	4	60
II	LSI	TAM 1240	திரைப்படரசனையும் குறும்படத் தயாரிப்பும்	3	2	30
II	IVE	TAM 1242	தமிழகவரலாறும் பண்பாடும்	3	2	30
II	III SUP	TAM 1442	நாட்டுப்புறவழக்காற்றியலும் கலைப் பயிற்சியும்	5	4	60
				30	25	375

Part III Supportive

SEM	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.	Marks
I	TAM 1441	தொல்லியலும் சுற்றுலாவியலும்	5	4	60
II	TAM 1442	நாட்டுப்புறவழக்காற்றியலும் கலைப் பயிற்சியும்	5	4	60

Part IV Non – Major Electives

SEM	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.	Marks
I	TAM 1241	தமிழிலக்கியவரலாறு	3	2	30
I	TAM/TAS 1251	அடிப்படைத் தமிழ் - I	3	2	30
I	TAM/TAS 1253	சிறப்புத்தமிழ் - I	3	2	30
II	TAM 1242	தமிழகவரலாறும் பண்பாடும்	3	2	30
II	TAM/TAS 1252	அடிப்படைத் தமிழ் - II	3	2	30
II	TAM/TAS 1254	சிறப்புத்தமிழ் - II	3	2	30

Part IV Life Skill Courses

SEM	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.	Marks
I	TAM 1239	தொடர்பியல்	3	2	30
II	TAM 1240	திரைப்படரசனையும் குறும்படத்தயாரிப்பும்	3	2	30

Part V – NCA/NCN/NSS/SLP

C :Major Core , S : Self Supportive, LS : Life Skill, NME: Non- Major Electives
VE :Value Education, EVS : Environmental Studies
PART III Supportive, PART IV Non Major Electives, PART IV Life Skill Courses

Value Added Courses

SEM	COURSE CODE	COURSE TITLE	Hrs/Wk	Cr.
I	TAM 121V	நாட்டுப்புறவிளையாட்டுகள்	2	2
III	TAM 221V	சுற்றுலாஅடிப்படைகள்	2	2
V	TAM 321V	பண்பாட்டுச் சுற்றுலாவியலும் தமிழகமும்	2	2

இளங்கலைப் பாடத்திட்டத்தைநிறைவுசெய்தமாணவர்கள் பின்வரும் திறன்களைப் பெற்றிருப்பர்

1. உயர்தனிச் செம்மொழியானதமிழின் தொன்மையையும் சிறப்பையும் அறியும் திறன் பெற்றிருப்பர்.
2. தமிழைப் பிழையறப் பேசவும்,எழுதவும் திறன்பெற்றிருப்பர்.
3. இலக்கியங்கள் கூறும் சமூகஉண்மைகளையும் அவைகேள்விக்குட்படுத்தும் சமூக முரண்களையும் இனங்காணும் திறன்பெற்றிருப்பர்.
4. காலத்திற்கேற்பத் தமிழ் இலக்கியவகைமைகளில் ஏற்படும் மாற்றங்களைஅறியும் திறன் பெற்றிருப்பர்.
5. சமூகம்,வரலாறு,பண்பாடுஆகியவற்றின் போக்குகளை இனங்காணும் திறன் பெற்றிருப்பர். பண்பாட்டுஅளவில் தமிழின் பாரம்பரியக்கலைகளைமீட்டுருவாக்கம் செய்யும் திறன் பெற்றிருப்பர்.
6. பழந்தமிழ் இலக்கியங்களையும் உள்ளுறை, இறைச்சி முதலான கோட்பாடுகளையும், யாப்பு, அணி முதலான செய்யுள் உறுப்புகளையும் தெளிவுற அறிந்து கொள்வதோடு, கவிதை படைக்கும் திறனும் பெற்றிருப்பர்.
7. போட்டித் தேர்வுகளில் பங்கெடுக்கும் திறன் பெற்றிருப்பர்.
8. கள ஆய்வுகள் செய்துசமூகத்தைப் புரிந்துகொள்ளும் திறன் பெற்றிருப்பர்.
9. தமிழ் இலக்கியங்கள் வலியுறுத்தும் அறங்களைஉணர்ந்துசமூகம்,அரசியல்,பண்பாடு, சூழல் ஆகியவற்றில் நேர்மைகொண்டகுடிமகனாகவிளங்குவர்.
10. நவீனகலை,இலக்கியத்தைஅறிந்துகொள்வதன் மூலம் கவிதை, சிறுகதை, நாடகம் முதலானவற்றைப் படைக்கும் திறன் பெற்றிருப்பர். மேலும் ஆவணப்படம், குறும்படம் ஆகியவற்றைப் படைக்கவும், இணையச் செயல்பாடுகளில் பங்குபெறுவதுமான திறன்களைப் பெற்றிருப்பர்.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
TAM1261	√	√	√				√			√
TAM1431	√	√								
TAM1533	√		√		√	√			√	
TAM1435	√		√	√	√		√		√	
TAM1239								√		√
TAM1441	√	√			√	√	√	√		
TAM1262	√	√					√			
TAM1432			√				√			
TAM1534	√		√		√			√	√	
TAM1436		√	√	√		√	√			
TAM1240	√	√		√			√			
TAM1442	√		√		√		√		√	
TAM1241	√		√	√	√		√		√	
TAM1251								√		√
TAM1253	√		√		√		√	√	√	
TAM1242	√	√					√			
TAM1252			√				√			
TAM1254	√								√	

TAM 4

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PSO 1	√	√		√	√			√		√
PSO 2			√	√		√	√			
PSO 3					√		√			√
PSO 4	√	√	√				√	√		
PSO 5					√		√			
PSO6	√	√	√				√			
PSO 7	√	√		√		√				√
PSO 8	√	√				√	√		√	√
PSO 9					√					√
PSO 10	√		√	√		√		√	√	√

TAM 1261 பொதுத்தமிழ் - 1 3Hrs/2Cr.

நோக்கம்: தற்காலத் தமிழிலக்கியப் பரப்பில் நவீன இலக்கியவடிவங்களான புதுக்கவிதை, நாவல், சிறுகதை ஆகியனவற்றை அறிமுகப்படுத்தி இரசனை முறையிலும், திறனாய்ந்து நோக்கும் முறையிலும் மாணவர்களை அணுகச் செய்தல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. இக்கால இலக்கியவகைமைகளைஅடையாளங்கண்டுவரையறுக்கும் திறன்களைப் பெற்றிருப்பர்.
2. மரபுக்கவிதைமற்றும் புதுக்கவிதைபடைக்கும் முறைமைகளுக்கெனவுள்ள இலக்கண வரையறைகளை ஒப்பிட்டு அவற்றிற்கிடையிலான ஒற்றுமை வேற்றுமைகளை அறிகிற திறன்களைஎய்தியிருப்பர்.
3. தமிழ்ப் புதுக்கவிதைகளின் புதியவரவுகளைத் தேர்வுசெய்து, அப்பிரதிகளிலுள்ள நவீனத் தன்மைகளைக் கண்டறிந்து அதிநவீன இலக்கியங்கள் வெளிப்படுத்துகின்ற கருத்தாம்சங்களை தம் வாழ்நிலையோடு பொருத்திப் பார்க்கிறதிறன்களை அடைந்திருப்பர்.
4. காப்பியம், புதினம் ஆகியவற்றிற்கிடையிலான பண்பாம்சங்களைப் பகுத்துப் பார்த்து வேறுபடுத்தி அறிகிறதிறன்களைப் பெற்றிருப்பர்.
5. தொடக்காலச் சிறுகதைகளானவை,நடப்புக் காலகட்டச் சிறுகதைகளைப் படைப்பதற்கு அடிப்படையாக அமைந்த முறைமை குறித்து மதிப்பிட செய்து,அவற்றை விமரிசிக்கிற மற்றும் புதிதாகப்படைக்கிற ஆற்றல்களை எய்தியிருப்பர்.

பாடத்திட்டம்:

கூறு-1.இலக்கியம் வரையறை–நவீன இலக்கியத்தின் வரவு– தமிழிலக்கியப் பரப்பில் நவீன இலக்கியத்தின் இடம் - நவீன இலக்கியத்தைப் பயிலுவதன் நோக்கமும் பயன்பாடுகளும். **(5 மணி)**

கூறு-2.புதுக்கவிதை: விளக்கமும் விவரணைகளும் - புதுக்கவிதையின் தோற்றமும் வளர்ச்சி நிலைகளும் - ந.பிச்சமூர்த்திதொடங்கி இக்காலம் வரைஎழுந்துள்ளகுறிப்பிடத் தகுந்த கவிதைப் பரம்பரையும் பாடுபொருட்களும்.

1. ந.பிச்சமூர்த்தி–i.காதல்,ii.காதல், 2. சுந்தரராமசாமி– 1. மந்த்ரம் 2. கதவைத் திற, 3. இன்குலாப் - கண்மணி இராஜம், 4. மீரா–கனவுகள் +கற்பனைகள்= காகிதங்கள், 5. கங்கைகொண்டான்- சிலநைலான் கனவுகள் எரிகின்றன, 6.i. சங்கரி–அவர்கள் பார்வையில் ii.தாமரை- தொலைந்துபோனேன், ii.ஒருகதவும் கொஞ்சம் கள்ளிப்பாலும், 7. அன்பாதவன்- i.மூன்றுசதவீதஎச்சில், 8. சேரன் -எல்லாவற்றையும் மறந்துவிடலாம், 9. சமயவேல் -i.பரிணாமப் பயன்பாடுகள், ii ஏதேனும் ஒரு அழகியகனவு, iii. எங்களுக்கு ஒரு அறை இருந்தது. 10. மனுஷ்யபுத்திரன் - தோழர் ஹிட்லர்.

(14மணி)

கூறு-3.புதுக்கவிதையின் புதியவரவுகள்: பிறபுலங்களிலிருந்துதருவிக்கப்பட்டு,தற்காலத் தமிழ்ச் சூழலில் வேர்கொண்டுள்ளஹைக்கூ,சென்ரியு,லிமரிக்கூ கவிதைவடிவங்கள் - வரையறைகள் - ஹைக்கூ - (சொற்சுருக்கம், ஜென் சித்தாந்தப் பின்னணி, இயற்கையை நேசித்தலில் முதன்மை, இருண்மையும் நுண் பொருண்மையும், படிம உறைவு) அறிவுமதி, அமுத பாரதி, அப்துல் ரகுமான், ஏகாதேசி, எஸ். குமார்,செந்தில்குமார், தமிழன்பன், பரிமளமுத்து, மித்ரா, முரளிதரன், மு.முருகேசு.சென்ரியூ: (உயிர்களைநேசிப்பதில் முதன்மை, மானுடம் மீதானகவனக் குவிப்பும் மறைபொருட் தன்மையும்,அங்கதம் வழிச் சுட்டியுரைத்தல், உத்திகளின் உள்ளுறைவு) ஈரோடுதமிழன்பன்லிமரிக்கூ: (கலப்பின வடிவம்,பகடித்துச் சுட்டும்தன்மை) ஈரோடுதமிழன்பன் ஆகியோரின் கவிதைவடிவங்கள்.

(6 மணி)

கூறு-4.புதினம்:தோற்றப் பின்னணி–காப்பியமரபின் தேய்வும் புதினத்தின் வரவும் - புதின வடிவம் - வகைமைகள் - பாகுபாடுகள்.

குறுநாவல்: ஜெயமோகன்- சோற்றுக் கணக்கு **(5 மணி)**

கூறு-5.சிறுகதை: வடிவ இலக்கணம், - சிறியகதை–சிறுகதைவேறுபாடுகள்,தோற்றச் சூழல், உலக, இந்திய,தமிழகஅளவில் குறிப்பிடத்தக்கசிறுகதைப் படைப்பாளர்கள்மற்றும் பிரதிகள் பற்றியஅறிமுகமும் வாசிப்புமுறைமைகளும்.

சிறுகதைகள்: 1. புதுமைப்பித்தன் -மிஷின் யுகம், 2. கு.ப.ரா.-விடியுமா?, 3. கி.ரா.-மின்னல், 4. சுஜாதா–நகரம், 5. தமிழ்ச்செல்வன்- வார்த்தை, 6. மாலன் -

தப்புக்கணக்கு7. தேன்மொழி - தாழி 8. அ. முத்துலிங்கம் - நாளை

(15 மணி)

பாடநூல்:தமிழ்த்துறைவெளியீடு.

பார்வைநூல்கள்:

1. ஜெயமோகன்,நவீனத் தமிழிலக்கியஅறிமுகம்,கிழக்குப் பதிப்பகம்,சென்னை 14. முதல் பதிப்பு–செப்டம்பர், 2011.
2. ராஜமார்த்தாண்டன்,புதுக்கவிதைவரலாறு,யுனைடெட் ரைட்டர்ஸ்,சென்னை– 86, முதற்பதிப்பு– 2003.
3. சுஜாதா,ஹைக்கூ - ஒருபுதியஅறிமுகம்,உயிர்மைபதிப்பகம்,சென்னை 18. ஐந்தாம் பதிப்பு– செப்டம்பர், 2012.
4. ஈரோடுதமிழன்பன்,ஒருவண்டிசென்ரியு,மருதாபதிப்பகம்,சென்னை 17. முதல் பதிப்பு– ஏப்ரல், 2001.
5. ஈரோடுதமிழன்பன்,சென்னிமலைக் கிளியோப்பாத்ராக்கள்: தமிழில் முதல் லிமரைக்கூ நூல்,பாப்லோபாரதிபதிப்பகம்,சென்னை 14. இரண்டாம் பதிப்பு–அக்டோபர், 2008.
6. ம.திருமலை,குறுநாவல் இலக்கணம்,என்.சி.பி.எச்.,சென்னை, 2012.
7. பெ.கோ. சுந்தரராஜன் (சிட்டி),சோ. சிவபாதசுந்தரம்,தமிழில் சிறுகதைவரலாறும் வளர்ச்சியும்,க்ரியா,சென்னை– 14,முதல்பதிப்பு–ஆகஸ்டு, 1989.

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	**4**		
CO5	1	2	3	4	**5**	

Mean = 2.3

TAM 1431 மொழி–அடிப்படை 4Hrs / 4Cr.

மொழிப் பயிற்சிகளின் துணையோடு இலக்கணத்தைப் புரிந்துகொள்ளுதலும்,தமிழ் மொழியின் அமைப்பைப் புரிந்துகொள்ளுதலும், மாணாக்கர்களின் மொழியறிவைவளர்த்தலும், தற்கால மொழிப் பயன்பாட்டிற் கேற்ப அன்றாடவாழ்வில் மொழியைச் சிறப்பாக கையாளும் திறன் பெறச்செய்தலும் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன் :

1. மொழித்திறன் பயிற்சிகளைச் செய்வதன் மூலம் மாணாக்கர் அவர்தம் மொழியில் இலக்கணத் திறன் பெற்றிருப்பர்.
2. மொழியைப் பிழையறப் பேசவும்,எழுதவும்,புரிந்துகொள்ளும் திறனையும் பெற்றிருப்பர்.
3. பயன்பாட்டுத் தமிழில் தெளிவுபெற்றிருப்பர்.
4. சிந்தித்ததைநேர்த்தியாகஉரைநடைத் தமிழில் எடுத்துரைக்கும் திறன் பெற்றிருப்பர்.
5. தற்காலத் தமிழ் உரைநடையின் அழகியல் கூறுகளைப் புரிந்துகொள்ளும் திறன் பெற்றிருப்பர்.

கூறு 1: மொழித் திறன்களைவளர்த்தல் I - **கேட்டல் திறன்:** உட்பொருள் அறிதல் - கேட்கும் போதே இலக்கணப் பிழைகளை இனங்காணுதல் - செய்திகளைக் குறிப்பெடுத்தல் - **பேசுதல் திறன்**: உச்சரிப்புமுறை–நாப்பிறழ் பயிற்சி - குழுக்களாகப் பிரிந்துகலந்துரையாடும் திறன் வளர்த்தல் - காலச் சூழலுக்கேற்ற தலைப்புகொடுத்துப் பேசச் செய்தல் - பொருத்தமானகலைச் சொற்களைப் பேச்சினூடேபயன்படுத்துதல்.

(12மணி)

கூறு 2:மொழித் திறன்களைவளர்த்தல் II –**படித்தல் திறன்:**பொருளமைதிக்குஏற்பபிரித்தும் சேர்த்தும் படித்தல் - நிறுத்தற்குறிபயன்பாட்டின் தேவைஅறிதல் - பொருட் செறிவுவாய்ந்தசொற்களைப் பட்டியலிடல் - அகராதி,கலைக்களஞ்சியம் பயன்படுத்துதல் - கேட்போர் மனநிலைக்கேற்பபேச்சில் அழுத்தம்,நிறுத்தம் போன்றவற்றைப் பயன்படுத்தபயிற்சிஅளித்தல் - **எழுதுதல் திறன்:**பொருளுக்கேற்றசொற்களைப் பயன்படுத்தித் தொடரமைத்தல் - பிழையின்றிஎழுதப் பயிற்சிஅளித்தல் - கவிதைகள் - ஒருபக்கக் கதைகள் எழுதுவதற்குப் பயிற்சிஅளித்தல் - விளம்பரத் தொடர்களைஉருவாக்குதல்.

(12மணி)

கூறு 3:சொற் பயிற்சி : லகர,ழகர,ளகர–ரகர,றகர–ணகர,னகரபேதச் சொற்கள் - அவற்றைப் பயன்படுத்தும் முறைகளும் பொருள் வேறுபாடும் - ஒருபொருட் பன்மொழி–பலபொருட் பன்மொழி–சொற்றொடர்ப் பயிற்சி : மரபுப் பொருளுணர்த்தும் சொற்றொடர்கள் –சிறப்புப் பொருளுணர்த்தும் சொற்றொடர்கள்- சிறப்புப் பொருளுணர்த்தும் அடுக்குத் தொடர்கள்.

(12மணி)

கூறு 4:வாக்கியப் பயிற்சி : வாக்கியஅமைப்பு–வாக்கிய வகைகள் - நிறுத்தற் குறியீடுகள் – நேர்க் கூற்றும் அயற் கூற்றும் –மரபுத் தொடர்கள் - வல்லினம் மிகும் - மிகா இடங்கள் - பொதுவானபிழைகள் –மரபுப் பிழைகளைக் கண்டறிதல் ஒருமைபன்மைமயக்கம் - சந்திப் பிழைகளைநீக்குதல் - பிறமொழிச் சொற்களை இனங்காணுதல். **(12மணி)**

கூறு 5:விளக்கப் பயிற்சி–கடிதம் - கட்டுரைவரைதல் –சுருக்கிஎழுதுதல்- உரைநடைஆக்கம் செய்தல் –செய்யுள் நலம் கூறல் –மொழிபெயர்ப்பு.

அக /புறமதிப்பீட்டுத் தேர்வுகளில் 40%மதிப்பெண்கள் செய்முறைப் பயிற்சியாக (கூறு: 1 மற்றும் 2 பகுதிகள்) அமையும். இதர 60%மதிப்பெண்களுக்குஎழுத்துத் தேர்வுநடத்தப்பெறும்.

(12மணி)

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	-	-	-	-	-	-
CO5	1	2	3	4	5	**6**

Mean = 2.4

TAM 1533 **கவிதைஅடிப்படை** **5Hrs/5Cr.**

நோக்கம் சங்ககாலம் தொடங்கிமறுமலர்ச்சிக் காலம் வரைஎழுந்துள்ளகவிதைகளை, அவையெழுந்தசூழல்களோடு இணைத்துசொல்,பொருள்,ஓசை,கற்பனை,உணர்வு ஆகியபலஉறுப்புகளின் கூட்டாகிய,கவிதையைவிளங்கச் செய்தலும்,உள்ளுறை, இறைச்சி,குறிப்பு,உவமைமுதலானஅணிகளின் வழி கவிதையைநயக்கச் செய்தலும்,படைப்பாளனின் கவித்துவம் உயிராற்றலோடுவெளிப்படும் இடங்களை இனங்காணச் செய்தலும் இப்பாடத்தின்நோக்கங்களாகும்.

கற்றலின் பயன்:

1. கவிதையின் கூறுகளை இனங்கண்டுஅவைகவிதையில் பயின்றுவரும் முறையையும். அழகையும் அறிந்துதெளியும் ஆற்றல் பெற்றிருப்பர்.
2. சங்கக் கவிதைகள்,அறநெறிக் கவிதைகள், பக்திகவிதைகள், தற்காலக் கவிதைகள் ஆகியவற்றின் பாடுபொருளையும், பாடியபுலவர்களின் தனித்துவத்தையும் அறிவதோடு அவற்றைஎடுத்துரைக்கும் வன்மையையும் பெற்றிருப்பர்.
3. கவிதையின் பாடுபொருள் காலந்தோறும் மாறுவதற்கானகாரணத்தைஅறிந்து கொள்ளுதலும்,அவைகவிதையில் பயின்றுவரும் பாங்கினைப் புரிந்து கொள்ளுதலும் ஆகியதிறன்களைஅடைந்திருப்பர்.
4. தற்காலக் கவிதைஒன்றில் கவிதையின் அடிப்படைக் கூறுகள் பயின்றுவரும் பாங்கினை அழகுறஎடுத்துச் சொல்லும் ஆற்றல் பெற்றவராக இருப்பர்.
5. மரபுக் கவிதைதொடங்கித் தற்காலக் கவிதைவரைபடைப்பாளிகள் தங்கள் படைப்புக்களில் கையாண்டுள்ளஉத்திகளைஅறிந்துகொண்டு,அவற்றைத் தங்கள் படைப்புக்களில் பயன்படுத்தும் திறமைபெற்றவர்களாக இருப்பர்.

கூறு: 1: சங்கக் கவிதை: தொல்காப்பியம் சுட்டும் திணைப் பாடுபாடு–திணைஅடிப்படையில் பாடல்கள் தொகுக்கப் பெற்றவிவரம் –அகத்துறை,புறத்துறைஆகியவற்றின் முக்கியத்துவம் – இயற்கையும்,அழகும்,மனிதவாழ்வும் இயைந்திருக்கும் சங்கப் பாடல்களின் எளிமைத் தன்மை–காலங் கடந்துநிற்றலுக்கானகாரணம் - செவ்வியல் பண்பு - இவற்றைமுதன்மைப் படுத்துதல். தேர்வுசெய்யப்பட்ட பாடல்கள் வழி இக் கூறு விளக்கம் பெறும்.

(குறுந்தொகை–10 பாடல்கள் (திணைக்கு–2 பாடல்கள்),கலித்தொகை–3 பாடல்கள், புறநானூறு 10 பாடல்கள்,முல்லைப்பாட்டு 1–25 அடிகள்). **(15 மணி)**

கூறு: 2 அறநெறிக்காலக் கவிதை : சங்கப் பாடல்களில் மென்மையாக இடம்பெற்றஅறம், சங்கமருவியகாலகட்டத்திலெழுந்தபாடல்களில் அழுத்தமாகமுன்மொழியப்பட்ட பாங்கினைஎடுத்துக்காட்டுதல் - தனிமனிதன்,சமூகம் சார்ந்துஅறங்கள் நேர்த்தியாக மொழியப் பெற்றதைச் சுட்டுதல் - தேர்வுசெய்யப்பட்டபாடல்கள் வழி இக்கூறு விளக்கப்பெறும். குறள் (3அதிகாரம் - வாய்மை, இன்னாசெய்யாமை,புலவி நுணுக்கம்),நாலடியார் (இளமைநிலையாமை,செல்வம் நிலையாமை) ஆசாரக்கோவை 15 பாடல்கள்). **(10 மணி)**

கூறு: 3

இறைநெறிக் கவிதை: பக்தி இயக்கம் தோன்றுவதற்கான சூழலைக் கூறுதல் – முந்தையகாலகட்டங்களில் சிறப்பிடம் பெற்றிருந்தவீரம்,காதல்,அறம் முதலானபாடுபொருட்கள் புதியபொருண்மையைப் பக்தி இயக்ககாலகட்டத்தில் பெறுவதைச் சுட்டிக் காட்டல் - தேர்வுசெய்யப்பட்டபாடல்கள் வழி இக்கூறு விளக்கப்பெறும். (ஆண்டாள் - நாச்சியார் திருமொழிமாணிக்கவாசகர் - திருக்கோத்தும்பி,நாவுக்கரசர் - 10 பாடல்கள் (மாசில் …நாமார்க்கும்…).

கதைநெறிக் காலக்கவிதை: சிறுஉணர்வை.ஃ நிகழ்வொன்றைப் பாடிய சூழல் மறைந்துஒருகதையைத் தொடர்நிலைச் செய்யுளாகப் பாடவேண்டிய சூழல் எழுந்தமையைச் சுட்டல் - ஐம்பெருங்காப்பியம் - கம்பராமாயணம் - பெரியபுராணம்,நளவெண்பா,தேம்பாவணி,சீறாப்புராணம், இரட்சண்யயாத்திரீகம் முதலானவற்றைஅறிமுகப்படுத்துதல் - கவிதையின் அழகியல் தன்மை–புலவனின் (சமத்காரம்) சிலேடை–கருத்துக்களைநயமுறஎடுத்துரைக்கும் பாங்குமுதலானவற்றைத் தேர்வுசெய்யப்பட்டபாடல்கள் வழி எடுத்துக் காட்டுதல். (கம்பன் - 15 பாடல்கள், இரட்சண்யயாத்ரீகம் – 10 பாடல்கள். **(20 மணி)**

கூறு: 4: மீயியல்புநெறிக் காலக் கவிதை:
தொல்காப்பியத்தில் சுட்டப் பெற்றுள்ளசிலஉறுப்புகள் காலகட்டத்திற்கேற்பப் புதிய கோலம் பூண்டதைஎடுத்துக் கூறுதல்–சிற்றிலக்கியங்களின் வகைகளைஅறிமுகம் செய்தல் - உயர்வுநவிற்சிஎன்ற கூறு இக்காலகட்டத்தியபாடல்களில் முதன்மையிடம் பெற்றதைத் தெளிவுபடுத்துதல் - தேர்வுசெய்யப்பட்டபாடல்களின் வழி இக்கூறு விளக்கம் பெறும். (கலிங்கத்துப் பரணி–பேய்களைப் பாடியது 15 பாடல்கள்,குற்றாலக் குறவஞ்சி–நாட்டு வளம்). **(10 மணி)**

கூறு: 5 மறுமலர்ச்சிநெறிக் காலக் கவிதை: ஐரோப்பியர் வருகையினால் சமூகத்தில் ஏற்பட்ட மாற்றம் –தனிமனிதவாழ்க்கையைப் பாதித்தல் –அடிமைநாடாகப் பாரதம் மாறிய சூழலில் பாரதிமுதலானகவிஞர்கள் அரசியல்,விடுதலை,சமூகவிடுதலை,தனி மனிதவிடுதலைமுதலானபாடுபொருட்களைமையமிட்டுக் கவிதைவடித்ததைக் குறிப்பிடல் - பாரதிபரம்பரை–பாரதிதாசன் பரம்பரைஅறிமுகம் - புதுக்கவிதை வரவு–தனி மனிதமன உளைச்சல்,வேலையின்மை,முதிர்கன்னியர் பிரச்சினை, காதல்,கல்வி, சாதிவர்க்கமுரண்பாடுமுதலானவைகவிதையின் பாடு பொருள்களாகஅமைந்ததைத் தேர்ந்தெடுத்தபாடல்கள் வழி சுட்டிக் காட்டுதல். (பாரதி1)கிளிக்கண்ணிகள் (2) ரஷ்ய புரட்சி(3)கண்ணன் பாட்டு–
பாரதிதாசன் : அழகின் சிரிப்பு–குன்றம்,(1) சித்திரச் சோலைகளே…(2), தமிழின் இனிமை (3), புதுக் கவிதைகள் : மு.மேத்தா,அப்துல் ரகுமான், நா.காமராசன் (10)). **(20 மணி)**

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**				
CO2	1	2	**3**			
CO3	1	2	3	**4**		
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean = 2.8

TAM 1435 இலக்கியவரலாறு–I 4Hrs/4Cr

நோக்கம்:

தமிழிலக்கியமாணவர்களுக்காகவடிவமைக்கப்பட்டுள்ள இப்பாடம் தமிழிலக்கிய வரலாற்றைக் காலம் மற்றும் இலக்கியவகைமைகள் அடிப்படையில் புரிந்துகொள்ளச் செய்யும். நீண்டதமிழிலக்கியப் பரப்பின் செம்பாதியை இப்பாடம் உள்ளடக்கும்.

கற்றலின் பயன்:

1. தமிழின் தொன்மையைஅடையாளப்படுத்தும் திறனைப் பெற்றிருப்பர்.
2. சங்க இலக்கியங்களில் மையமானஅகமரபையும் புறமரபையும் வகைப்படுத்திவிளக்கும் திறனைப் பெற்றிருப்பர்.
3. அற நூல்களில் மையமாகியுள்ளஅறக் கருத்துக்களைப் புரிந்துகொண்டுஎழுதும் திறனைப் பெற்றிருப்பர்.
4. சங்ககாலத்திலிருந்துகாலம் தோறும் இலக்கியவடிவங்கள் மாறுவதைக் கண்டுணரும் திறனைப் பெற்றிருப்பர்.
5. தமிழ் இலக்கியத்தின் முழுமையைஉள்வாங்கிக் கொள்வதனால் போட்டித் தேர்வுக்கு முழுமையாகத் தயாராகும் திறனைப் பெற்றிருப்பர்.

கூறு 1.தமிழ்மொழிவரலாறும் இலக்கியப் போக்கின் தொடர்ச்சியும்: தமிழ்மொழியின் தொன்மை– தொல்காப்பியம் - காலகட்டஅடிப்படையிலானதமிழிலக்கியவகைமை. **(10 மணி)**

கூறு 2. சங்க இலக்கியங்கள் : எட்டுத் தொகை–பத்துப்பாட்டு–அகம் புறம் போன்ற உள்ளடக்கச் செய்திகள் –சங்கம் ஏற்பு,மறுப்புபற்றியசெய்திகள் - வேந்தர்கள் - குறுநிலமன்னர்கள் - வள்ளல்கள் செவ்விலக்கியத் தகுதிகள். **(15 மணி)**

கூறு 3. சங்கமருவிய இலக்கியங்கள்: பதினெண்கீழ்க்கணக்கு நூல்கள் - அறம் முதன்மைபெறும் பாங்கு,களப்பிரர் காலம்,சமணபௌத்தசமயங்களின் தாக்கம் - திருக்குறள்,நாலடியார், பழமொழிபோன்ற நூல்களின் சிறப்பு - இம்மூன்றுதவிர்த்தபிறசங்கம் மருவிய நூல்கள். **(10 மணி)**

கூறு 4.தமிழில் காப்பியங்கள்: சங்கமருவியகாலத்தின் தொடர்ச்சியில் பிறந்தகாப்பியங்கள் - ஐம்பெரும் காப்பியங்கள் - ஐஞ்சிறுகாப்பியங்கள் - சிலப்பதிகாரம்,மணிமேகலை, சீவசிந்தாமணி–பிற–கருத்துகளிலும் வடிவங்களிலும் ஏற்பட்டமாற்றங்கள் - இதன் தொடர்ச்சியாகஅடுத்தடுத்த நூற்றாண்டுகளில் பிறந்தகம்பராமாயாணம் பெரியபுராணம் போன்றவைகுறித்தகுறிப்புகள். **(15 மணி)**

கூறு 5.பக்தி இலக்கியங்கள் : பன்னிருதிருமுறைகள் - நாலாயிரதிவ்வியப் பிரபந்தம் - தேவார மூவர்இ மாணிக்கவாசகர் - பல்லவர்கள் ஆட்சி–பன்னிருஆழ்வார்கள் - பக்திபெறும் முதன்மை - இசைகோயில் போன்றவற்றின் மீட்சி. **(10மணி)**

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	4	**5**	
CO5	**-**	**-**	**-**	**-**	**-**	**-**

Mean :2.2

TAM 1239 தொடர்பியல் 3Hrs/2Cr

நோக்கம்:

தொடர்பியல் கலையின் வகைகளைக் கூறிகுறிப்பாகஉடல்மொழி,பேசுமொழி,நடத்தை முறைகளின் தன்மைகள் மற்றும் முக்கியத்துவத்தைக் கற்பித்தலின் மூலம் மாணவர்களின் ஆளமையைமேம்படுத்துவது இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. தொடர்பியலைப் பற்றியபொதுவானவிளக்கங்களையும் வரையறைகளையும் அறிவர்.
2. ஊடகவிழிப்புணர்வின் தேவையைப் பேசுவதன் மூலம் ஊடகங்களைப் புதியநோக்கில் விளங்கிக்கொள்ளும் திறன் பெறுவர்.
3. உடல்மொழியைநடைமுறையில் பயன்படுத்தும் திறன்களைப் பெறுவர்.
4. பேச்சுமொழியின் நுணுக்கங்களைப் புரிந்துசிறந்தவற்றோடுஒப்பிட்டுமேம்படுத்திக் கொள்வர்.
5. பொதுவெளியில்நடத்தைமுறைகளைப் பண்பாட்டுப் பின்புலத்தில் புரிந்துஅவற்றைக் கையாளும் திறன் பெறுவர்.

கூறு 1: தொடர்பியல் எனும் கலை–தனிமனிதர்கிடையிலானதொடர்பு–குழத் தொடர்பு–வெகுசனத் தொடர்பு–வெகுசனஊடகங்கள்: வகைகள் தன்மைகள் (அச்சுஊடகங்கள் / மின்னியல் ஊடகங்கள்) **(10மணி)**

கூறு 2:ஊடகவிழிப்புணர்வின் அவசியம் - (ஊடகஅரசியல் - விளம்பரங்களின் தாக்கங்கள் - ஊடகங்களும் இளையோர் பண்பாடும்) **(8மணி)**

கூறு 3:உடல் மொழியின் தன்மைகள் (இயல்பானவை(inborn).∴கிரகித்துக் கொள்பவை (inherited) /கற்றுக் கொள்பவை(learned) உடல்மொழியின் பண்பாடு–பார்த்தல் வழி தொடர்பு–பாவனைகளும் பாவங்களும் - கைகளும் கால்களும–நிற்றல் நிலைகளும் நகர்தலும் அமர்தலும். **(10மணி)**

கூறு 4:பேச்சுமொழியின் தன்மைகள் - கையாளும் வழிகள் : (குரல்/சத்தம் /சுருதி/வேகம் / தொனி/அழுத்தம் /தெளிவு/நிறுத்தம் /நிறுத்தக் குறிகள் /உச்சரிப்பு) **(7மணி)**

கூறு 5:உடையும் தோற்றமும் - மொழியும் மொழியற்றதொடர்பும் - கேட்டல் மற்றும் கவனித்தல் எனும் கலை–நடத்தைமுறைகளும் புழங்குவெளியும் - அந்தரங்கவெளியும் சமூக வெளியும் - தொடர்பியல் கல்வியின் நடைமுறைப் பயன்பாடுகள். **(10மணி)**

இப்பாடத்தின் அக புறமதிப்பீட்டுத் தேர்வுகள் 50%செயல்முறையாகவும் 50%எழுத்துத் தேர்வாகவும் அமையும்

பரிந்துரை நூல்கள்

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	**4**		
CO5	1	2	3	4	5	**6**

Mean :2.5

TAM 1441 தொல்லியலும் சுற்றுலாவியலும் 4Hrs/4cr

நோக்கம்:தமிழகவரலாற்றின் அடித்தளமானதொல்லியலைமாணவர்களுக்குஅறிமுகப்படுத்தி தமிழகத் தொல்லியல் களங்களைப் பார்வையிட்டுப் பயிலுதலும்,தொல்லியல் கூறுகளுக்கும் தமிழ் இலக்கியங்களுக்கும் இடையேஉள்ளபொருத்தப்பாடுகளை இனங்காணுதலும், சுற்றுலாவியல் பற்றியஅடிப்படைக் கூறுகளைவிளக்கி,தொல்லியல் சுற்றுலாகுறித்தவிழிப்புணர்வைஏற்படுத்துதலும், இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. தமிழகத் தொல்லியல் தரவுகளைத் தமிழ் இலக்கியத்தோடுஒப்பீட்டுவரையறைசெய்யும் திறனைமாணவர்கள் பெற்றிருப்பர். இந்தியத் தொல்லியல் துறையின் முன்னோடிகளையும் அகழாய்வுமுறையினையும் அதற்குத் தேவைப்படும் கருவிகளையும் பொருட்களையும் மாணவர்கள் உற்றுநொக்கிஅறிந்திருப்பர்.
2. நடுகல்,முதுமக்கள்,தாழிகள்,மட்பாண்டங்கள்,பாறைஓவியங்கள்,கல்வெட்டு, செப்பேடுகள்,நாணயங்கள்,ஆவணங்கள்,வெளிநாட்டார் பயணக்குறிப்புகள் என வகைப்படுத்தும் திறனைமாணவர்கள் பெற்றிருப்பர்
3. தமிழகத்தில் நடந்தஅகழாய்வு மூலம் வரலாற்றுக்காலத்தினைவிவரிக்கும் திறனை மாணவர்கள் பெற்றிருப்பர்.
4. தொல்லியல் கூறுகளுக்கும் தமிழ் இலக்கியங்களுக்கும் இடையேஉள்ள பொருத்தப்பாடுகளைமாணவர்கள் மதிப்பீடுசெய்யும் திறனைபெற்றிருப்பர்.
5. தொல்லியல் களச்சுற்றுலாவின் மூலம் வரலாற்றுஅறிவைமாணவர்கள் விசாலப்படுத்தி தமிழகவரலாற்றின் உண்மைத்தன்மையைபொருத்திப்பார்ப்பர்.

கூறு 1:தொல்லியல் விளக்கம்,தொல்லியலும் பிறதுறைகளும், இந்தியாவில் தொல்லியல் துறைஉருவாக்கம்,வளர்ச்சி,தொல்லியல் கள ஆராய்ச்சிநெறிமுறைகள், வகைகள் அகழ்வாய்வுக்களத்திற்குத் தேவையானகருவிகள்,அகழ்வாய்வுநிபுணர்கடமைகள், ஆழ்கடல் அகழ்வாய்வுமுறை,கரிமம் 14 காலக்கணிப்புமுறை,கல்வெட்டுக்களைப் படியெடுக்கும் முறையைப் பயிலுதல்,சுற்றுலாவிளக்கம் - சுற்றுலா வகைகள்: இன்பச் சுற்றுலா,கல்விச் சுற்றுலா,பண்பாட்டுச் சுற்றுலா,ஆன்மீகச் சுற்றுலா,வரலாற்றுச் சுற்றுலா, பசுமைச் சுற்றுலாமுதலியன. சுற்றுலாநடைமுறைகள்: சுற்றுலாதொடர்பானஆவணங்கள் - நாணயம் மாற்றுதல் உணவுமற்றும் தங்குமிடவசதிகள் - சுற்றுலாதகவல் மையங்கள் - போக்குவரத்துவசதி–முன்பதிவு–மொழிஅறிவு - இடவிளக்கப் படங்களைப் பயண்படுத்துதல் - சுற்றுலாவழிகாட்டி–சுற்றுலாஏற்பாட்டுநிறுவனங்கள் முதலியவற்றை அறிதல்.

(15மணி)

கூறு 2:பாறைஓவியங்கள்,சுற்றுலாவும் இயற்கையும் இயற்கைச் சூழல் - காடுகள்,மலைகள், (தமிழ்ப்பிராமிகல்வெட்டுகள் யானைமலை,அரிட்டாபட்டி,மாங்குளம்) துரவப் பகுதிகள் போன்றவற்றின் தன்மையைஅறிதல் தமிழ்நாட்டில் தொல்லியல் அகழாய்வுகள் வரலாற்றுக்கு முற்பட்டகாலம் (அத்திரம்பாக்கம்,பொருந்தல்,குடியம் திருத்தங்கல், டி. கல்லுப்பட்டி, பையம்பள்ளி,பல்லாவரம்,ஆதிச்சநல்லூர்),வரலாற்றுத் தொடக்ககாலம் (அரிக்கமேடு, காவிரிப்பூம்பட்டினம்,அழகன்குளம்,கொற்கை,ஆகியனவற்றைத் தொல்லியல் அறிக்கைகளுடன் விளக்குதல்.

(15மணி)

கூறு 3:கோயில் கலை (தஞ்சைபெரியகோயில்,கங்கைகொண்டசோழபுரம்,மதுரை மீனாட்சியம்மன் கோயில்,காஞ்சிகைலாசநாதர்ஆலயம்) ஆகியனவற்றைப் பார்வையிட்டுப் பயிலுதல். சுற்றுலாவும் கோயில்களும்: தமிழகக் கோயில்கள் - கோயில்களின் சமய முக்கியத்துவங்கள் - பண்பாட்டுநிலைக்களன்கள் - சைவ,வைணவ,கிறித்தவ இஸ்லாமிய பிறசமயவழிபாட்டுத் தலங்கள் - சமயஒருங்கிணைப்புக் கதைகள் - வழிபாட்டுச் சிறப்புகள் முதலியவற்றைஅறிதல்.

(10மணி)

கூறு 4:தொல்லியல் சுற்றுலாவும் கலைகளும்: கலைகள்,கலைகளுக்கானசிறப்பிடங்களை அறிதல்,கலாச்சாரநகரமானமதுரையின் சுற்றுவட்டார இடங்கள்,கலைக்கூடங்கள், அருங்காட்சியகங்கள்,சிற்பக்கூடங்கள் - நாயக்கர்மகால்,சித்தன்னவாசல்,மனோரா, மகாபலிபுரம் - இசைத்தூண்கள் பற்றியசெய்திகள்.

(10மணி)

கூறு 5:வெளிநாட்டார்பயணக்குறிப்புகுறிப்புகளில் தமிழகம், (எரித்தரியக் கடலின் பெரிப்புளுஸ், பிளைனிதாலமி,யுவான்சுவாங்,பாஹியான் பிற்காலப்பயணிமார்க்கோபோலோ குறிப்புகளில் தமிழகம்,தொல்லியல் களச் சுற்றுலாசெல்லுதல்.

(10மணி)

பாடநூல் - துறைவெளியீடு

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean :2.7

TAM 1262 பொதுத்தமிழ் - II 3Hrs/2cr

நோக்கம்: 20 ஆம் நூற்றாண்டில் எழுதப்பட்டமரபுக்கவிதைகளை இரசனை முறையில் அணுகச் செய்தலும் இலக்கணப்பயிற்சியின் மூலம் மாணவர்களின் எழுத்துத்திறனைமேம்படுத்துவதும் இப்பாடத்தின் நோக்கமாகும்

கற்றலின் பயன்:

1. இருபதாம் நூற்றாண்டில் எழுதப்பட்டமரபுக் கவிதைகளைமாணவர்கள் இரசனை முறையில் உற்றுநொக்கும் திறன் பெற்றிருப்பர்.
2. மொழிப்பயிற்சியின் மூலம் அடிப்படைத் தமிழ் இலக்கணத்தைமாணவர்கள் விளங்கிக் கொள்ளும்திறனைபெற்றிருப்பர்
3. வாக்கியவகை,வாக்கியஅமைப்பு,வாக்கியம் அமைக்கும் திறன் ஆகியவற்றில் மாணவர்கள் தெளிவுபெற்றிருப்பர்.
4. கடிதம்,கட்டுரைஆகியவகைமைகளில் திறம்படஎழுதும் திறன் பெற்றிருப்பர்.
5. பிழைநீக்கல் பிழைதிருத்தம் ஆகியவற்றைசெய்துஒருபடைப்பைமறுசீரமைக்கும் திறனைப் பெற்றிருப்பர்.

கூறு:1

மரபு இலக்கியம் வரையறைதமிழ் இலக்கியப்பரப்பில் மரபு இலக்கியத்தின் இடம்,மரபு இலக்கியத்தைப் பயிலுவதன் நோக்கம், இராமலிங்கஅடிகள் திருவருட்பா- 6-ஆம் திருமுறை (37.அருள்விளக்க மாலை 1-7 பாடல்கள்),தாயுமானவர் - பராபரக்கண்ணி **(10மணி)**

கூறு:2

பாரதியார் - பாரததேசம்,செந்தமிழ் நாடென்னும் போதினிலே,அச்சமில்லைஅச்சமில்லை, பாரதிதாசன் –தமிழுக்குஅமுதென்றுபேர்,தொழிலாளர் விண்ணப்பம்,புத்தகசாலை, கவிமணி–ஆசியசோதிபுத்தர் மகனிழந்த தாயிடம் கூறுவன. **(9மணி)**

கூறு:3

நாமக்கல் கவிஞர் - தமிழன் என்றுசொல்லடா. கத்தியின்றி இரத்தமின்றிதீண்டாமைஒழிக, இயேசுகாவியம் - மலைப்பிரசங்கம் **(7மணி)**

கூறு:4

நாட்டுப்புறப்பாடல்கள் - தனுஷ்கோடிஅழிவு,சரஸ்வதிபள்ளி இடிந்துவிழுந்தபாடல்,1.தாலாட்டு (ந.வா) 2.புன் செய் உழவு (ந.வா) 3. தாதுவருடபஞ்சம் (ந.வா) 4. ஒப்பாரி (ந.வா) 5.காதல் (ந.வா) **(7மணி)**

கூறு:5

மொழிப்பயிற்சி–அடிப்படைத்தமிழ் இலக்கணம்,கடிதம் எழுதுதல்,கட்டுரைஎழுதுதல், பிழைத்திருத்தம். **(12மணி)**

பாடநூல்

தமிழ்த்துறைவெளியீடு

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	2	**3**			
CO3	1	2	3	**4**		
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean :2.8

TAM 1432 இக்காலக் கவிதை 4Hrs/4Cr

நோக்கம் :

பாரதிதொடங்கிஒரு நூற்றாண்டுத் தமிழ்க் கவிதைகளைஅறிமுகப்படுத்துவதும்கால வரிசையில் அல்லாதஉருவம்,உத்திகள்,கருத்தியல் பின்புலத்தில் சமகாலம் வரையிலுமாகஉள்ளதமிழ்ப் புதுக்கவிதையுலகின் பல்வேறுபோக்குகளை அறிமுகப்படுத்துவதும்இப்பாடத்திட்டத்தின் நோக்கங்களாகும்.

கற்றலின் பயன்:

1. பன்முகப்பட்டகவிதைவடிவங்களைஅடையாளம் காணும் திறன் பெற்றிருப்பர்.
2. பல்விதக்கவிதைகளின் பாடுபொருள்களைமதிப்பீடுசெய்யும் திறன் பெற்றிருப்பர்.
3. அழகியல் அடிப்படையிலும்,பல்வேறுஅரசியல் தத்துவஉள்ளடக்கங்களையும் நவீனக் கவிதையில் இனம் காணும் திறன் பெற்றிருப்பர்.
4. கலை இலக்கியகோட்பாட்டோடுநவீனக் கவிதைகளைப்பொருத்திப்பார்க்கும் திறன் பெற்றிருப்பர்.
5. புதுக்கவிதைகளைப்புனையும் திறன் பெற்றிருப்பர்.

பாடத்திட்டம்:

கூறு –1. தற்காலக் கவிதையின் முன்னோடியாகபாரதிஅமையும் விதம் - செய்யுளிலிருந்து கவிதையின் பரிணாமம். பாரதியின் பன்முகத் தன்மையைப் பிரதிநிதித்துவப்படுத்தும் கவிதை வகைமைகள். சமூகத் தளங்களில் கவிதை இயங்கத் தொடங்குதல். தேசியம் - திராவிடம் - தமிழுணர்வு–சமூகத் தளைகளைச் சாடல் - பாரதிதாசன்,கவிமணி,ஆகியோரின் கவிதைகள். மரபின் தொடர்ச்சியும் தேக்கமும் - வடிவப் பிடிவாதத்தில் கவிதை இரண்டாம் பட்சமாதல் - சுரதா,தணிகைச் செல்வன், **(12மணி)**

கூறு –2. புதுக்கவிதையின் தோற்றச் சூழல் - தமிழில் புதுக்கவிதைஎழுந்ததற்கானபின்புலம் - புதுக்கவிதைக்கானவரையறை–ந.பிச்சமூர்த்தியின் தொடக்காலமுயற்சிகள்.புதுக்கவிதை மலர்ச்சிபெறல்: க.நா.சு. புதுக்கவிதையின் புதுப் பரிமாணங்கள் –எள்ளல் தன்மை இழையோடுதல்: புதமைப்பித்தன். அகத்தூண்டல் கவிதையின் மையமாதல்: சி.மணி. அந்தரங்கத்தன்மை : நகுலன். உருவப் பரிசோதனை: சி.சு.செல்லப்பா,படிமம்,குறியீடு உள்ளிட்டஉத்திஆக்கங்கள்: அபி,பசுவய்யா,ஆகியோரின் படைப்புகள். **(12மணி)**

கூறு– 3. அகவுலகம் சார்ந்தகவிதைகளுக்குமாற்றாகஎழுந்தவானம்பாடிகள் இயக்கத்தின் தோற்றம் - இடதுசாரிசிந்தனைகளின் உரத்தகுரல்கள் - சமூகவிடுதலைகவிதைகளின் மையமாகுதல். மீரா,கங்கைகொண்டான்,தமிழ் நாடன், இன்குலாப்,முதலானோர்களின் கவிதைகள். **(10மணி)**

கூறு–4. பிரச்சாரத் தொனியைமறுத்தல் - அன்றாடவாழ்வனுபவங்களைக் கவிதையாக்குதல் - சுய அனுபவம் சார்ந்த அக வெளிப்பாட்டைமுதன்மைப்படுத்துதல் - எளிமை–நேரடித் தன்மைகொண்டகவிதைகள் - கல்யாண்ஜி,விக்கிரமாதித்யன்,கலாப்ரியா,சமயவேல். கிராமியவாழ்வனுபங்களைக் கவிதையாக்குதல் –மண்ணையும் மரபின் வேர்களையும் தேடும் போக்கு–கவிதையில் வட்டாரமொழியைமுன்வைத்தல் - சுயம்புலிங்கம், வித்யாசங்கர்,தமிழச்சி. **(10மணி)**

கூறு –5. இருபதாம் நூற்றாண்டின் இறுதி, 21ஆம் நூற்றாண்டின் தொடக்ககாலகட்டங்களில் தமிழிலக்கியத்தில் வேர்கொண்டபலவேறுகோட்பாடுகள்,சிந்தனைகள்,போக்குகளின் தாக்கம்: அடையாளஅரசியல் - தமிழ்த்தேசியம் - காசிஆனந்தன். பால்பாகுபாடு– நா.காமராசன். உடல்மொழி–சுகிர்தாராணி. பெண்ணியப் பகிர்வுகள் - வெண்ணிலா,சல்மா, இளம்பிரை,மாலதிமைத்ரி,உமாமகேஸ்வரி. தலித்தியச் சிந்தனைவீச்சுக்கள் - அன்பாதவன்,ஆதவன் தீட்சண்யா,என்.டி.ராஜ்குமார். அகதிமை–சேரன்,அனார்.உலகமய,நவகாலனியச் சூழல் –லட்சுமிமணிவண்ணனஇலிபிஆரண்யா-நவீனகவிதையும் இருண்மைப் படுத்தும் போக்கும் - பிரேம் - ரமேஷ்,யவனிகா ஸ்ரீராம்,புதியவரவுகள் - ஹைக்கூ,சென்ரியூ,லிமெரிக்யூ கவிதைவடிவங்கள் **(16மணி)**

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13. ஈரோடுதமிழன்பன்,சென்னிமலைக் கிளியோப்பாத்ராக்கள் –தமிழில் முதல் லிமரைக்கூ நூல்,பாப்லோபாரதிபதிப்பகம்,சென்னை–14. இரண்டாம் பதிப்பு– 2008.
14. www.thoguppugal.com
15. www.classical in tamil.in

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	3	**4**		
CO4	1	2	3			
CO5	1	2	3	4	**5**	

Mean :2.3

TAM 1534 **புனைகதை** **5Hrs/5Cr**

நோக்கம்:உரைநடைமற்றும் புனைகதை இலக்கியஅடிப்படைத்தகவல்களைக் கூறிதீவிரவாசிப்பு, திறனாய்வுஉள்ளிட்டநுட்பங்களைஅறிமுகம்செய்தலே இப்பாடத்தின் நோக்கங்களாகும். தமிழ்ப் புனைகதை இலக்கியத்தின் தோற்றப் பின்புலம்,புனைகதைக் கூறுகள்,திறனாய்வுப் போக்குகள் ஆகியனவற்றையும் இவற்றிற்கு இயைபானபுனைவுப் பிரதிகளையும் அறிமுகப்படுத்திச் செல்வதாகஇப்பாடத்திட்டம் அமையும்.

கற்றலின் பயன்:

1. தமிழ் இலக்கியஉலகில் கவிதைபெற்றிருந்தசெல்வாக்கைஉரைநடை இலக்கியம் பெறுவதைக் காலச் சூழலோடு பொருத்திப் பார்த்துஅறிந்துகொள்ளும் திறன் பெற்றிருப்பர்.
2. புனைகதை இலக்கியத்தின் கூறுகளைஏற்றபிரதிகளோடு இணைத்துப் புரிந்துகொள்ளும் திறன் பெறுவதோடுஅவற்றைப் பாங்குறவிமரிசிக்கும் திறனையும் பெற்றிருப்பர்.
3. தமிழ் நாவல்களின் வகைமைகளைஅறிந்துகொள்வதோடு,புத்தம் புது நாவல் வரவுகளை எவ் வகைமைக்குள் அடக்குவதுஎன்றதிறனையும் பெற்றிருப்பர்.
4. புனைகதைக் கூறுகளைஉள்வாங்கிக் கொண்டுதனதுவாழ்வியல் சூழலைப் பிரதிபலிக்கும் வகையில் நாவலைஎழுதும் திறனைஅடைந்திருப்பர்.
5. படைப்பாளிகள் தங்கள் படைப்புக்களில் கையாண்டுள்ளஉத்திகளைத் தெளிவுறஅறியும் ஆற்றல் பெற்றிருப்பர்.

கூறு 1.ஐரோப்பியச் சூழலில் உரைநடை,புனைகதை இலக்கியத்தின் தோற்றம்: அவை பெருமளவில் வளர்ந்துபரவியதற்கானவரலாற்றுச் சூழல் (ஐரோப்பாவில் ஏற்பட்டதொழிற் புரட்சி–நகர்மயமாக்கம் - நடுத்தரவர்க்கம் உருவாதல் - அச்சுத் தொழில் வளர்ச்சி - இதழ்களின் தோற்றம் - வாசிப்புப் பழக்கம் உருவாதல் - சிறுகதை,நாவல் இலக்கியத் தொடக்கம்).

(12மணி)

கூறு 2.காலனியப்பின்னணியில் இந்தியாவிலும் தமிழகத்திலும் உரைநடை இலக்கியத்தின் தோற்றம் - முன்னெடுத்துச் சென்றவர்கள் - 19ஆம் நூற்றாண்டு இதழ்கள், நூல்கள் - புனைகதையானது இலக்கியமாகப் பரிமாணம் பெறல். (சிறுகதை: புதமைப்பித்தன் - பொன்னகரம், கு. அழகிரிசாமி– ராஜா வந்திருக்கிறார்,நாவல்: தி. ஜானகிராமன் - அம்மா வந்தாள்)

(17மணி)

கூறு 3.இயந்திரநாகரிகம் - நவீனமயமாதல் - உலகப் போர்களுக்குப் பின் மேற்குலகில் ஏற்பட்டசிந்தனைமாற்றங்கள் - அவற்றின் விளைவுகளால் புனைகதை இலக்கியத்தில் நேர்ந்த அமைப்புமாற்றங்கள் - பரிசோதனைமுயற்சிகள். (சிறுகதை: மௌனி–ஏன்,ஜெயகாந்தன் - ஒருபிடிச் சோறு,நாவல்: ஜெயகாந்தன் - உன்னைப் போல் ஒருவன்)

(17மணி)

கூறு 4.புனைகதைவளர்ச்சியில் தேக்கநிலை–புனைகதைமலர்ச்சியில் தேசிய இயக்கத்தின் பங்களிப்பு,சிறுகதை இலக்கியம்: தோற்றமும் பரவலும் - தேசிய இயக்கத்தின் குறிக்கத்தக்கபுனைகதையாளர்களும் அவர்கள் படைப்புகளும் - தமிழில் பல்வேறு இயக்கப் பின்னணியில் உருப்பெற்றபுனைகதை வகைகள். அதற்கானசான்றுகள். (சிறுகதைகள்: சுந்தரராமசாமி–பக்கத்தில் வந்தஅப்பா, ஜெயந்தன் - குணாலெட்சுமி,நாவல்: நாஞ்சில் நாடன் - மிதவை)

(17மணி)

கூறு 5.நாவல்,சிறுகதைஉறுப்புகள்,புனைகதையில் புனைவும் எதார்த்தமும்,படைப்புக்கும் படைப்பாளிக்குமிடையிலானஉறவு–படைப்புக்கும் வாசகருக்குமானஉறவு–பனுவலும் வாசிப்புமுதன்மையும். (சிறுகதை: ச. தமிழ்ச்செல்வன் - வெயிலோடுபோய்,மேலாண்மை பொன்னுசாமி–அரும்பு,உமாமகேஸ்வரி–மரப்பாச்சி,பவாசெல்லத்துரை–நீர்)**(12மணி)**

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14. www.azhiasudar.com
15. www.thoguppugal.com
16. www.classical in tamil.in

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**				
CO2	1	2	**3**			
CO3	1	2	3	**4**		
CO4	1	2	3	4	5	**6**
CO5	1	2	3	4	5	**6**

Mean:3

TAM 1436 **இலக்கியவரலாறு–II** **4Hrs/4Cr**

நோக்கம்:

தமிழிலக்கியமாணவர்களுக்காகவடிவமைக்கப்பட்டுள்ள இப்பாடம் தமிழிலக்கியவரலாற்றை காலம் மற்றும் இலக்கியவகைமைகள் அடிப்படையில் புரிந்துகொள்ளச் செய்யும்.நீண்ட தமிழிலக்கியப்பரப்பின் செம்பாதியில் பிற்பகுதியை இப்பாடம் உள்ளடக்கும்

கற்றலின் பயன்:

1. சோழர் காலத்தில் எழுதப்பட்ட இலக்கண இலக்கியபடைப்புக்களைமுழமையாக தெரிநதுகொண்டுவகைப்படுத்திப் பார்க்கும் திறனைப் பெற்றிருப்பர்
2. சிற்றிலக்கியங்களைப் பற்றிமுழமையாகஉள்வாங்கிக் கொள்வதோடுஅவற்றைவிளக்கும் திறனைப் பெற்றிருப்பர்.
3. நாயக்கர் ஆட்சிக்காலத்தோடுஅக்காலத்தில் உருவானசிற்றிலக்கியங்களின் வருகையைப் பொருத்திப் பார்க்கும் திறனைப் பெற்றிருப்பர்.
4. ஐரோப்பியர் காலவளர்ச்சியைக் கருத்தில் கொண்டுதமிழ்ச்சமூகம் எவ்வாறுநவீனத் தன்மைஅடைந்ததுஎன்றுபுரியும் திறனைப் பெற்றிருப்பர்.
5. தமிழ்ச்சமூகம் பற்றியவரலாறுமுழுமையாகவிளக்கப்படுவதால் இவற்றிலிருந்துசொந்தமாக எழுதும் திறனைப் பெற்றிருப்பர்.

கூறு 1. பிற்காலசோழர்கால இலக்கியங்களும் இலக்கணங்களும் : பிற்காலசோழர் எழுச்சி - இலக்கியங்களைத் தொகுத்தல் என்னும் செயல்முறை–திருமுறைகள் - சைவசாத்திரங்கள் - வைணவம் - நாதமுனிகள் - வைணவஉரைகள் - பெரியபுராணம் தொடர்ச்சியாய்த் திருவிளையாடல் புராணம் -

(10மணி)

கூறு 2.சோழர்காலகாப்பியத் தேய்வும் சிற்றிலக்கியங்களின் வரவும்: நன்னூல்- வீரசோழியம்- நேமிநாதம் போன்ற இலக்கண நூல்கள். 96 சிற்றிலக்கிய வகைகள் - உரையாசிரியர்களின் பெருக்கம் - பெருங்காப்பியம் தேயவும் சிற்றிலக்கியம் தோன்றவும் உண்டானகாரணங்கள்.

(15மணி)

கூறு 3.நாயக்கர் காலம் : பரணி,கலம்பகம்,பிள்ளைத் தமிழ், தூது,உலாபோன்றவை– அரசர்களும் வீரர்களும் பாடப்படுதல் - சமூகஅடிநிலைமாந்தர்கள் பாடப்பெறுதல் - முக்கூடற் பள்ளு,குற்றாலக் குறவஞ்சி–தலபுராணங்கள் - சித்தர் பாடல்கள் - தனிப்பாடல்கள்.

(15மணி)

கூறு 4.ஐரோப்பியர்களின் வருகை: சமயப் பரவல் - உரைநடைஅறிமுகம் - புதியவசனநடை– அச்சுப் பண்பாடு- அகராதிகள்,எழுத்துசீர்திருத்தம் - பழையஏடுகள் அச்சேறல் - புலவர்கள் வரலாறு–வரலாறுஎழுதும் புதியநடைமுறை–நாவல்இ சிறுகதைஅறிமுகம் - செய்யுள் அடைந்தபுதுக்கவிதைவடிவம். **(10மணி)**

கூறு 5.நவீன இலக்கியங்கள்: புதுக்கவிதைஎழுச்சியில் பாரதியார் பாரதிதாசன் ந.பிச்சமூர்த்தி - இதழ்கள் இதழியல் நடை–நாவல்களின் பெருக்கமும் நிதானமடைதலும் - புதியதமிழ் உரைநடைமற்றும் தனித்தமிழ் இயக்கம் உள்ளிட்டவை–தமிழாராய்ச்சி - இலக்கிய இயக்கங்கள் - நாட்டாரியலும்,தொல்லியலும் - இருபதாம் நூற்றாண்டின் கடைசி இருபதாண்டுபோக்குகள்.

(10மணி)

TAM 22

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean :2.7

TAM 1240 திரைப்படரசனையும் குறும்படத் தயாரிப்பும் 3Hrs/2Cr

நோக்கம்:

திரைப்படக் கலையின் அடிப்படைகளைஅறியச்செய்வதன் மூலம் மாணவர்களின் திரைப்பட ரசனையைமேம்படுத்திகுறும்படத்தயாரிப்பில் பங்குபெறச் செய்தல் இப்பாடத்தின் நோக்கமாகும். இதன் மூலம் திரைப்படங்கள்,தொலைக்காட்சித் தொடர்கள்,விளம்பரங்கள் உள்ளிட்டகாட்சிஊடகங்களில் தங்கள் ஆர்வங்களைப் பட்டைதீட்டிக் கொள்ளும் வாய்ப்பைமாணவர்கள் பெறுவர்

கற்றலின் பயன்:

1. திரைமொழியின் அடிப்படைகளைஅறியச் செய்வதன் மூலம் அவற்றைப் பற்றியவிளக்கம் பெறுதல்.
2. குறும்படங்கள்,முழுநீளத் திரைப்படங்களுக்கிடையேயானவேறுபாடுகளைபுரிந்துகொள்ளுதல்.
3. உலகளவிலானகுறும்படங்களைத் திரையிடுவதன் மூலம் சிறந்தவற்றைஅடையாளம் காண்பர்.
4. மேலேகற்றவற்றைப் பயன்படுத்திக் குறும்படத்திற்கானதிரைக்கதைகளைஉருவாக்குவதற்கானஉந்துதலைப் பெறுவர்.
5. குழவாக இணைந்துஒருகுறும்படத்தைத் தயாரிப்பதன் மூலம் தங்கள் படைப்பாற்றலைஅடையாளம் காணவும் வெளிப்படுத்தவும்திறன் பெறுவர்.

கூறு 1:ஷாட் வகைகள் - கோணங்கள் - கேமராஅசைவுகள் - படத்தொகுபில் அர்த்தம் கொள்ளும் சினிமா–பேச்சு–ஒலி - இசையின் பயன்பாடுகள். **(10மணி)**

கூறு 2:நடிகனைத் தேர்ந்தெடுத்தல் - திரைப்படநடிப்பின் அடிப்படைகள் - படப்பிடிப்புக்குத் தயாராதல் - காட்சிகளைவடிவமைத்தல்,திட்டமிடல்,நடைமுறைப்படுத்தல் - இயக்குநரின் பொறுப்புகள்,கடமைகள்,திரைப்படங்களைரசித்தல் எனும் கலைக்கானஎளியகுறிப்புகள் (திரைப்படதுணுக்குக் காட்சிகளைத் திரையிட்டுஅக்காட்சியின் கலைநுணுக்கங்களை விவாதித்தல்)
(10மணி)

கூறு 3:குறும்படங்களின் தேவைகள் - வகைகள் - குறும்படங்களும் பெரும் படங்களும் வேறுபடும், ஒன்றிணையும் புள்ளிகள். சிறந்தகுறும்படங்களை (உலகளவிலானமற்றும் தமிழ்) திரையிட்டுஅதன் சிறப்புக்கள் தயாரிப்புமுறைகளைவிவாதித்தல்.
(10மணி)

கூறு 4:திரைக்கதையின் அடிப்படைகள் - குறும்படங்களுக்கானமையங்களைக்கண்டறிதல் - குறும்படங்களுக்கானதிரைக்கதையைஉருவாக்குதல் - படத்தயாரிப்பின் மூன்றுநிலைகள் (தயாரிக்கும் முன் - படப்பிடிப்பு–படப்பிடிப்பிற்குப் பின்)
(10மணி)

கூறு 5:குறும்படத் தயாரிப்பு : மாணவர்களைக் குழுக்களாகப் பிரிந்து 5 லிருந்து 15 நிமிடங்களுக்குள்ளானபடங்களைத் தயாரிக்கச் செய்வதன் மூலம் குறும்படத் தயாரிப்பு முறைகளையும் நுணக்கங்களையும் செயல்வழிமூலம் கற்கச் செய்தல்.
(5மணி)

இப்பாடத்தின் அக புறமதிப்பீட்டுத் தேர்வுகள் அனைத்தும் 100%செய்முறைப் பயிற்சியாக அமையும்.மாணவர்களுக்குத் தனியாகவும் குழுக்களாகவும் செய்முறையிலான பயிற்சிகளைவழங்கிமதிப்பிடுவதன்மூலம் மதிப்பெண்கள் வழங்கப்பெறும். புறமதிப்பீட்டுத் தேர்வுக்குமாணவர்கள் குழுக்களாகஉருவாக்கும் குறும்படத்தின் பல்வேறுஅம்சங்கள் (திரைக்கதைஉருவாக்கம்,முன்தயாரிப்புகள்,குழுவின் முழுபங்கேற்பு, இறுதிவடிவம்) கணக்கில் கொள்ளப்பட்டுமதிப்பெண்கள் வழங்கப்பெறும்.

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**				
CO2	1	2	3	**4**		
CO3	1	2	**3**			
CO4	1	2	**3**			
CO5	1	2	3	4	5	**6**

Mean :2.5

TAM1442 நாட்டுப்புறவழக்காற்றியலும் கலைப்பயிற்சியும் 5Hrs/4Cr.

நோக்கம்:

நாட்டுப்புறவழக்காற்றியலைஅறிமுகம் செய்து,நாட்டுப்புறமக்களின் வாழ்வியலோடு இணைந்தபண்பாட்டுசெயல்பாடுகளைஎடுத்துக்காட்டி,அவற்றுடன் நாட்டப்புறக்கலைகளை மாணவர்களுக்குப் பயிற்றுவித்தல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. வாய்மொழிவழக்காறுகளின் இயல்புகளைஅடையாளப்படுத்திப்புரியும் திறன் பெற்றிருப்பர்.
2. வாய்மொழி இலக்கியத்திற்கானபண்புகளைவிளக்கிவாய்மொழிமற்றும் செவ்வியல் இலக்கியங்கள் இணையும் மற்றும் வேறுபடும் இடங்களைப்புரியும் திறன் பெற்றிருப்பர்.
3. நாட்டுப்புறவழக்காறுகள் காலந்தோறும் சூழலுக்கு ஏற்றவாறுதங்களுக்குள் சுருங்கிவிரியும் தன்மைபெற்றுவளர்ச்சியடைந்தமையைச்சான்றுகளுடன் மாணவர்கள் அறியும் திறனடைவர்.
4. நாட்டுப்புறவழக்காறுகளுக்கும் சமூகத்திற்குமானஉறவினைமதிப்பீடுசெய்யும் பயிற்சி பெற்றிருப்பர்.
5. நாட்டுப்புறவழக்காறுகளைக் கோட்பாட்டின் (வாய்மொழிவாய்ப்பாட்டுக் கோட்பாடு, நிகழ்த்துதல் கோட்பாடு) வழி நன்கு கூர்ந்தறிவதுடன்நாட்டுப்புறக் கலைகளை (ஒயிலாட்டம், தோற்பாவைநிறழ்கூத்து) நிகழ்த்தும் பயிற்சியும் பெற்றிருப்பர்.

கூறு: 1நாட்டுப்புறவியல் விளக்கம் - அறிஞர்கள் கருத்துக்கள் - வழக்காறுகள் குறித்த விளக்கங்கள் - சூழல்,பாடம், இழைவுஅடிப்படையில் வழக்காறுகளைநிர்ணயம் செய்தல் - வாய்மொழிவழக்காறுகளின் இயல்புகளைஅடையாளம் காணுதல் - வழக்காறுகளுக்கு இடையிலானதொடர்பினைச் சுட்டுதல். **(10மணி)**

கூறு: 2வாய்மொழி இலக்கியபண்புகளைவிளக்குதல் - வாய்மொழிமற்றும் செவ்வியல் இலக்கியங்கள் இவை இரண்டும் இணையும் மையப்புள்ளிகள் - வேறுபடும் இடங்கள் - வாய்மொழிமரபின் தொடர்ச்சியேசெவ்வியல் மரபுஎன்கிறவிவாதம் - சங்கப் பாடல்களைச் சான்றுகாட்டிவிளக்குதல். நாட்டுப்புறப் பாடல்கள் - தாலாட்டு,ஒப்பாரி,குழந்தைப் பாடல்கள் முதலானவற்றைவிளக்குதல் - நாட்டுப்புறப் பழமொழிகள் மற்றும் விடுகதைகளை எடுத்துக்காட்டிவிளக்குதல்.
(15மணி)

கூறு: 3நாட்டுப்புறக் கதைகள் - நோக்கம் - வகைப்பாடு (இயற்கை,தெய்வம், பேய்,அரசன்,நீதி, அறம்,குடும்பம் மற்றும் சங்கிலித் தொடர்கதைகள்) விளக்குதல் - நாட்டுப்புறக் கதைப்பாடல்கள் - பண்புகள் மற்றும் வகைகளைவிளக்குதல் - முத்துப்பட்டன், காத்தவராயன் கதைப்பாடல்களைஎடுத்துக்காட்டிவிளக்குதல். **(15மணி)**

கூறு: 4நாட்டுப்புறநிகழ்த்துக்கலைகள் - திருவிழாக்கள் - சடங்குகள் - நிகழ்த்தும் களம் - காலம், நிகழ்த்தும் முறைகள் இவற்றிற்கிடையிலானஉறவுகளைவிவாதித்தல் - நாட்டுப்புற விளையாட்டுகள் - அகப்புறவிளையாட்டுகள் - சமூகப் புலப்பாட்டுத் திறன் - நாட்டுப்புற மருத்துவம் - மாற்றுமருத்துவமரபுகள் **(15மணி)**

கூறு: 5நாட்டுப்புறக் கலைப் பயிற்சி–தேவராட்டம்,தோற்பாவைநிழற்கூத்து **(20மணி)**

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1987

ஆறு.இராமநாதன் **'தமிழர் கலை இலக்கியமரபுகள்'**
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ஆறு.இராமநாதன் **'நாட்டுப்புறவியல் ஆய்வுமுறைகள்'** தமிழ்ப் பல்கலைக்கழகம்,தஞ்சாவூர், 2005

ஆறு.இராமநாதன் **'நாட்டுப்புறக்கலைகள்'** (நிகழ்த்துக்கலைகள்) மெய்யப்பன் தமிழாய்வகம்,சிதம்பரம், 2006..

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	**4**		
CO5	1	2	3	4	**5**	

Mean: 2.3

Part IV Non – Major Electives

TAM 1241 தமிழிலக்கியவரலாறு 3Hrs/2Cr

நோக்கம்:

தமிழைமுதன்மைப்பாடமாகப்பயிலாதபிறதுறைமாணவர்களுக்குநெடியதமிழிலக்கியம் பற்றியஅடிப்படை கூறுகளைக் கற்பிப்பதே இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. தமிழிலக்கியவரலாற்றின் தொடக்ககாலத்தை இனங்கண்டுசங்க இலக்கியத்தை இலக்கண முறைமைக்கேற்பவாசிக்கும் திறனைப் பெற்றிருப்பர்.
2. சங்கமருவியகால இலக்கியங்களிலும்,காப்பியங்களிலும் அறம் என்றகருத்தாக்கம் நீட்சிபெறுவதைஒப்பிட்டுத் தனிப்பாடல்களிலிருந்துநீண்டசெய்யுள்கள் உருவானதற்கான ஒற்றுமைவேற்றுமைகளைஅறிகிறதிறன்களைஎய்தியிருப்பர்.
3. பக்தி இலக்கியங்கள் சமணபௌத்தமரபைமறுத்துப் புத்தெழுச்சிபெற்றதை அப்பாடல்களிலேயேகண்டறிந்துஅக்காலகட்டத்தோடுபொருத்திப்பார்க்கிறதிறன்களை அடைந்திருப்பர்.
4. மரபான இலக்கியவடிவங்களிலிருந்துஐரொப்பியர் வருகை மூலம் இலக்கியவடிவங்களில் ஏற்படுததியமாற்றங்களைப் பகுத்தாராய்ந்துஅறிகிறதிறன்களைப் பெற்றிருப்பர்.
5. காலந்தோறும் வளர்ந்துவந்ததமிழிலக்கியபோக்குகளைமதிப்பீடுசெய்துஅவற்றை விமர்சனம் என்கிறதிறனாய்வுகலைக்குஉட்படுத்துகிறஆற்றல்களைஎய்திருப்பர்.

கூறு 1: இலக்கணமும் இலக்கியமும் : தொல்காப்பியம் - முதல் கரு உரி –சங்ககாலம் - குறுநிலமற்றும் வேந்தர்கள் - எட்டுத்தொகைபத்துப்பாட்டுஉள்ளடக்கம் - சமூகஅரசியல் பண்பாட்டுச் செய்திகள்.

(10மணி)

கூறு 2:சங்கமருவிய நூல்களும் காப்பியங்களும் : சங்கம் மருவியகாலக்கட்டம் - அறம் மையமாதல் - நூல்கள் உள்ளடக்கம் - காப்பியங்கள் உருவாவற்கானபின்னணி– ஐம்பெரும்காப்பியங்கள் ஐஞ்சிறுங்காப்பியங்கள்.

(9மணி)

கூறு 3:பக்தி இலக்கியங்கள் : சமணம் பௌத்தசமயங்கள் பின்னணி–காலகட்டம் - பக்தி இலக்கியங்கள் - சைவத் திருமுறைகள் - நாலாயிரதிவ்வியபிரபந்தம் - கம்பராமாயணம்.

(7மணி)

கூறு 4:சைவபுராணங்களும் சிற்றிலக்கியங்களும் : பெரியபுராணம் திருவிளையாடற் புராணம் - நாயக்கர் காலம் - சிற்றிலக்கியங்கள் எழுச்சி–ஐரோப்பியர் வருகை–நாட்டுப்புறமரபுகள்.

(7மணி)

கூறு 5:நவீன இலக்கியஎழுச்சியும் இருபதாம் நூற்றாண்டும் : கிறித்தவர்களின் தமிழ்ப்பணிகள் - பழம் இலக்கியங்கள் அச்சேறல் - சிறுகதைநாவல் நவீனகவிதைஅறிமுகம் - இதழ்கள் தமிழ் மறுமலர்ச்சிபோக்குகள்.

(12மணி)

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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	**4**		
CO5	1	2	3	4	**5**	

Mean :2.3

TAM 1251 **அடிப்படைத் தமிழ் - 1** **3Hrs/2Cr**

நோக்கம்:

தமிழ் மொழியைமுதன்மைப் பாடமாகப் பயிலாதமாணவர்களுக்குத் தமிழ் மொழியின் எழுத்துக்கள்,சொல்வகைகளைஅறிமுகப்படுத்துவதன் மூலமாகமொழியைப் பிழையின்றி எழுதவும்,பேசவும்,வாசிக்கவும் திறன் பெறச் செய்தலே இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. தமிழின் நெடுங்கணக்கு,ஒலிப்புமுறைஆகியவற்றைப் பயில்வதன் மூலமாகவாசிக்கும் திறன் பெற்றிருப்பர்.
2. தமிழ்ச் சொற்களின் வகைப்பாட்டைப் பாகுபடுத்திஅறியும் ஆற்றலையும்,சொற்களின் சிறப்புகளைஅறியும் திறனையும் பெற்றிருப்பர்.
3. எழுவாய்,செயப்படுபொருள்,பயனிலைஎன்றுஅமையும் தமிழ் மொழியின் வாக்கிய அமைப்பு முறையைப் புரிந்துகொள்ளும் திறன் பெற்றிருப்பர்.
4. நாளிதழ்களைத் தாமாகவாசித்துப் புரிந்துகொள்ளும் திறன் அமைந்திருப்பர்.
5. பொதுவிடங்களில் தமிழில் பேசித் தகவல் பரிமாறிக்கொள்ளும் ஆற்றல் பெற்றிருப்பர்.

கூறு 1: தமிழ் நெடுங்கணக்கு- வடிவம்- ஒலிப்புமுறைகள்- சர்வதேசஒலிப்புமுறைகள் வழியாகப் பயிற்றுவித்தல்.
(12மணி)

கூறு 2:பெயர்ச் சொற்கள்- வகைகள்- உயர்திணைப் பெயர்ச் சொற்கள்- அ.ஃறிணைப் பெயர்ச் சொற்கள்- ஒருமை,பன்மைவடிவங்கள்- வினாச் சொற்கள்- வாரநாட் பெயர்கள்- மாதப் பெயர்கள் என்பவற்றைப் பயிற்றுவித்தல்.
(10மணி)

கூறு 3:பதிலிப் பெயர்கள் - வகைகள் - தன்மைப் பதிலிப்பெயர்கள்- முன்னிலைப் பதிலிப்பெயர்கள்- படர்க்கைப் பதிலிப்பெயர்கள் - ஒருமை,பன்மைவடிவங்கள்.
(8மணி)

கூறு 4:எண்கள் 1 முதல் 100 வரைஎழுதப் பயிற்றுவித்தல். **(7மணி)**

கூறு 5: வாக்கியஅமைப்புமுறை- எழுவாய் - செயப்படுபொருள் - பயனிலைஎன்றஅமைப்புமறை அறிமுகப்படுத்துதல்.
(8மணி)

பாடநூல்:தமிழ்த் துறைவெளியீடு

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2	1	**2**				
CO3	1	2	3	4	**5**	
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean: 2.8

TAM 1253 சிறப்புத்தமிழ்-I 3Hrs/2Cr

நோக்கம்

நவீனதமிழ்இலக்கியவகைமைகளானகவிதை,சிறுகதை,கட்டுரைஆகியனவற்றை, அறிமுகப்படுத்தி இலக்கியஆர்வத்தையும் சுவையையும் உணரச்செய்தல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின்பயன்

1. தமிழ்இலக்கியத்தில் உருவானவசனகவிதைகளை இனம்காணும் பயிற்சியைப் பெற்றிருப்பர்.
2. நவீனகவிதையைஅறியும் திறன் பெற்றிருப்பர்.
3. தமிழ்ச் சிறுகதைகளைவாசித்துமதிப்பிடும் திறனைப் பெற்றிருப்பர்.
4. சொந்தமாகச் சிறுகதைகளைஎழுதும் திறன் பெற்றிருப்பர்.
5. புனைவுஅல்லாதஎழுத்தைஅறிந்துஅதைஎழுதும் திறன் பெற்றிருப்பர்.

கூறு1:பாரதி (வசனகவிதைகள்) பாரதிதாசன்(புரட்சிக்கவி) மு.மேத்தா(கண்ணீர்ப் பூக்கள்) இன்குலாப்(படகுக்காரரே) அப்துல்ரகுமான் (தீக்குளியள்,அய்ந்தாண்டுக்குஒருமுறை) **(13 மணி)**

கூறு2: மனுஷ்யபுத்திரன் (துகில்) சேரன் (நீ இறங்கும் ஆறு) சுகிர்தாராணி (தீண்டப்படாதமுத்தம்) ச.துரை (முகம்) **(8 மணி)**

கூறு3:புதுமைப்பித்தன் (இதுமஷின்யுகம்) தி.ஜானகிராமன் (பரதேசிவந்தான்) கி.ராஜநாராயணன் (கோமதி) சுஜாதா (பொறுப்பு) **(8 மணி)**

கூறு4:சோ.தர்மன் (அஹிம்சை) பெருமாள்முருகன் (நீர்விளையாட்டு) இமையம் (உயிர்நாடி) பவாசெல்லத்துரை(பச்சைஇருளன் அ.முத்துலிங்கம்(வையன்னாகானா) **(8மணி)**

கூறு5:தொ.பரமசிவன் (மஞ்சள்மகிமை) ஜெயமோகன் (இலக்கியமும் சமகாலமும்) சுகமாரன் (இயாம்:கொள்ளைநோய்கிராமம்) விநாயகமுருகன் (கன்னிமாராவின் கதை) **(8மணி)**

பாடநூல்:தமிழ்த்துறைவெளியீடு

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	2	**3**			
CO3	1	2	3	**4**		
CO4	1	2	3	4	5	**6**
CO5	1	2	3	4	5	**6**

Mean :3

TAM1242 தமிழகவரலாறும் பண்பாடும் 3Hrs/2Cr

நோக்கம்:தமிழகவரலாற்றையும் அதன் பண்பாட்டுக் கூறுகளையும் இலக்கியச் சான்றுகள் மற்றும் வரலாற்றுச் சான்றுகளின் அடிப்படையில் கற்கச் செய்தல் இப்பாடத்திட்டத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. தமிழகவரலாற்றை இலக்கியசான்றுகள் மற்றும் வரலாற்றுசான்றுகளின் அடிப்படையில் மாணவர்கள் வரையறைசெய்யும் திறனைபெற்றிருப்பர்.
2. தமிழகவரலாற்றைஅறிந்துகொள்ளஉதவும் அடிப்படைச் சான்றுகளைவகைப்படுத்தும் திறனைமாணவர்கள் பெற்றிருப்பர்.
3. காலஅடிப்படையில் மாணவர்கள் தமிழகவரலாற்றைஎடுத்துரைக்கும்திறனைபெற்றிருப்பர்.
4. பேரரசுகளின் தோற்றம் ஆட்சி,முறை,சமயம்,கட்டிடக் கலை,நிர்வாகம்,போர் முறை ஆகிய கூறுகளைமாணவர்கள் மதிப்பீடுசெய்யும் திறனைப் பெற்றிருப்பர்.
5. தமிழ்ச்சமூகத்தின் பண்பாட்டுக் கூறுகளைவரலாற்றுப் பின்னணியுடன் பொருத்திப் பார்க்கும் திறனைமாணவர்கள் பெற்றிருப்பர்.

பாடத்திட்டம்:

கூறு 1 :தமிழகத்தின் நிலஎல்லை,குமரிக்கண்டம்,கடற்கோள். சங்கம் இருந்தமைக்கான சான்றுகள்,சங்ககாலத் தமிழர் வாழ்வியல் (சமுதாயம்,சமயம்,போர்,உணவு,தொழில், சடங்கு,பண்பாடு) தமிழகம் அயல்நாட்டுடன் கொண்டவாணிகதொடர்புகள்,தமிழக மூவேந்தர்கள்,குறுநிலமன்னர்கள்,கடையேழுவள்ளல்கள். **(8மணி)**

கூறு 2 :களப்பிரர் அரசு,பல்லவபேரரசுகளின் தோற்றம்,பல்லவர் சாளுக்கியர் போர்,பல்லவர் ஆட்சிமுறை,சமயம்,கட்டிடக் கலை.
(7மணி)

கூறு 3 :பிற்காலச் சோழப் பேரரசு,ஊராட்சி,அரசியல்,சமயம்,கோவில் பணி,சோழர் வீழ்ச்சி. பிற்காலப் பாண்டியர்களின் எழுச்சி,
(10மணி)

கூறு 4 :தென்னகத்தில் இஸ்லாமியஆதிக்கம்,பாண்டியர் வீழ்ச்சி,நாயக்கர்,விஜய நகரபேரரசு தோற்றம்,நாயக்கமன்னர்கள்,பாளையபட்டுஆட்சிமுறை,நாயக்கர் காலசமயம், கலைகள்,தஞ்சைமராட்டியர்.
(10மணி)

கூறு 5 :தமிழகத்தில் ஐரோப்பியர் வருகைகிறிஸ்தவமதபரவல் ஆங்கிலேயேஆட்சியின் விளைவுகள்,விடுதலைப் போரில் தமிழகத்தின் பங்கு,விடுதலைக்குப் பின் தமிழகம் 1990 வரை.
(10மணி)

பாடநூல்

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2. மா. இராஜமாணிக்கனா,தமிழகவரலாறும் பண்பாடும்,NCBHவெளியீடு,சென்னை-98, 1970.
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Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	**4**		
CO5	1	2	3	4	5	**6**

Mean :2.5

TAM 1252 அடிப்படைத் தமிழ் II 3Hrs/2Cr

நோக்கம்:

தமிழ் மொழியைமுதன்மைப் பாடமாகப் பயிலாதமாணவர்களுக்குத் தமிழ் மொழியின் அடிப்படைகளானவினைவடிவங்கள்,வேற்றுமைத் தொகைகள்,தமிழ்மொழியில் ஒலி வேறுபாடு,உச்சரிப்பால் விளையும் பொருள் வேறுபாடுஆகியனவற்றைவிளக்குதல், நீதிக்கதைகளைஎடுத்துக்காட்டுதல்,தமிழில் பிழையின்றிஎழுதுதல்,வாசித்தல், மொழிபெயர்த்தல் போன்றதிறன்களைவளர்த்தல் ஆகியவை இப்பாடத்தின் நோக்கங்களாகஅமைகின்றன.

கற்றலின் பயன்:

1. அன்றாடவாழ்வுக்குத் தேவைப்படும் அடிப்படைத்தமிழ் இலக்கணங்களைஅறிந்துஅவற்றைத் தேவைக்கேற்பப்பயன்படுத்தும் ஆற்றல் பெறுவர்.
2. வினைச்சொற்கள்,அவற்றின் உறுப்புக்கள்,எண்வகைவேற்றுமைகள் ஆகியனபேச்சுவழக்கில் வருவதைஅறிந்துஅவற்றைப் பயன்படுத்தும் திறனைப் பெறுவர்.
3. அன்றாடம் பயன்படுகின்றசொல்,ஒலிவேறுபாட்டைஅறிந்துகொள்வதோடுஅதனால் (ஒலிமாற்றத்தினால்) உண்டாகும் பொருள் வேறுபாட்டையும் விளங்கிக் கொள்ளும் திறன் பெற்றிருப்பர்.
4. தமிழின் நீண்டபத்திகளைப் பிழையின்றிவாசிக்கும் திறனைப் பெற்றிருப்பர்
5. ஆங்கிலவாக்கியங்களைத் தமிழில் மொழிபெயர்க்கும் ஆற்றலைப் பெற்றிருப்பர்

கூறு 1: வினைச்சொற்கள் (நிகழ்காலம்,எதிர்காலம், இறந்தகாலம்) –சான்றுகளுடன் எடுத்துக் காட்டல் - வேறுபாட்டைச் சுட்டல். **(12மணி)**

கூறு 2: பெயர் - வேற்றுமை–வேற்றுமைவிளக்கம் –உருபுகள் - எழுவாய் வேற்றுமை–கருவிப்பொருள் வேற்றுமை–கொடைப் பொருள் வேற்றுமை,நீங்கல் பொருள் வேற்றுமை–உடமைப் பொருள் வேற்றுமை - இடப்பொருள் வேற்றுமை–விளிவேற்றுமை–செயபடுபொருள் வேற்றுமை. **(10மணி)**

கூறு3: எழுத்துவேறுபாடும் பொருள் உணர்த்தலும்: ல-ள, ல-ழ, ன- ண ன-ந, ற-ர வேறுபாடும் பொருள் வேறுபாடு. தமிழில் அன்றாடம் பயன்படுகின்றசொல் - பிறமொழிச் சொற்கள். **(7மணி)**

கூறு 4: தமிழில் நீதிக்கதைகளை(தேர்ந்தெடுக்கப்பட்டவை) அறிமுகப்படுத்திபிழையின்றி வாசிக்கவும்,எழுதவும் பயிற்றுவித்தல் **(9மணி)**

கூறு 5:ஆங்கில மொழிகளில் உள்ளசிறுபத்திகளைத் தமிழில் மொழிபெயர்த்தல். **(7மணி)**

பார்வைநூல்:தமிழ்த்துறைவெளியீடு.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	2	3	**4**		

CO3	1	2	**3**			
CO4	1	2	**3**			
CO5	1	2	3	4	5	**6**

Mean :2.5

TAM1254 சிறப்புத்தமிழ்-II 3Hrs/2Cr

நோக்கம்

தமிழில் காலந்தோறும் எழுந்தஇலக்கியங்களைப் பொருண்மைநோக்கில் விளக்கிஅந்தந்தகால இலக்கியங்களின் பகுதிகளைக் கற்கச்செய்வதன் மூலமாகமரபிலக்கியஅறிமுகத்தைப் பெறச்செய்தல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின்பயன்

1.சங்கஇலக்கியகவிதைகளைமுறையாகவாசிக்கும்திறனைப் பெற்றிருப்பர்.
2.காப்பியஇலக்கியம் பற்றியபுரிதலைஉள்வாங்கும்திறனைப் பெற்றிருப்பர்.
3. பக்திஇலக்கியத்தின் பொதுத்தன்மைகளையும்தனித்தன்மைகளையும் இணைத்துப்புரிந்துகொள்ளும்திறனைப் பெற்றிருப்பர்.
4. சிற்றிலக்கியங்களின் உள்ளடக்கத்தினைப் புரிந்துவிவாதிக்கும்திறனைப் பெற்றிருப்பர்
5.சங்கஇலக்கியம் தொடங்கிநவீனஇலக்கியம் வரைஅறிமுகமாவதால் போட்டித்தேர்வுக்குத் தயாராகும் திறனைப் பெற்றிருப்பர்

கூறு1:சங்கப்பாடல்கள்,சங்கம்மருவியபாடல்கள் அறிமுகம்.
(குறுந்தொகை 23,25,27,28,30,58 புறநானூறு 182,184,189,192,195 குறள்-இனியவைகூறல்,சொல்வன்மை,குறிப்புஅறிதல்) **(12மணி)**

கூறு2:காப்பியஇலக்கியம் வகை,பின்னணி.(சிலப்பதிகாரம்-காடுகாண்காதை,கம்பராமாயணம் அகலிகைப்படலம் 12 பாடல்கள்) **(10மணி)**

கூறு3:பக்திஇலக்கியம் -நாயன்மார்கள்,ஆழ்வார்கள்(மாணிக்கவாசகர்-திருச்சாழல் பதிகம் 10 பாடல்கள்,ஆண்டாள்-வாரணம்ஆயிரம்)
(10மணி)

கூறு4: சிற்றிலக்கியம்:தோற்றம்,பின்னணி(தமிழ்விடுதூது-தமிழ்மொழியின் சிறப்புகள், தனிப்பாடல்கள்-5) **(8மணி)**

கூறு5: சித்தர் இலக்கியம்(சிவவாக்கியார் 5 பாடல்கள்,குதம்பைச்சித்தர் 10 பாடல்கள்) **(7மணி)**

பாடநூல்:தமிழ்த்துறைவெளியீடு

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	3	**4**		
CO4	1	2	3	4	**5**	
CO5	1	2	3	4		

Mean :2.4

Value Added Courses

TAM 121V நாட்டுப்புறவிளையாட்டுகள் 2Hrs/Cr

நோக்கம்:
தமிழகக் கிராமங்களில் காலந்தோறும் விளையாடியவிளையாட்டுக்களை அறிமுகப்படுத்துவதும் ஆவணப்படுத்துவதும் இப்பாடத்தின் நோக்கம் ஆகும்.

கற்றலின் பயன்:

1. நாட்டுப்புறவிளையாட்டுக்கள் இலக்கியத்தில் பதிவாகியுள்ளமையைத் தெரிந்திருப்பர்.
2. விளையாட்டுபுத்திக் கூர்மையோடும் பொழுதுபோக்கோடும் இணைந்திருக்கும் பாங்கை அறியும் திறன் பெற்றிருப்பர்.
3. தமிழகக் கிராமம் பற்றியபுரிதலைப் பெற்றிருப்பர்.
4. விளையாட்டுக்களைச் சேகரிக்கும் கள நுட்பத்திறனைஅறிந்துகொள்வர்.
5. ஆவணப்படுத்தும் முறையியலில் தேர்ச்சிபெற்றிருப்பர்.

கூறு:1

தமிழர் விளையாட்டுக்கள் பற்றியகுறிப்புகள் –தொல்காப்பியம் தொடங்கிச் சமகால இலக்கியங்கள் வரை. **(12மணி)**

கூறு:2

தமிழகக் கிராமஅமைப்பும் விளையாட்டுக்களும்.
வேலைநேரவிளையாட்டுக்கள்-ஓய்வுநேரவிளையாட்டுகள்-சடங்குகளில் விளையாட்டுக்கள்-பொழுதுபோக்குவிளையாட்டுக்கள். **(12மணி)**

கூறு:3

விளையாட்டுக்களின் பட்டியல் -தேவநேயப் பாவாணர் வகைப்படுத்தும் விளையாட்டுக்கள்- மற்றும் சிறுவர் விளையாட்டுக்கள்- சிறுமியர் விளையாட்டுகள் –சிறுவர் சிறுமியர் விளையாட்டுகள்- பருவம் வந்தோர் விளையாடும் விளையாட்டுக்கள். **(12மணி)**

கூறு:4

மறைந்துபோனவிளையாட்டுக்கள்- காரணம் - தற்காலவிளையாட்டுகள் – விளையாட்டுக்களின் செல்வாக்கு. **(9மணி)**

கூறு:5

மறைந்துபோனவிளையாட்டு-களத்திற்குஅழைத்துச் செல்லுதல்-ஆவணப்படுத்துதல். **(6மணி)**

பார்வை நூல்கள்.

1. ஞா.தேவநேயப் பாவாணர்,தமிழர் விளையாட்டுக்கள், (பாவாணர் தமிழ்க் களஞ்சியம்32 வதுதொகுதி) தமிழ் மண் அறக்கட்டளைவெளியீடு, சென்னை-17.(2009)
2.தொ.பரமசிவன்,அறியப்படாததமிழகம்,காலச்சுவடுபதிப்பகம்,நாகர் கோவில். (2012)

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	2	**3**			
CO3	1	2				
CO4	1	2	3	4	**5**	

CO5	1	2	3	4	5	**6**

Mean : 2.7

TAM221V Rw;Wyhmbg;gilfs; 2Hrs/Cr

நோக்கம்

சுற்றுலாவியல் பற்றியஅடிப்படைக் கூறுகளைவிளக்கிஅதனைத் தொழிலாக மேற்கொள்வதற்குமானவாய்ப்புகளைச் சுட்டுதல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. சுற்றுலாவின் அடிப்படைகளைப்புரிந்துகொள்ளும் திறன் பெற்றிருப்பர்.
2. தங்கும் இடங்களைஏற்பாடுசெய்யும் திறன் பெற்றிருப்பர்.
3. சுற்றுலாவின் கூறுகளைத் தெளிவுறஅறிந்திருப்பர்.
4. சுற்றுலாவழிகாட்டியாகச் செயல்படும் திறன் பெற்றிருப்பர்.
5. சுற்றலாதொடர்பானநிறுவனங்கள்,ஆவணங்கள்,நாணயங்கள் ஆகியவற்றைமதிப்பீடு செய்யும் திறன் பெற்றிருப்பர்.

பாடத்திட்டம்:

கூறு 1:சுற்றுலாவிளக்கம்,சுற்றுலாவியல் அடிப்படைக் கூறுகள், சுற்றுலா வகைகள் **(10 மணி)**

கூறு 2:உணவுமற்றும் தங்குமிடவசதிகள் (பலவகைப்பட்டதங்குமிடங்கள்) **(10 மணி)**

கூறு 3: போக்குவரத்துவசதி,சுற்றுலாதகவல் மையங்கள்,முன்பதிவு–மொழிஅறிவு - சுற்றுலா இடவிளக்கப் படங்களைப் பயன்படுத்துதல **(10 மணி)**

கூறு 4:சுற்றுலாவழிகாட்டிப்பயிற்சி,மத்தியமாநிலஅரசுசுற்றுலாத்துறை,சுற்றுலா வழிகாட்டி சங்கம் **(8 மணி)**

கூறு 5:உலகளாவியசுற்றுலாஏற்பாட்டுநிறுவனங்கள்,சுற்றுலாதொடர்பானஆவணங்கள் (Passport,Visa),நாணயம் மாற்றுதல், **(7 மணி)**

பாடநூல்கள்

1.சுற்றுலாவியல்-ச.ஈஸ்வரன் பாவைபப்ளிகேஷன்ஸ் வெளியீடு,சென்னை,2006.
2.சுற்றுலாவியல் ஓர் அறிமுகம்-இரா.தங்கமணிகொங்குபதிப்பகம்,கரூர், 2006

பார்வை நூல்கள்

1.சுற்றுலாவும் பிறதுறைகளும்-கமலம் சங்கர்,NCBHவெளியீடு,சென்னை,2008.
2.www.tamilnadu tourism.org
3.www.tamilnadu-tourism.in
4.Tourism.gov.in
5.Incredibleindia.org

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2	1	**2**				
CO3	1	2	**3**			
CO4	1	2	3	4	**5**	

CO5	1	2	3	**4**		

Mean : 2.3

TAM321V gz;ghl;Lr;Rw;WyhtpaYk; jkpofKk; 2Hrs/Cr

நோக்கம்

பண்பாட்டுச்சுற்றுலாகுறித்தவிழிப்புணர்வைஏற்படுத்துதல் இப்பாடத்தின் நோக்கமாகும்.

கற்றலின் பயன்:

1. பண்பாட்டுச் சுற்றுலாவகைகளைவரையறைசெய்யும் திறன் பெற்றிருப்பர்.
2. சுற்றுலாதலங்களைவகைப்படுத்தும் திறன் பெற்றிருப்பர்.
3. பலசமயக் கோவில்களின் அமைப்பைபாங்குறஎடுத்துரைக்கும் ஆற்றல் பெற்றிருப்பர்.
4. சுற்றுலாவிற்கும் கலைகளுக்குமானதொடர்பைநேர்த்தியாகஎடுத்துரைக்கும் திறன் பெற்றிருப்பர்.
5. பண்பாட்டுக் கூறுகளைஅறிந்துகொள்வதோடுஅவற்றைபண்பாட்டு சுற்றுலாவோடு இணைத்துப் பார்க்கும் திறன் அடைந்திருப்பர்.

பாடத்திட்டம்:

கூறு 1:பண்பாட்டுச்சுற்றுலாவிளக்கம் - பண்பாட்டுசுற்றுலா வகைகள்: இன்பச் சுற்றுலா,கல்விச் சுற்றுலா,பண்பாட்டுச் சுற்றுலா,ஆன்மீகச் சுற்றுலா,வரலாற்றுச் சுற்றுலா,பசுமைச் சுற்றுலாமுதலியன. **(10மணி)**

கூறு 2:சுற்றுலாவும் இயற்கையும் இயற்கைச் சூழல் - தமிழகக் காடுகள்,தமிழகமலைகள்,தமிழக கடல் பகுதிகள்,தமிழகதுருவப் பகுதிகள் போன்றவற்றின் தன்மையைஅறிதல் **(10மணி)**

கூறு 3:சுற்றுலாவும் கோயில்களும்: தமிழகக் கோயில்கள் - கோயில்களின் சமயமுக்கியத்துவங்கள் - பண்பாட்டுநிலைக்களன்கள் - சைவ,வைணவ,கிறித்துவ இஸ்லாமியபிறசமயவழிபாட்டுத் தலங்கள் **(10 மணி)**

கூறு 4:சுற்றுலாவும் கலைகளும்: கலைகள், கலைகளுக்கானசிறப்பிடங்களைஅறிதல், கலாச்சாரநகரமானமதுரை,தஞ்சை,காஞ்சிசுற்றுவட்டார இடங்கள், தமிழககலைக்கூடங்கள், தமிழகஅருங்காட்சியகங்கள், தமிழகஅரண்மனைகள், தமிழகசிற்பக்கூடங்கள்,நாயக்கர் மகால், சித்தன்னவாசல்,மனோரா, மகாபலிபுரம், இசைத்தூண்கள் பற்றியசெய்திகள். **(9 மணி)**

கூறு 5:சுற்றுலாவும் தமிழகத் திருவிழாக்களும்,பண்பாட்டுசுற்றுலாசெல்லுதல் **(6 மணி)**

பாடநூல்

இரா.தங்கமணிசுற்றுலாவியல் ஓர் அறிமுகம் - கொங்குபதிப்பகம்,கரூர், 2006

பார்வை நூல்கள்

1.கமலம் சங்கர்,சுற்றுலாவும் பிறதுறைகளும்- NCBHவெளியீடு,சென்னை,2008.
2.www.tamilnadu tourism.org
3.www.tamilnadu-tourism.in

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6

TAM 38

CO1	**1**					
CO2	1	2	**3**			
CO3	1	2	3	**4**		
CO4	1	2	3	4	**5**	
CO5	1	2	3	4	5	**6**

Mean : 2.9

DEPARTMENT OF HINDI
w.e.f. 2020-2021

Programme Specific Outcomes (PSO)

Upon completion of the program, graduates will be able to
1. fluently communicate their ideas in Hindi.
2. familiarize with knowledge of origin and evolution of Hindi Language and Hindi Literature.
3. utilize the knowledge developing the skill of translation in English to Hindi .
4. relate issues in Hindi literature to society.
5. summarize any kind of Hindi text.
6. utilize the knowledge of Hindi typing and usage of computer.
7. build vocabulary and knowledge of literary terminology.
8. inculcate the knowledge of Hindi grammar.
9. pursue higher studies in Hindi, multidisciplinary course and journalism and more communications & translations.
10. eligible to work in government and public sectors.

Mapping of Courses with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
HIS1205		✓	✓		✓		✓	✓	✓	✓
HIS1415	✓			✓	✓	✓	✓			✓
HIS1417	✓		✓				✓	✓	✓	✓
HIS1521	✓	✓	✓	✓		✓	✓	✓	✓	✓
HIS1423	✓	✓	✓	✓	✓		✓	✓		✓
HIS1215	✓		✓	✓			✓		✓	✓
HIS1225	✓	✓					✓	✓	✓	✓
HIS1206	✓		✓				✓	✓	✓	✓
HIS1516	✓	✓		✓	✓	✓	✓		✓	✓
HIS1418	✓		✓		✓	✓	✓	✓		✓
HIS1420	✓	✓		✓			✓		✓	✓
HIS1424	✓		✓	✓			✓		✓	✓
HIS1216	✓		✓				✓	✓	✓	✓
HIS1226	✓		✓				✓	✓	✓	✓

Mapping of PSOs with Pos.

Courses	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PSO 1	✓	✓	✓			✓	✓	✓	✓	
PSO 2	✓			✓		✓	✓	✓	✓	
PSO 3	✓	✓			✓	✓	✓	✓		
PSO 4	✓		✓			✓	✓	✓	✓	
PSO 5	✓	✓		✓		✓	✓	✓	✓	
PSO 6	✓		✓	✓		✓	✓			
PSO 7	✓	✓	✓	✓			✓	✓	✓	
PSO 8	✓	✓				✓	✓	✓	✓	
PSO 9	✓	✓	✓	✓			✓	✓		✓
PSO 10	✓	✓	✓	✓		✓	✓			✓

Undergraduate Department of Hindi
w.e.f. 2020-2021

Sem	Part		Code	Title	Hr	Cr.	Marks
I	**Part I**		**HIN1205**	बुनियादी हिंदी(**Basic Hindi**)	**3**	**2**	**30**
	Part II		ENSxxx	English	3	2	30
	Part III Major	Core	HIS1415	सामान्य निबन्ध (SamanyaNibandh)	4	4	60
			HIS1417	सामान्य व्याकरण(SamanyaVyakaran)	4	4	60
			HIS1521	व्यावहारिक हिन्दी **(Vyavaharik Hindi)**	5	5	75
		Supportive	**HIS1423**	सामान्य हिंदी **(Samanya Hindi)**	5	4	60
	Part IV	**Non -Maj. Elect.**	**HIN1215**	दैनिक हिन्दी**(Hindi in day today life)**	3	2	30
		Life skill	**HIN1225**	बोलचाल हिन्दी **1(Spoken Hindi -1)**	3	2	30
	Total				**30**	**25**	**375**

Sem	Part		Code	Title	Hr	Cr.	Marks
II	**Part I**		**HIN1206**	हिन्दीव्याकरण औरअनुवाद **(Hindi Grammar and Translation)**	3	2	30
	Part II		ENSxxx	English	3	2	30
	Part III Major	Core	HIS1516	कहानियाँ **(**Kahaniyan)	5	5	75
			HIS1418	उत्कृष्ट व्याकरण **(**UtkrishtaVyakran)	4	4	60
			HIS1420	आदिकाल **(**Aadhikaal)	4	4	60
		Supportive	**HIS1424**	संप्रेषणहिन्दी **(Sampreshan Hindi)**	5	4	60
	Part IV	**Non - Maj. Elect.**	**HIN1216**	प्रयोजनमूलक हिंदी और अनुवाद **(Functional Hindi and Translation)**	3	2	30
		Life skill	**HIN1226**	बोलचाल हिन्दी **2 (Spoken Hindi - 2)**	3	2	30
	Part V	Extension	XXXxxx	(NSS/SLP/PED)	2	1	-
	Total				**30 +2**	**25 +1**	**375**

Sem	Part		Code	Title	Hr	Cr.	Marks
III	Part I		HINS2205	हिन्दी साहित्य का इतिहास- सामान्य परिचय (General Introduction of History of Hindi Literature)	3	2	30
	Part II		ENSxxx	English	3	2	30
	PartIII Major	Core	HIS2515	कम्प्यूटर हिन्दी (Computer Hindi)	5	5	75
			HIS2517	नाटक और एकांकी (NatakaurEkanki)	5	5	75
			HIS2419	सामान्य पत्र लेखन (Samanya Patra Lekhan)	4	4	60
			HIS2521	निर्गुण भक्ति काल (NirgunBhaktikal)	5	5	75
		Supportive	HIS2427	हिंदी भाषा का इतिहास - सामान्य परिचय (Hindi Bhasha ka IthihassamanyaParichaya)	5	4	60
				Total	**30**	**27**	**405**

Sem	Part		Code	Title	Hr	Cr.	Marks
IV	Part I		HIN2206	हिंदीपद्य, कहानी और काव्यशास्त्र Hindi Poetry, Story and Poetics	3	2	30
	Part II		ENSxxx	English	3	2	30
	Part III Major	Core	HIS2516	भाषा विज्ञानकासामान्य परिचय (Bhasha Vighyan ka Samaanya Parichaya)	5	5	75
			HIS2518	सगुण भक्ति काल(Sagun Bhaktikal)	5	5	75
			HIS2420	कार्यालयी हिंदी (Karyalyi Hindi)	4	4	60
			HIS2522	रीतिकाल (Ritikal)	5	5	75
		Supportive	HIS2428	भारतीय काव्यशास्त्र - सामान्य परिचय (Bharathiya Kavya Shasthra - SamaanyaParichaya)	5	4	60
	V	Extension	XXXxxx	(NSS/SLP/PED)	2	1	-
				Total	**30 +2**	**27 +1**	**405**

Sem	Part		Code	Title	Hr	Cr.	Marks
V	Part III Major	Core	HIS3615	उपन्यास (Upanyas)	6	6	90
			HIS3617	आधुनिक काल का सामान्य परिचय (Adhunikkal ka SamanyaParichay)	6	6	90
			HIS3619	अनुवाद सिद्धान्त (Anuvad Siddhanth)	6	6	90
		Innovative	HIN3521	निबन्ध साहित्य (NibandhSahithya)	5	5	75
	IV	Life skill	HIN3223	संपर्क हिंदी(Communicative Hindi)	3	2	30
		VAL	XXXxxx		4	2	30
Total					**30**	**27**	**405**

Sem	Part		Code	Title	Hr	Cr.	Marks
VI	Part III Major	Core	HIS3616	नई कविता (Nayee Kavitha)	6	6	90
			HIS3618	पत्रकारिता और विज्ञापन (PatrakarithaaurVigyapan)	6	6	90
			HIS3620	महाकाव्य और खंड़काव्य (MahakavyaaurKhandakavya)	6	6	90
		Innovative	HIS3522	विशेष साहित्यकार – प्रेमचन्द (VisheshSahithyakar-Premchand)	5	5	75
	IV	EVS	HIS3200	Environmental Studies	4	2	30
		Life skill	HIN3224	स्थानन हिन्दी(Placement – Hindi)	3	2	30
				Total	**30**	**27**	**405**
				Grand Total for semesters I- VI	**180 + 4**	**158 +2**	**2370**

Courses offered by Department of Hindi

Part-I -General Hindi

Sem	Part	Code	Course Title	Hr/wk	Credit	Marks
1	I	HIN1205	बुनियादी हिंदी(Basic Hindi)	3	2	30
2	I	HIN1206	हिन्दीव्याकरण और अनुवाद (Hindi Grammar and Translation)	3	2	30

Part-III-Supportive course

Sem	Dept	Course No.	Course Title	Hr/wk	Credit	Marks
1	French	HIS1423	सामान्य हिंदी (Samanya Hindi)	5	4	60
2	French	HIS1424	संप्रेषणहिन्दी (Sampreshan Hindi)	5	4	60
3	Hindi	HIS2427	हिंदी भाषा का इतिहास - सामान्य परिचय (Hindi Bhasha ka IthihassamanyaParichaya)	5	4	60
4	Hindi	HIS2428	भारतीय काव्यशास्त्र - सामान्य परिचय (Bharathiya Kavya Shasthra - SamaanyaParichaya)	5	4	60
Total				**20**	**16**	**240**

Part-IV-Non-Major Elective

Sem	Part	Course No.	Course Title	Hr/wk	Credit	Marks
1	IV	HIS1211	दैनिक हिन्दी (Hindi in day today life)	3	2	30
2	IV	HIS1212	प्रयोजनमूलक हिंदी और अनुवाद(Functional Hindi and Translation)	3	2	30

Part-IV Life skill Courses

Sem	Part	Course No.	Course Title	Hr/wk	Credit	Marks
1	IV	HIN1225	बोलचाल हिन्दी (Spoken Hindi -1)	3	2	30
2	IV	HIN1226	बोलचाल हिन्दी (Spoken Hindi - 2)	3	2	30
5	IV	HIN3523	संपर्क हिंदी(Communicative Hindi)	3	2	30
6	IV	HIN3524	स्थानन हिन्दी(Placement – Hindi)	3	2	30
Total				**12**	**08**	**120**

Value Added Course

Sem	Course No.	Course Title	Hr/wk	Credit
1	HIS 121V	शब्द भंडार(Vocabulary)	2	2
3	HIS 221V	अभिवादन/ प्रत्याभिवादन(Greetings)	2	2
5	HIS 321V	सृजनात्मक लेखन (Creative writing)	2	2

HIN1205 **बुनियादी हिंदी** **(Basic Hindi)**

3Hrs/2Cr

The aim of this course is to train the students to use in Hindi fluently. The course also aims to encourage the students to understand applied grammar and use to make simple conversations with the required vocabulary in Hindi in day-to-day life.

At the completion of this course, the students will be able to

i. get the knowledge of applied grammar
ii. improve their Vocabulary Skills.
iii. frame Sentences in Hindi.
iv. develop their communication skills.
v. acquire Creative and Critical Thinking Skills.

Unit-1 व्यावहारिक व्याकरण सरल हिंदी परिचय (पाठ 1-10)
Unit-2 बोलचाल - हिंदी फल-फूल व तरकारियाँ, शरीर के अंग, दिनों के नाम, महीनों के नाम,गिनती
Unit-3 गद्य अब्दुल कलाम, तमिल नाडु, भोजन और विज्ञान
Unit-4 संवाद लेखन कक्षा में , अस्पताल में , बाजार में , बैंक में
Unit-5 गद्यांश सामान्य गद्यांश

Text Book :

Prepared by the Course Teacher

Reference Books:

1. Saral Hindi Parichay-1, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai- 17, Second Edition – May, 2014
2.Subodh Hindi rachna-1, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai-17, First Edition – October, 2018
3. Subodh Hindi Patamala -2, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai-17, First Edition – October, 2018
4. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002.
5. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17
6. Hindi Vatayan,Dr.K.M.ChandraMohan,VishwaVidyalaya,Prakasan,Vranasi.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2			**3**			
CO3		**2**				
CO4						**6**
CO5						**6**

Mean – 4

HIS1521 **व्यावहारिक हिन्दी (Vyavaharik Hindi)** **5Hrs/5Cr**

The aim of this course is to develop an independent out look towards the study of language and communication. The course encourages the student to learn Hindi for effective communication in different fields in day-to-day life and analyze the problems and challenges of effective communication in Hindi.

At the end of the course students will be able to.

i. get the knowledge of words and sentences write in Hindi and English.
ii. enhance their conversational fluency as well as accuracy.
iii. understand the precise writing in Hindi .
iv.improve the communicative competence.
v. develop their translation skill.

Unit 1: शब्द विचार

उद्गम(उत्पत्ति) के विचार से, व्यत्पत्ति के विचार से, अर्थ के विचार से,प्रयोग / रूपान्तर के विचार से

Unit 2:वाक्य विचार

परिभाषा एवं वाक्य के तत्व,वाक्य के भेद, सरल वाक्य से मिश्र वाक्य, सरल वाक्य से संयुक्त वाक्य,मिश्र वाक्य से सरल वाक्य

Unit 3:संक्षेपण

परिभाषा और गुण, विषयगत नियम, शैलिगत ,संप्रेषण के लिए आवश्यकनिर्देशसंक्षेपण अभ्यास

Unit 4:संवाद - लेखन

संवाद की परिभाषा, अच्छे संवाद की विशेषताएँ, होटल में होटलवाले और मुसाफिर की बातचीत, किराये के बारे में टैक्सीवाले और मुसाफिर की बातचीत, किसी परीक्षा के बारे में दो विद्यार्थियों की बातचीत,किसी खेल के बारे में दो लड़कों की बातचीत

Unit 5:अनुवाद

अर्थ एवं परिभाषा, शब्दानुवाद, वाक्यानुवाद,गद्य़ानुवाद

Text Book:

1. Hindi Vyakaran,Dr.Shyam Anand, Bookhive (India),CB-349,Ring Road, Narnia, New Delhi.
2. Subhodh Hindi rachna-1, Dhakshin – 3, Dakshin Hindi Bharath Hindi Prachar Sabha, T.nagar, Chennai-17, First Edition – September 2010
3. Bharath (PrashnotharSahithMadhyamaPatyaSamagri), Dakshin Hindi Bharath Hindi Prachar Sabha, T.nagar, Chennai-17, First Edition – February 2014.
4. Hindi Vyakaran Evam Samrachna, Dr, Gayathri Devi Vaishya, Milapchand Jain, Lalith Kishore, Ajmera Prakashan, 12, Kesav Nagar, Civil Lines, Jaipur. Edition : 2015
5. AnuvadChinthan :DhrushtiaurAnuhrushti, Dr.S.Nagalakshmi, Jawahar Pushthakalaya, Hindi PushthakPrakasak Evam Vitharak, Mathura (UP) ,Sanskaran: 2009

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3			3			
CO4						6
CO5					5	

Mean 3.4

HIS 1423 **सामान्य हिन्दी (Samanya Hindi)** **5hrs/4Cr**

The course will give the basic knowledge of Hindi Reading and writing skill.After that students easily understand the grammatical area of Hindi also. They can make a dialogue in day to day life, and also write the letters in Hindi in official and personally.

At the completion of this course, the students will be able to

i. get the Knowledge of Hindi Vocabulary.
ii. understand the types of tenses and noun, pronoun format.
iii. find the usage of formal and informal letters .
iv. develop their communication skills.
v. Improve their translation skills from Hindi to English and English to Hindi.

Unit1 :बुनियादी हिन्दी :शरीर के भाग, रिश्तों के नाम, सब्जी, फूल और फलों के नाम,1-100 तक गीनती, जानवरों और पक्षियों के नाम
Unit2:व्यावहारिक हिन्दी: शब्द, क्रिया, संज्ञ, सर्वनाम, विशेषण
Unit3:पत्र लेखन – व्यक्तिगत पत्र,बैंक पत्र, शिकायत पत्र, आवेदन पत्र, अर्धसरकारी पत्र
Unit4 :वार्तालाप अपना परिचय, स्कूल में, परिवार में, जन्म दिन में
Unit5:अनुवाद – पाठ – 1से पाठ – 5 तक

Text book

Prepare by the course Teacher in Department of Hindi.

References

1. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002. 2015
2.Hindi pracharvaghini - 1, Dakshin Bharath Hindi Prachar Sabha, Chennai, 2019.
3. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17
4.Hindi viyakaranoure Rachana, Rajkamal Prakashan,2017
5.Anuvadh avampathrkarviyavkar, vani prakashan,2016

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**2**					
CO2		**2**				
CO3			**3**			
CO4				**2**	**5**	
CO5						**6**

Mean – 4

HIN 1215 **दैनिकहिन्दी** **(Hindi in day today life)** **3Hrs / 2 Cr**

The aim of this course is to train the students to use in Hindi fluently. The course also aims to encourage the students to understand and use to make simple conversations with the required vocabulary in Hindi in day-to-day life.

At the completion of this course, the students will be able to

i. get the knowledge of Hindi Alphabets and Pronunciation.
ii. develop their vocabulary Skills.
iii. learn different types of words to be used in Hindi language for the beginners.
iv. converse fluently in day today life.
v. identify and comprehend simple passages.

Unit1:अक्षर एवं उच्चारण स्वर, व्यंजन, बारहखड़ी, लिंग, वचन
Unit2:शब्द भंडार (Vocabulary) शरीर के भाग, रिश्तों के नाम, सब्जी, फूल और फलों के नाम, जानवरों और पक्षियों के नाम, गिनती
Unit3:अनुवाद – पाठ – 1से पाठ – 5 तक
Unit4 :वार्तालाप अपना परिचय, स्कूल में, परिवार में
Unit5: गद्यांश सामान्य गद्यांश

Text book

Prepare by the course Teacher in Department of Hindi.

References –

1. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002. 2015
2.Hindi pracharvaghini - 1, Dakshin Bharath Hindi Prachar Sabha, Chennai, 2019.
3. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17
4.Hindi viyakaranoure Rachana, Rajkamal Prakashan,2017

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3			3			
CO4			3			
CO5						6

Mean – 3.2

HIN 1225 **बोलचाल हिन्दी : I (Spoken Hindi : I)**
3Hrs / 2 Cr

This Course encourages the Non-Hindi Speaker to speak in Hindi and make simple conversations with the required vocabulary.

At the end of the course students will be able to-

i. acquire correct knowledge about vocabulary in Hindi language.
ii. learn different types of Gender and singular, Plural format.
iii. gain knowledge about verbs and case ending in Hindi language.
iv. understand the types of tenses and its usage.
v. improve the translation skill from Hindi to English.

Unit1: शब्द भंडार (Vocabulary) शरीर के भाग, रिश्तों के नाम, सब्जी, फूल और फलों के नाम, दिशाएँ और ऋतुएँ, गिनती
Unit 2: लिंग,**वचन बदलना (Gender, Singular and Plural)**पुल्लिंग संज्ञाएँ,स्त्रीलिंग संज्ञाएँ,पुल्लिंग से स्त्रीलिंग बनाने के नियम, स्त्रीलिंग से पुल्लिंग बनाने के नियम, और एक से बहुवचन बनाने के नियम ।
Unit3:कारक चिन्ह । (Case ending) को, से, का, के, की में, पर का प्रयोग
Unit 4: संवाद लेखन कक्षा में , बाजार में , बैंक में
Unit 5: अनुवाद (Translation) पाठ **: 1-5** हिन्दी प्रचार वाहिनी **1**
Text Book

Study material prepared by the faculty in department of Hindi.

References :

1. Hindi VyakaranevamRachana,Dr.GayathiriDevi,Ajmera Publication,jaipur.2015.
2. Subodh Hindi Rachana – Dhakshin Bharath Hindi PracharSabha.chennai – 2015
3. Practical Hindi Grammer and Composition with key,kumara Saradhambal,Chennai,-2014
4. Aadhunik Hindi Vyakaran Swaroop evamPrayog,DrBharathykubalkar,New Delhi,2015
5. Vahini Prachar- – Dhakshin Bharath Hindi PracharSabha.chennai – 2015
6. Hindi Vatayan,Dr.K.M.Chandra Mohan,VishwaVidyalaya,Prakasan,Vranasi.2013

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**2**					
CO2		**2**				
CO3			**3**			
CO4				**2**	**5**	
CO5						**6**

Mean – 4

HIN1206 **हिन्दीव्याकरणऔरअनुवाद** (Hindi Grammar and Translation)
3Hrs/2Cr

The aim of the course is to create more interest to know about Hindi grammar and to develop Hindi-speaking skills can be harnessed by each and every student to increase their potentials to succeed in their professional and personal life.

At the end of the course students will be able to

i. gain the knowledge of Hindi stories.
ii. read, write, and speak in Hindi without grammatical errors.
iii. improve the letter writing skills.
iv. utilize the translation methodology in day today life.
v. develop the passage related about literary.

Unit-1 **कहानियाँ** परीक्षा, चीफ़ की दावत, हार की जीत
Unit-2 **हिंदी परिचय** सरल हिंदी परिचय **(11-15),** लिंग, वचन
Unit-3**पत्र लेखन** छुट्टी पत्र, मित्र को पत्र, आदेश पत्र
Unit-4 **अनुवाद** पाठ **: 1-5** हिन्दी प्रचार वाहिनी **1**
Unit-5**विकास के संकेत** विकास के संकेत - सामान्य

Text Book:

Prepared by the Course Teacher

References :

1. Subodh Hindi Patamala -3, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai-17, First Edition – October, 2018
2. Hindi Vyakaran Evam Rachna, Dr. Gayathri Devi Vaishya, Kendriya Hindi Nideshalaya, Delhi, 2015
3. Saral Hindi Parichay-1, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai- 17, Second Edition – May, 2014
4. Hindi Bhasha evamVyakaran, Dr.SambunathTiwari, Pooja Publication, Kanpur
5. Subodh Hindi Rachna-2, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai-17, First Edition – October, 2018

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1				**4**		
CO2			**3**			
CO3			**3**			
CO4			**3**			
CO5						**6**

Mean – 3.8

HIS 1424 **संप्रेषण हिन्दी (Sampreshan Hindi)** **5Hrs/4Cr**

The course students will get the knowledge of hindi communication skills about tourism. Students improve their Translation Skills. Students will gather knowledge about technical terms and terminology.

Course out Comes

At the end of the Course Students will be able to

i. Justify the Basic of grammar for effective communication.
ii. Build the conversational ability
iii. Speak, and develop their communicational skills about tourism.
iv. Classify different types of Administrative phrases.
v. Get knowledge of Technical terms in Hindi

Unit1 –तकनीकी शब्दावली

मंत्रालयों के नाम – 10, पदों के नाम – 10 तकनीक शब्द – 10, पारिभाषिक शब्दावली – 10

Unit2 - गद्यांश

Unit3 -वार्तालाप – 2 दोस्तों के बीच, रेल्वेस्टेशन में,चिट्टिया घर में

Unit4-अनुवाद – 2 पाठ – 6,से – 10 तक

Unit5-पर्यटन ताजमहल, अजंता एल्लोरा, कोणार्क मंदिर

Text book

Prepare by the course Teacher in Department of Hindi.

References:

1. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002. 2015
2. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17
3.Hindi pracharvaghini - 1, Dakshin Bharath Hindi Prachar Sabha, Chennai, 2019.
4.Hindi Vyakaranoure Rachana, RajkamalPrakashan, 2017
5.Anuvadh avampathrkarviyavkar, vani prakashan,2016

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**2**					
CO2		**2**				
CO3			**3**			
CO4				**2**	**6**	

CO5						**5**

Mean – 4

HIN 1216 प्रयोजनमूलक हिंदी औरअनुवाद (Functional Hindi and Translation) **3Hrs / 2 Cr**

The aim of the course is to build interest to know about Hindi grammar and use it. Students improve their Translation Skills to use in day today life.

i. understand the basic Hindi grammatical terms like word, noun and pronoun.
ii. understand the types of Tenses and use it to simple sentences.
iii. identify the grammatical terms of adjective and adverb.
iv. learn different types of Gender and Number.
v. develop the translation skills from Hindi to English and English to Hindi.

Unit-1शब्दभंडार गिनती (1-50), जानवरों और पक्षियों के नाम

Unit-2व्यावहारिक व्याकरण सरल हिंदी परिचय (1-5)

Unit-3संवाद लेखन दोस्त का परिचय, रेल्वे स्टेशन में, बाज़ार में

Unit-4विकास के संकेत विकास के संकेत **-** सामान्य

Unit-5 अनुवाद पाठ (1-5)

Text Book :

Prepared by the Course Teacher

Reference Books :

1.Subodh Hindi rachna-1, Dakshin Hindi Bharath Hindi Prachar Sabha, T.Nagar, Chennai-17, First Edition – October, 2018
2. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002.
3. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**

CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4						**6**
CO5			**3**			

Mean – 3.4

HIN 1226 बोलचाल हिन्दी : II (Spoken Hindi :II) 3Hrs/2Cr

This course aims to enhance the writing and reading skills of the students. It also give develops their Creative and analytical ability.

At the end of the course students will be able to-

i. develops their Vocabulary Skills.
ii. Speak the different types of Conversation used in day today life.
iii. Understanding the basic Concepts of the Comprehension
iv. understand the precise writing and frame Sentences. in Hindi
v. get the knowledge of words and sentences write in Hindi and English.

Unit:1 शब्द भंडार (Vocabulary)
पशु-पक्षियाँ,सब्जियाँ,वस्त्र एवं परिधान,रंग,भोजन पदार्थ,प्रश्न सूचक शब्द,गिनती 51-100.

Unit :2 लिंग, वचन

Unit :3.काल सरल हिंदी परिचय

Unit :4.वार्तालाप (Conversation) अस्पताल में– (In the Hospital), होटल में – (In the Hotel), दफ्तर में – (In the office)

Unit5 .अनुवाद(Translation) पाठ – 6,से –10 तक हिन्दी प्रचार वाहिनी **1**.

Text Book
Study material prepared by the faculty in department of Hindi.

References :

1. Hindi VyakaranevamRachana,Dr.GayathiriDevi,Ajmera Publication,jaipur.2015.
2. Subodh Hindi Rachana – Dhakshin Bharath Hindi PracharSabha.chennai – 2015
3. Practical Hindi Grammer and Composition with key,kumara Saradhambal,Chennai,-2014
4. Aadhunik Hindi Vyakaran Swaroop evamPrayog,DrBharathykubalkar,New Delhi,2015
5. Vahini Prachar- – Dhakshin Bharath Hindi PracharSabha.chennai – 2015
6. Hindi Vatayan,Dr.K.M.Chandra Mohan,VishwaVidyalaya,Prakasan,Vranasi.2013

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**2**					
CO2		**2**				
CO3			**3**			
CO4				**2**	**5**	
CO5						**6**

Mean – 4

Value Added Courses

HIS 121V **शब्द भंडार** **(Vocabulary)** **2Hrs / 2Cr**

The aim of this course is to encourage the Students to develop their Hindi Vocabulary by giving the students practice in Hindi Phonetics, Pronunciation, Words with the required vocabulary.

At the completion of this course, the students will be able to fluently use in their speaking and writing

vi. Alphabets, Words without Matras, Words with Matras
vii. Parts of the Body, Vegetables, Fruits, Flowers
viii. Days of the week, Name of the Months, Directions, Seasons
ix. Verbs, Intransitive, Transitive
x. Masculine, Feminine, Singular, Plural

Unit 1:वर्णमाला, बिना मात्रावाले शब्द, मात्रावाले शब्द,समान उच्चारणवालेशब्द (6)

Unit 2:शरीर के अंग, तरकारियाँ, फल, फूल(6)

Unit3:सप्ताह के दिनों के नाम, महीनोंके नाम, दिशाएँ, ऋतुएँ (6)

Unit 4: क्रिया, अकर्मक, सकर्मक(6)

Unit 5:पुल्लिंग, स्त्रीलिंग, एकवचन, बहुवचन (6)

Methodology of teaching-learning

One hour of teaching vocabulary and one hour of interaction or discussion of teacher's feedback on students' use of the same in speaking and writing

Text Book

Subodh Hindi rachna-1, Dakshin Hindi Bharath Hindi Prachar Sabha,T.Nagar, Chennai-17, First Edition – October, 2018

References :

7. Hindi VyakaranevamRachana,Dr.GayathiriDevi,Ajmera Publication,jaipur.2015.
8. Practical Hindi Grammer and Composition with key,kumara Saradhambal,Chennai,-2014
9. Aadhunik Hindi Vyakaran Swaroop evamPrayog,DrBharathykubalkar,New Delhi,2015
10. Hindi Vatayan,Dr.K.M.ChandraMohan,VishwaVidyalaya,Prakasan,Vranasi.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2			3			
CO3			3			
CO4		2	3			
CO5		2	3			

Mean – 3.8

HIS 221V **अभिवादन/ प्रत्याभिवादन (Greetings)** **2 Hrs. / 2 Cr**

The aim of this course is to develop an independent outlook towards the usage of greetings in different circumstances in Hindi language . The course encourages the student to learn Hindi for effective communication in different fields in day-to-day life and apply the greetings with effective communication in Hindi.

At the end of the course students will be able to

(i) get the knowledge of giving self introduction in Hindi.
(ii) develop the habit of thanking and offering service.
(iii) learn to apologize and to request
(iv) use words for congratulations in Hindi.
(v) understand how to command and permit.

Unit- 1 स्व-परिचयदेनाऔरपरिचयलेना

Unit -2कृतज्ञताज्ञापन, सेवाप्रदान

Unit -3क्षमाप्रार्थना, अनुरोध

Unit -4बधाइयाँ, शुभकामनाएँ

Unit -5आज्ञा, अनुज्ञा

Methodology of teaching-learning : One hour of teaching a greeting and one hour of interaction or discussion of teacher's feedback on students' use of the same in writing.

Text Book:

1. Kamkaji Hindi – Dr. P.M.Thomas, Sameeksha Publication House, Delhi , 2008.

References

1. KamkajiHindi – Dr. KailashchandraBhatiya, ThakshashilaPrakashan, Dariyaganch, New Delhi – 110 093 . Edition - 2006
2. VyavaharikHindi , Dakshin Bharath Hindi Prachar Sabha, Chennai – 17. First Edition – 2014
3. PrayojanmoolakHindi:SiddhanthAurPrayog – Dangal Jalte, Vani Prakashan, , Dariyaganch, New Delhi – 110 002 . Third Edition - 2015

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**	**3**			
CO2			**3**			
CO3		**2**	**3**			
CO4			**3**			
CO5		**2**	**3**			

Mean – 4.2

HIS 321V **सृजनात्मक लेखन** **(Creative writing)** **2 Hrs. / 2 Cr**

The Course aims to provide the information about the art of writing, detailing about the Theme, Characterization, Imaginations, Language and etc., The course also encourages the Act of Story writing among the students.

At the end of the course students will be able to

i get the knowledge of Hindi writing fluency.
ii develop their Vocabulary Skills.
iii frame Sentences in Hindi.
iv understand the types of Tenses and its usage.
v acquire Creative and Critical Thinking Skills

Unit 1–अनुच्छेद लेखन – समाज, और साहित्य

Unit 2– लघु कथा लेखन – तत्व, रूप, विभिन्न पकार, कला, भाषा, भाव आदि

Unit 3 - विज्ञापन- विज्ञापन के प्रकार, प्रस्तुति

Unit 4– चित्र वर्णन – विभिन्न चित्र देखकर लिखना है।

Unit 5 - सार लेखन – अभ्यास – (10)

Text Book –

Prepared by the course Teacher.

References

1. Agasthiar Hindi Learning and Speaking Course, Dr. S. Soumyanarayanan, Agasthiar Publications, NandhiKoil Street, Teppakulam, Trichy – 620 002.
Reference Text Books:
1.Subodh Hindi rachna-1, Dhakshin – 3, Dakshin Hindi Bharath Hindi Prachar Sabha, T.nagar, Chennai-17, First Edition – September 2010
2. Jai Hindi Grammar, ShriN.Gurumoorthy, Jai Publications, 34. Thanikachalam Road, Near Hindi Pracharsabha, T.Nagar, Chennai-17

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**2**					
CO2		**4**				
CO3				**4**		
CO4				**4**		
CO5					**5**	

Mean – 3.8

UNDERGRADUATE DEPARTMENT OF FRENCH

w.e.f. 2020-2021

Sem	Part		Code	TITLE	Hr/Wk	Cr	Marks
3	Part 1		TAS/HIS/FRS		3	2	30
	Part 2		ENS xxxx	StudySkills	3	2	30
	Part 3 Major	Core	FRS 2603	Le français intermédiaire - II	6	6	90
			FRS 2503	La phonétique française	5	5	75
			FRS 2405	L'expression écrite – I	4	4	60
			FRS 2409	Les régions de la France	4	4	60
		Self - Sup.	FRS 2411	Le français parlé - I	5	4	60
				Total	30	27	405

Sem	Part		Code	TITLE	Hr/Wk	Cr	Marks
4	Part 1		TAS/HIS/FRS		3	2	30
	Part 2		ENS xxxx	CareerSkills	3	2	30
	Part 3 Major	Core	FRS 2604	L'initiation à la traduction	6	6	90
			FRS 2504	L'histoire de France	5	5	75
			FRS 2406	L'expression écrite – II	4	4	60
			FRS 2414	Le français accéléré	4	4	60
		Self-Sup.	FRS 2412	Le français parlé - II	5	4	60
				Total	30	27 + 1	405

Value Added Courses

Sem	Code	TITLE	Hr/Wk	Cr	Marks
1	FRS 121V	*Cours préparatoire pour DELF A1* *(Preparatory Course for DELF A1)*	2	2	30
2	FRS 122V	Cours préparatoire pour DELF A2 *(Preparatory Course for DELF A2)*	2	2	30
3	FRS 221V	Cours préparatoire pour DELF B1 *(PreparatoryCourse for DELF BI)*	2	2	30
4	FRS 222V	Chantons en français *(Learn French through Songs)*	2	2	30
5	FRS 321V	La gastronomie française *(Introduction to French Gastronomy)*	2	2	30
6	FRS 322V	La Pratique du français langue étrangère (FLE) *(Teaching French as Foreign Language)*	2	2	30

P S O

Upon completion of the program, graduates will be able to

PSO 1: communicate proficiently and articulate well in French.
PSO 2: familiarize and compare the cultural differences through the study of civilization.
PSO 3: appreciate the French art, Culture & literary texts.
PSO 4: write a formal letter & Curriculum Vitae.
PSO 5: pursue higher studies in the subject of their choice such as literature translation and francophone studies in any of the universities in India and abroad.
PSO 6: compete and pass through intermediate French competitive exams like DELF
PSO 7: gain boosting confidence to teach French in educational institutions.
PSO 8: converse using professional jargons related to hotel industries.
PSO 9: adept at translating English to French and French to English efficiently.
PSO 10: communicate in French in francophone countries.

Mapping of Courses with Programme Specific Outcomes (PSOs) for revised courses

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
FRS 2603	✓				✓			✓		
FRS 2503	✓				✓	✓				
FRS 2405				✓	✓	✓				
FRS 2409		✓	✓				✓			✓
FRS 2604	✓				✓	✓			✓	
FRS 2504		✓	✓							✓
FRS 2406				✓	✓	✓				
FRS 2414	✓				✓	✓		✓		✓

FRS 2603 **Le français intermédiaire - II** **6Hr / 6Cr**
(Intermediate French - II)

This course is comprised of in-depth study of grammar categories and structures and aims to practice the grammatical structures correctly to create the creative sentences.

At the end of the course, students will be able to

i. demonstrate the usage of past tense in depth.
ii. select the correct form of tenses & utilize them accordingly.
iii. differentiate between different forms of pronouns.
iv. construct complex sentences.
v. write in paragraphs using correct grammatical terms.

Unit 1:	le plus que parfait, le futur antérieur, le conditionnel passé.	18hrs.
Unit 2:	le subjonctif, « SI » hypothétique, le gérondif.	20 hrs.
Unit 3:	les pronoms possessifs, les pronoms démonstratifs, les pronoms interrogatifs.	20 hrs
Unit 4:	les pronoms relatifs (simple et composé).	20 hrs
Unit 5:	le passif, les discours rapportés.	12 hrs

Textbook:

The course material will be provided by the course teacher.

References:

1. Nathalie BIÉ, Philippe SANTINAN, *Grammaire pour adolescents 250 exercices*. (niveau intermédiaire), CLE International, 2006.
2. Nathalie BIÉ, Philippe SANTINAN, *Grammaire pour adolescents 250 exercices*. (niveau débutant), CLE International, 2005.
3. Claire Miguel, *Grammaire en dialogues (niveau débutant),* CLE International, Paris, 2005.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1					5	
CO2		2				
CO3			3			
CO4				4		
CO5						6

Mean :4

FRS 2503 **La phonétique française** **5Hr./4Cr.**
(French Phonetics)

The aim of this course is to introduce the students to the details of the phonetic system of this language and phonology.

At the end of the course, students will be able to

i. understand the concept of phonics and phonology
ii. explain how French sounds are articulated
iii. read and produce phonemic transcriptions
iv. explain the basic functions of French intonation
v. analyse and practice transcriptions according to API

Unit 1	La phonétique et la phonologie	10 hrs
Unit 2	Les voyelles - les consonnes - les semi voyelles	20 hrs
Unit 3	La syllabe -les enchainements -la liaison- l'élision	20 hrs.
Unit 4	L'intonation	10 hrs.
Unit 5	La pratique de la transcription	15 hrs.

Textbook:
NirupamaRastogi. *Initiation à la phonétique du français.* Delhi : Langers 2016

References

1. Charliac Lucie, Jean Thierry, Le Bougnec, Bernard, Loreil, Annie-Claude, Motron, *Phonétique progressive du français*(Débutant) avec 400exercices, CLE International, 2003.
2. Jean-Louis Chiss, Jacques Filliolet, Dominique Maingueneau, *Introduction à lalinguistique française* - tome 1 : notions fondamentales, phonétique, lexique.Hachette Éducation, Paris, 2013
3. Francis W. Nachtmann Exercises in French Phonics, Stipes Publishing Company, Illinois, 1981.
4. https://www.podcastfrancaisfacile.com/apprendre-le-francais/phonetique-en-francais

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4	**1**					
CO5					**5**	

Mean : 3

FRS 2405 **L'expression écrite – I** **4Hr. / 4Cr.**

(Writing Skills–I)

It aims at strengthening the students' competency in the skills already acquired, focussing on written comprehension and written expression.

On successful completion of the course the student will be able to

i. create authentic documents and fill the forms.
ii. write messages and letters.
iii. construct sentences describing a person and a situation.
iv. analyzea situation and give his/her own opinion
v. narrate a story using his/her own words

Unit 1: Remplissez une fiche d'inscription – remplir une fiche, demander quelque chose. On Se Marie le 16 - Annoncer quelque chose, inviter quelqu'un, Accepter une invitation. 12 hrs

Unit 2: Bravo, C'est Super ! - Féliciter quelqu'un.Tu Viens Dimanche ? - Proposer quelque chose, Demander des renseignements sur un lieu.Désolé, Je Ne Peux Pas – Refuser, s'excuser, L'expression de la cause. 12 hrs

Unit 3: Je Suis Grande, Brune… - Décrire quelqu'un – Expliquer quelque chose – Donner des renseignements Moi, Je la trouve très jolie ! – Exprimer son opinion Elle n'est pas mal mais je préfère sa sœur – Comparer deux personne 12 hrs

Unit 4: A louer Gite tout confort – Embarquement immédiat porte 26 — Décrire un lieu Vive les vacances ! – Comparer deux lieux 12 hrs

Unit 5: Journée de rêve ou de cauchemar ? - Se situer dans le temps - Ordonner un récit Où étiez-vous le 22 Juin à 15 Heures ? - Raconter quelque chose, Préciser les circonstances et commenter. 12 hrs

Textbook: The course material will be provided by the course teacher

References :

1. Sylvie Poisson-Quinton, *Compétences A1Expression écrite Niveau 1*, CLE/SEJER, 2004

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5					**5**	

Mean : 3

FRS 2409 **Les régions de France** **4Hr / 4Cr**
(Regions of France)

The aim of this module is to give a panoramic view about the French regions, the departments, important personalities and the culinary specialities.

On successful completion of the course the student will be able to

i. identify and locate the regions and its prefectures
ii. describe most of the regions of France
iii. mention the specialities of the regions and its gastronomy and famous personalities.
iv. familiarize overseas and territories of the country
v. find and analyse French speaking countries across the globe.

Unit 1: Géographie 12 hrs
Unit 2: La Bretagne, La Normandie, Hauts de France, Grand Est 12 hrs
Unit 3: Pays de la Loire, Centre Val de Loire, L'ile de France, Bourgogne Franche comté 12 hrs
Unit 4: Nouvelle Aquitaine, Auvergne-Rhône-Alpes, Occitanie, PACA, Corse. 12 hrs
Unit 5: DOM-TOM 12 hrs

Textbook : The course material will be provided by the course teacher

References :

1. Ross Steele, *Civilisation progressive du français*(intermédiaire) avec 400 activités, CLE International, 2004.
2. Odile Grand-Clément, *Civilisation en dialogues*, niveau débutant, CLE International, 2007

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3				**4**		
CO4					**5**	
CO5			**3**			

Mean : 3

FRS 2604 **La pratique de la Traduction** **6Hr /6Cr**
(Translation Techniques)

The aim of this module is to initiate the students to the art of translation through a lot of practical sessions and make them understand the underlying techniques.

On successful completion of the course the student will be able to

i. identify and analyze seven types of translations in French and in English
ii. familiarize with commercial and technical terms in French and English
iii. appreciate French proverbs and find their equivalent in their native language
iv. find an equivalent to technical terms
v. apply theories, methodologies and knowledge in their contextual translation.

Unit 1: 7 procédés de la traduction. 20 hrs.
Unit 2: Les expressions. 20 hrs.
Unit 3: Les proverbes. 20 hrs.
Unit 4: Les termes électroniques 20 hrs.
Unit 5: La pratique de la traduction. 10 hrs.

Textbook: The study material will be provided to the students by the course teacher.

References :

1. Delphine Chartier, Marie-Claude Lauga-Hamid, *Introduction à la traduction: méthodologie* pratique (anglais-français) français – anglais. Toulouse : Presses universitaires du Mirail, DL 1995
2. Michel Ballard, *La Traduction de l'anglais au français*, NathanUniversité.1996

	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO1			**3**			
CO2		**2**				
CO3					**5**	
CO4	**1**					
CO5					**5**	

Mean : 3.2

FRS 2504 **L'histoire de France** **5Hr / 5Cr**

(History of France)

The aim of this module is to give knowledge of the French history to familiarize the students with the past society.

At the end of the course, students will be able to

i. list and define different French dynasties.
ii. illustrate and compare the kings of French kingdom.
iii. identify the causes of French revolution
iv. analyze and distinguish the impacts of the French revolution.
v. discover the French political system.

Unit 1 : Les dynasties.	15 hrs
Unit 2 : Les rois célèbres.	15 hrs.
Unit 3 : La révolution française : cause.	15 hrs
Unit 4 : La révolution française : conséquence.	15 hrs
Unit 5 : Les républiques françaises.	15 hrs

Textbook:

The course material will be provided by the course teacher.

References :

Odile Grand-Clément, *Civilisation en dialogues*, niveau débutant, CLE International, 2007.

Ross Steele, *Civilisation Progressive du Français* avec 400 activités (niveau intermédiaire), CLE International, SEJER, 2004.

https://www.histoire-france.net/

https://anciennescivilisations.com.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2		2				
CO3				4		
CO4				4		
CO5					5	

Mean : 3.6

FRS 2406 **L'expression écrite-II** **4 Hr / 4Cr**
(Writing Skills –II)

It aims at strengthening the students' proficiency in writing. It helps the students in developing their skills in narrating, writing drafts and editing.

On successful completion of the course the student will be able to

i. list their likes and dislikes and choose the words to describe them.
ii. rephrase information and transmit it to someone. Compare two different people or two different eras and describe them.
iii. prepare a CV and a covering letter and apply for a job.
iv. discover new recipes and give direction in French
v. appraise and justify an opinion

Unit 1 : Un Nouveau travail - le curriculum vitae – lettre de motivation - la demande d'emploi. Vide- Grenier A Coulommiers - Proposer quelque chose – Parler des activités de week-end. 12 hrs

Unit 2 : Vive les Vacances ! - Décrire des activités présentes et passées – Raconter une expérience – Comparer deux époques. Hum ! Ca sent bon ! Un Nouveau Parfum – Donner, exprimer son opinion sur quelque chose. 12 hrs

Unit 3 : Enfants / Ados : La Tyrannie des marques – Donner son opinion sur quelqu'un. Ecrire une lettre pour décrire un événement – pour commenter quelque chose. Des Gouts et des couleurs – transmettre une information, la résumer pour quelqu'un 12 hrs

Unit 4 : Dis-moi ce que tu mange.. – Relater une expérience personnelle, la commenter – Décrire ses gouts et préférences - rédiger une recette. 12 hrs

Jeunes fille partagerait Appartement – Décrire un projet de vie – Exposer un souhait.

Unit 5 : L'Ecole à deux ans – Etre pour ou contre – Exprimer une objection Pour ou contre la mixité - Justifier une opinion 12 hrs

Textbook: The course material will be provided by the course teacher.

References :

1. Sylvie Poisson-Quinton, Reine Mimran, *Compétences A2 Expression écrite* Niveau 2, CLE/SEJER, 2006

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5					**5**	

Mean : 3

FRS 2414 **Le français accéléré** **4Hr / 4Cr**

(Advanced French)

The course aims at developing the students' fluency and accuracy in oral and written expression, expanding the vocabulary and building on the skills already acquired at the previous level to reach a higher level of proficiency that is required in variety of domains in Today's France.

On successful completion of the course the student will be able to

i. describe the different stages of one's life and express their emotions
ii. report their everyday events and use of the pronominal verbs effectively
iii. acquire a good knowledge of technical terms
iv. speak about the weather and directions
v. contextualizedifferent aspects of tourism

Unit 1: les périodes de la vie – les émotions – le caractère	12 hrs
Unit 2: les activités quotidiennes – les commerces- faire les courses	12 hrs
Unit 3: la technologie- les médias- la banque	12 hrs
Unit 4: la géographie – la météo - les directions	12 hrs
Unit 5: le tourisme – les loisirs- les spectacles	12 hrs

Textbook: The course material will be provided by the course teacher.

References :

1. Claire Leroy-Miquel, Anne Goliot-Lété, *Vocabulaire progressive du français avec 250exercices (niveau intermédiaire)*, CLE International,SEJER,2007.
2. Evelyne Siréjols, *Vocabulaire en dialogues(niveau débutant)*, CLE International, 2007.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2	**2**					
CO3			**3**			
CO4				**4**		
CO5					**5**	

Mean : 3.4

Value added Courses

Offered From 2020

FRS 121V **Cours préparatoire pour DELF A1** **2Hr/2Cr**
(Preparatory Course for DELF A1)

The aim of this module is to recognize the linguistic competency of a basic user considered as social actors who are in "discovery level" of French language. This module aims to help the students to communicate in simple and routine tasks requiring the most common polite phrases and exchange of information covering up the four basic skills in French: listening, writing, reading and speaking.

At the end of the course, students will be able to

i. greet people in French
ii. talk about themselves and their family
iii. express their likes and dislikes
iv. develop simple buy & sell conversations, Fill & write simple form and post card
v. appear DELF A1 examination

Unit 1: La Compréhension orale	(6hrs)
Unit 2: La Compréhension écrite	(6hrs)
Unit 3: La Production écrite	(6hrs)
Unit 4: La Production orale	(6hrs)
Unit 5: Le Bilan	(6hrs)

Textbook:

The course material will be provided by the course teacher.

Dictionaries:

1. Bi-lingual: The concise oxford-Hachette French Dictionary, (French-English, English-French), Oxford-New York, Oxford University Press.
2. Mono-lingual French Dictionary: Le Petit Robert, Paris, Dictionnaire Le Robert

References:

4. Écho A1, méthode de français, J.GIRARDET, J.PÉCHEUR, CLE International, 2012.
5. Réussir le DELF, A1, Bruno Girardeau, Nelly Mous, GOYAL Publishers &DistributorsPvt. Ltd, 2010
6. Saison 1, A1, méthode de français, Élodie Heu, Catherine Houssa, Émilie Kasazian, Les Éditions Didier, Paris, 2015
7. https://apprendre.tv5monde.com/fr
8. http://www.delfdalf.fr/delf-a1-sample-papers.html
9. https://www.podcastfrancaisfacile.com/

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		1				
CO2			2			
CO3				3		
CO4			4			
CO5					5	

Mean : 3

FRS 122V **Cours préparatoire pour DELF A2** **2Hr./2Cr.**

(Preparatory Course for DELF A2)

The module of this course aims to make students understand isolated phrases and common expressions that relate to areas of personal relevance. This course helps students to communicate during easy or habitual tasks requiring direct and indirect information exchange on familiar subjects. This module aims to make students of I year French use simple words and describe his/her surroundings and communicate their immediate needs.

At the end of the course, students will be able to

i. understand and respond in detail about oneself
ii. describe events and daily activities
iii. read, ask and give directions & write notes and simple messages
iv. build simple conversations to buy tickets, order a meal, etc.,
v. appear DELF A2 examination

Unit 1	LaCompréhension orale	(6hrs)
Unit 2	LaCompréhension écrite	(6hrs)
Unit 3	LaProduction écrite	(6hrs)
Unit 4	La Production orale	(6hrs)
Unit 5	Le Bilan	(6hrs)

Textbook :

The course material will be provided by the course teacher.

Dictionaries:

1. Bi-lingual: The concise oxford-Hachette French Dictionary, (French-English, English-French), Oxford-New York, Oxford University Press.
2. Mono-lingual French Dictionary: Le Petit Robert, Paris, Dictionnaire Le Robert

References:

1. Écho A2, méthode de français, J.GIRARDET, J.PÉCHEUR, CLE International, 2012.
2. Réussir le DELF, A2, Bruno Girardeau, Nelly Mous, GOYAL Publishers &DistributorsPvt. Ltd, 2010
3. Saison 2, A2, méthode de français, Élodie Heu, Catherine Houssa, Émilie Kasazian, Les Éditions Didier, Paris, 2015
4. https://apprendre.tv5monde.com/fr
5. http://www.delfdalf.fr/delf-a2-sample-papers.html
6. https://www.podcastfrancaisfacile.com/

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4	**1**					
CO5					**5**	

Mean : 3

FRS 221V **Cours préparatoire pour DELF B1** **2Hr/2Cr**

(Preparatory Course for DELF BI)

The aim of this module is to recognize the linguistic competency of an independent user who is considered to be in "threshold level" of French. This module aims to let the students of II year French to understand the main points of clear standard speech on familiar subjects in work, school, leisure activities, etc., and to manage in most situations that come up when travelling in a region where French is spoken. This course helps the students to produce a simple and cohesive text on familiar subjects or subjects of personal interest.

At the end of the course, students will be able to

i. use complex sentences in various tenses using colloquialism
ii. understand and explain a project or idea
iii. narrate an event, an experience or a dream
iv. describe a desire or a goal
v. appear DELF B1 exam

Unit 1: La Compréhensionorale	(6hrs)
Unit 2: La Compréhension écrite	(6hrs)
Unit 3: La Production écrite	(6hrs)
Unit 4: La Production orale	(6hrs)
Unit 5:Le Bilan	(6hrs)

Textbook:

The course material will be provided by the course teacher.

Dictionaries:

Bi-lingual: The concise oxford-Hachette French Dictionary, (French-English, English-French), Oxford-New York, Oxford University Press.
Mono-lingual French Dictionary: Le Petit Robert, Paris, Dictionnaire Le Robert

References:

Écho B1, méthode de français, J.GIRARDET, J.PÉCHEUR, CLE International, 2012.
Réussir le DELF, B1, Bruno Girardeau, Nelly Mous, GOYAL Publishers &DistributorsPvt. Ltd, 2010
Saison 3, B1, méthode de français, Élodie Heu, Catherine Houssa, Émilie Kasazian, Les Éditions Didier, Paris, 2015
Grammaire progressive du français, niveau intermédiaire, nouvelle édition, Malia Grégoire, Odile Thiévenaz
https://www.didierfle-nomade.fr/
https://apprendre.tv5monde.com/fr
http://www.delfdalf.fr/delf-b1-sample-papers.html
https://www.podcastfrancaisfacile.com/

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4						**6**
CO5					**5**	

Mean : 3

FRS 222V **Chantons en français** **2Hrs. /2Crs.**

(Learn French through Songs)

The aim of this course is to enhance the student's skills to learn vocabularyand perfect their pronunciation. It sensitizes them to the cultural aspects, grammatical structures and builds up vocabulary in a fun filled way. The course fosters an enjoyable learning atmosphere, with the main focus on listening, understanding and learning French songs.

At the end of the course, students will be able to

i. understand native French pronunciation
ii. Fine-tune their articulation skills
iii. attain good listening skills
iv. understand the grammatical structures in an implicit way
v. sing French songs.

Unit 1	**Les chansons traditionnelles**	**6hrs.**
Unit 2	**Les chansons révolutionnaires**	**6hrs.**
Unit 3	**Les chansons contemporaines**	**6hrs.**
Unit 4	**Les chansons francophones**	**6hrs.**
Unit 5	**chantons ensemble**	**6hrs.**

Textbook: The course material will be provided by the course teacher.

References:

https://www.lepointdufle.net/p/chansons.htm
https://www.lepointdufle.net/p/lexique_musique.htm
https://www.lepointdufle.net/ressources_fle/je_joue_de_la_musique-calogero.htm
https://speechling.com/blog/6-french-songs-to-help-you-learn-french-through-music/
https://www.verbling.com/articles/post/learn-french-through-music
https://www.dhi.ac.uk/san/baudelaire/French_Songwriting_Teaching_Handbook.pdf
https://fle-chanson.blogspot.com/2017/05/toutes-nos-chansons-dun-seul-coup-dil.html
https://www.youtube.com/watch?v=Qn6IBCYVQAY
https://www.youtube.com/watch?v=Qn6IBCYVQAY
https://www.youtube.com/watch?v=0feNVUwQA8U
https://www.youtube.com/watch?v=0feNVUwQA8U

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4	**1**					
CO5					**5**	

Mean : 3

FRS 321V **La gastronomie française** **2Hrs. /2Crs.**
(Introduction to French Gastronomy)

The aim of this course isto understand and appreciate French gastronomy. French cuisine is highly reputed in the world. The courseaims also to develop a comparative study of Indian and French culinary traditions. It provides a better understanding of French culinary etiquette and manners.

At the end of the course, students will be able to

i. acquaint themselves with the history of French cuisine
ii. appreciate the cuisine of France
iii. describe most popular French foods
iv. explain the traditional etiquettes of French gastronomy
v. prepare and taste some French foods

Unit 1	**L'histoire de la cuisine française**	**6hrs.**
Unit 2	**La cuisine régionale**	**6hrs.**
Unit 3	**Les recettes célèbres**	**6hrs.**
Unit 4	**L'étiquette de la cuisine française**	**6hrs.**
Unit 5	**Visiteculinaire**	**6hrs.**

Textbook: The course material will be provided by the course teacher.

References:

1. https://gallica.bnf.fr/ark:/12148/bpt6k5534142z.pdf
2. https://www.slideshare.net/ShakirChataiwala/french-cuisine-ppt
3. https://www.lepointdufle.net/p/cuisine_gastronomie.htm

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4	**1**					
CO5					**5**	

Mean : 3

FRS 322V La Pratique du français langue étrangère (FLE) 2Hr. / 2Cr.
(Teaching French as Foreign Language)

French as a Foreign Language (FLE) is a specialised domain which fosters the didactics / methodology of teaching of French. FLE is similar to EFL / ELT English as a foreign language. This course aims at augmenting and sharpening the skills of teaching French as a foreign language,bringing into focus the new technologies in the field.

On successful completion of the course the student will be able to

i. teach French as a foreign language in schools.
ii. use modern techniques in teaching.
iii. identify different levels of learners and use different modes of instruction.
iv. evaluate effectively.
v. structure a lesson plan

Unit 1	Introduction aux manuels	(6)
Unit 2	Comment enseigner le vocabulaire	(6)
Unit 3	Comment enseigner la grammaire	(6)
Unit 4	Exploitation des ressources en ligne	(6)
Unit 5	Pratique de l'enseignement	(6)

Textbook: The course material will be provided by the course teacher.

References:

1. CBSE. (2014), Entre Jeunes Class IX, Academics and Training Wing, CBSE, New Delhi.
2. CBSE. (2014), Entre Jeunes Class X, Academics and Training Wing, CBSE, New Delhi.
3. C'est Chic! (2018), Methode de Français, Higher Secondary First Year, Government of Tamil Nadu.
4. C'est Chic! (2019), Methode de Français, Higher Secondary Second Year, Tamil Nadu Textbook and Educational Services Corporation.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1					**5**	
CO2			**3**			
CO3		**2**				
CO4	**1**					
CO5				**4**		

Mean: 3

UNDERGRADUATE DEPARTMENT OF ENGLISH
Grid for B.A. English
w.e.f. 2020-2021

Sem	Part		Code	Title	Hr./ Wk.	Cr.	Mark
I	Part I		TAM/FRE/HIN/TAS/FRS/HIS		3	2	30
I	Part II		ENG 1201	Conversational Skills	3	2	30
	Part III Major	Core	ENG 1481	Introduction to English Studies	5	4	60
			ENG 1483	British Prose I	4	4	60
			ENG 1485	Sports Literature	4	4	60
		Supportive	ENG1587	History of English Literature I	5	5	75
	Part IV	*Non-Maj. Elect.	ENG 1231	Introduction to Cinema	3	2	30
		Life Skill I	ENG 1233	English for Communication	3	2	30
				Total	**30**	**25**	**375**
II	Part I		TAM/FRE/HIN/TAS/FRS/HIS		3	2	30
II	Part II		ENG 1202	Reading &Writing Skills	3	2	30
	Part III Major	Core	ENG 1482	British Poetry I	5	4	60
			ENG 1484	British Fiction I	4	4	60
			ENG 1486	British Drama I	4	4	60
		Supportive	ENG 1588	History of English Literature II	5	5	75
	Part IV	*Non-Maj. Elect.	ENG 1232	Science Fiction	3	2	30
		Life Skill II	ENG 1234	Word Power	3	2	30
	Part V	Extension	XXX	(NSS /NCC, NSS, SLP)	2	1+1	
				Total	**30+2**	**25**	**375**
III	Part I		TAM/FRE/HIN/TAS/FRS/HIS		3	2	30
III	Part II		ENG 2201	Study Skills	3	2	30
	Part III Major	Core	ENG 2581	British Poetry II	5	5	75
			ENG 2483	British Prose II	4	4	60
			ENG 2485	British Fiction II	5	5	75
			ENG 2587	Indian Literature in English	5	5	75
		Supportive	ENG 2489	Critical Reading &Writing	5	4	60
			Total		**30**	**27**	**405**

Sem	Part		Code	Title	Hr/ Wk	Cr.	Mark
IV	Part I		TAM/FRE/HIN/TAS/FRS/HIS		3	2	30
	Part II		ENG 2202	Career Skills	3	2	30
	Part III Major	Core	ENG 2582	British Poetry III	5	5	75
			ENG 2584	British Drama II	5	5	75
			ENG 2586	American Literature	5	5	75
		Supportive	ENG 2488	Translation: Theory & Practice	5	4	60
		Innovative	ENG 2490	English for Media	4	4	60
	Part V	Extension	XXX	Extension Activity (NSS/NCC, NSS, SLP)	2	1	
				Total	**30+2**	**27+1**	**405**
V	Part III Major	Core	ENG 3691	British Fiction III	6	6	90
			ENG 3693	Literary Criticism	6	6	90
			ENG 3695	Varieties of English	6	6	90
		Innovative	ENG 3597	Human Rights & Literature	5	5	75
	Part IV	Life Skill Course	ENG 3299	Creative Writing in English	3	2	30
	Part IV	VAL	VAL xxxx	Value Education	4	2	30
				Total	**30**	**27**	**405**
VI	Part III Major	Core	ENG 3692	Critical Approaches to Literature	6	6	90
			ENG 3694	Asian Fiction in English	6	6	90
			ENG/ENS 3696	Teaching English as a Second Language	6	6	90
		Innovative	ENG 3598	Contemporary Tamil Fiction in Translation	5	5	75
	Part IV	Life Skill Courses	ENG 3204	Environmental Studies & Literature	3	2	30
			ENG 3206	English for Placement	4	2	30
				Total	**30**	**27**	**405**
				Grand Total for semesters I-VI	**180+4**	**158 + 2**	**2370**

***Courses offered to Non-Major Students by the Department of English**

PART III Supportive

Sem	Course Code	Course Title	Hr./ Wk	Cr.	Mark
I	ENG 1587	History of English Literature I	5	5	60
II	ENG 1588	History of English Literature II	5	5	60
III	ENG 2489	Critical Reading & Writing	5	4	60
IV	ENG 2488	Translation: Theory & Practice	5	4	60
	Total		20	16	240

PART IV Non-Major Electives

Sem	Course Code	Course Title	Hr./Wk	Cr.	Mark
I	ENG 1231	Introduction to Cinema	3	2	30
II	ENG 1232	Science Fiction	3	2	30
	Total		**6**	**4**	**60**

PART IV Life Skills Courses

Sem	Course Code	Course Title	Hr./Wk	Cr.	Mark
I	ENG 1233	English for Communication	3	2	30
II	ENG 1234	Word Power	3	2	30
V	ENG 3299	Creative Writing in English	3	2	30
VI	ENG 3206	English for Placement	3	2	30
			12	**8**	**120**

Value Added Courses

Sem	Course Code	Course Title	Hr./Wk	Cr.
I	ENG 121V	Punctuation	2	2
III	ENG 221V	Tenses	2	2
V	ENG 321V	Travel Writing	2	2
			6	**6**

Internal and External Evaluation Pattern

General Question Pattern
Section A: Multiple Choice Question – 20 – 20 Marks
Section B: Paragraphs/Annotation – Internal Choice 5 x 7 Marks = 35 Marks
Section C: Essays – Open Choice – 3/5 X 15 Marks = 45 marks
Total = 100 Marks

1. **Poetry & Drama**
   i. Annotation with three specific questions: (2 + 2 + 1)
   ii. Paragraph
   iii. Essay

2. **Prose & Fiction, Linguistics, Survey, Literary Forms & Terms, ELE, Criticism, National Literatures, Creative Writing**
   i. Paragraph
   ii. Essay

3. **Three hour courses of two hour exam duration – Maximum 60 Marks**
   i. MCQ – 10 x 1 = 10 Marks
   ii. Paragraph 4/6 x 5 Marks = 20 Marks
   iii. Essay 3/5x10=30 Marks

4. **Conversational Skills, Spoken English, Pronunciation Skills**
   100% Oral

5. **Word Power & English for Competitive Exams**
   Different types of objective questions such as match-the-following, MCQ, fill-in-the-blanks, rewrite-the-following…

Internal and External Examiners are expected to set both objective and descriptive questions that test students' knowledge, comprehension, application, analysis, evaluation, and creativity.

Programme Specific Outcomes (PSOs) for BA English(Aided & SF)

Upon completion of the program, graduates will be able to

1. write well-organized and well-developed text-based paragraphs and essays;
2. identify and recall literary facts and concepts;
3. annotate and explain passages from prose, poetry and drama;
4. critically compare and contrast characters from the fictional world;
5. relate issues in fictional world to real life;
6. respond to social, ethical, political, cultural, environmental, and moral issues and dilemmas;
7. distinguish between opinions and facts;
8. pursue higher studies in Education, English, multidisciplinary courses, journalism and mass communication, and translation; perform well in competitive examinations, IELTS, TOEFL, public service examinations, and banking;
9. fluently communicate their ideas in English; and
10. learn, unlearn, and relearn as lifelong learners.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
ENG1201								✓	✓	✓
ENG1481	✓	✓	✓	✓		✓	✓		✓	✓
ENG1483	✓	✓	✓	✓		✓	✓			✓
ENG1485	✓	✓	✓	✓	✓	✓	✓		✓	✓
ENG1587		✓		✓	✓	✓		✓	✓	
ENG1231				✓	✓	✓	✓		✓	✓
ENG1233						✓	✓	✓	✓	✓
ENG1202	✓						✓	✓	✓	✓
ENG1482		✓	✓	✓	✓	✓		✓	✓	
ENG1484		✓	✓	✓	✓	✓		✓	✓	
ENG1486		✓		✓	✓	✓			✓	
ENG1588		✓		✓	✓	✓		✓	✓	
ENG1232		✓		✓	✓	✓		✓	✓	
ENG1234		✓				✓	✓	✓	✓	✓

Mapping of Programme Specific Outcomes (PSOs) with Programme Outcomes (POs)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
PSO1	✓	✓	✓	✓	✓	✓			✓	✓	✓
PSO2	✓		✓	✓	✓	✓		✓	✓	✓	✓
PSO3	✓	✓	✓	✓	✓			✓	✓	✓	✓
PSO4	✓		✓	✓	✓			✓	✓	✓	✓
PSO5								✓	✓	✓	✓
PSO6	✓	✓	✓	✓	✓		✓		✓	✓	✓
PSO7	✓	✓	✓	✓	✓	✓			✓	✓	✓
PSO8	✓	✓	✓	✓	✓	✓			✓	✓	✓
PSO9	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
PSO10	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓

ENG1201 Conversational Skills 3 Hrs./2 Cr.

The course aims at helping students converse in English on the matters that matter to them in daily life. It provides the learners with ample opportunities and social contexts through conversations so that they can freely and fluently use informal English. It also exposes them to the apt vocabulary of such informal conversations.

At the end of the course, students will be able to

i. articulate spoken utterances clearly and fluently,
ii. speak simple sentences in English with one another in unpredictable situations,
iii. participate in dyadic communication,
iv. use phatic communion, and
v. employ word-stress and intonation in spoken utterances.

Unit 1 Conversational skills **(9 Hours)**

Unit 2 Day-to-day matters like eating, emotions, fashion, health, friendship, money, romance, housing, job, faith & hope, busy life, memory, shopping, time, traffic, travelling, vacation, weather **(15 Hours)**

Unit 3 Social expressions **(10 Hours)**
Unit 4 English sounds **(6 Hours)**
Unit 5 English accent and intonation **(5 Hours)**

Textbook
Sekar, J. J. 2014. *Conversational Skills***.** Department of English, The American College.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3			
CO2	1	2	3	4	5	6
CO3	1	2	3	4	5	6
CO4	1	2	3	4	5	6
CO5	1	2	3			

Mean: 3.1

ENG 1481 Introduction to English Studies 5 Hrs./4 Cr.

Introduction to English Studies is a gateway to the systematic study of literature. As a foundation course, it will problematize the notion of literature and introduce different types and various aspects of literary genres. With the help of examples – poems, stories and excerpts from novels and plays – the students will learn inductively different elements of literature. They will also learn to respond to literary texts.

At the end of this course, students will be able to

i. define literature and explain its functions,
ii. understand and recognize the aspects of poetry and read poetry in the light of those aspects,
iii. identify the difference between fiction and non-fiction prose and understand the elements of fiction,
iv. describe features of drama and explain its development and
v. critique literary texts against the backdrop of literary movements.

Unit 1 **Definition and Scope of Literature (10 hours)**

"What is Literature?" from *Literary Theory: A Short Introduction* by Jonathan Culler
"What is Literature?" from *Introduction to Literary Studies* by Mario Klarer (SS)
Primary and Secondary sources

Unit 2 **Poetry (20 hours)**

Types of Poetry: Narrative & Lyric Poetry—(Epic & Ballad) (Sonnet, Ode, Idyll, Satire, & Elegy)
How does a poem mean?
Denotation & Connotation
Voice, Tone, Attitude
Figurative Language
Devices of sound
Prosody

Unit 3 **Fiction and non-fictional Prose (20 hours)**

Fiction, Novel, Short Story
Plot, Character & characterization, Points of view & perspectives, Setting, Verisimilitude
Types: Picaresque, Epistolary, Historical, Realistic, Science, Romance, Social, Domestic, Campus
Literary Prose & Essay, types of essays, Biography, Autobiography, Travelogue

Unit 4 **Drama (15 hours)**

Tragedy, Comedy, Tragi-comedy, Farce, Mystery & Morality Plays, Historical Plays,
Problem Plays, Restoration Plays, Comedy of Manners, One-act plays, & Absurd Plays
Plot Structure, Unities, Acts & scenes, dialogues & conversations, Soliloquy, Aside

Unit 5 **Literary Movements (10 hours)**
Renaissance, Romanticism, Neo-classicism, Romantic Revival, Victorian & Pre-Raphaelite, Realism, Naturalism, Modernism, and Postmodernism

References

Abrams, M.H. and Geoffrey Galt Harpham. *A Glossary of Literary Terms*, 10th Edn. Wadsworth Learning Cengage, 2009.
Boulton, Marjorie. *The Anatomy of Prose*. Routledge, 2013.
Kennedy, X. J. *An Introduction to Poetry*, 7th edn. Harper Collins, 1990.
Klarer, Mario. *An Introduction to Literary Studies*, 2nd edn. Routledge, 2004.
Mays, Kelly J. *The Norton Introduction to Literature*, 12th edn. W.W. Norton & Company, 2017.
Miller, Ruth & Robert A. Greenberg. *Poetry: An Introduction*. Macmillan, 1981.
Murphy, J.M. *Understanding Unseens*: *An Introduction to English Poetry and the English Novel for Overseas Students.* George Allen & Unwin Ltd., 1972.
Perrine, Laurence. Sound and Sense: An Introduction to Poetry, 7th edn. Harcourt Brace Jovanovich, Inc., 1987.

Reading List
(The teachers of this course are free to choose from the list given below to inductively teach the aspects of different genres. They are also welcome to use their own examples.)

Poetry

Gerard Manley Hopkins	"God's Grandeur"
William Cowper	"I Was a Stricken Deer, That left the Herd," "The Red Wheel Barrow"
William Carols Williams	"Poem"
Carl Sandburg	"Fog"
Robert Frost	"Dust of Snow," "The Silken Tentt," "Fire and Ice," "The Road Not Taken"
Shakespeare	"Shall I Compare Thee to a Summer's Day?"
Thomas Hardy	"Ah, Are you Digging on My Grave?"
William Blake	"The Sick Rose," "The Garden of Love"
Wilfred Owen	"Anthem for Doomed Youth"
Gieve Patel	"On Killing a Tree"
Emily Dickinson	"I heard a fly buzz when I died"
Langston Hughes	"A Dream Deferred"
Gwendolyn Brooks	"We Real Cool"
Timothy Steele	"Waiting for the Storm"
Ezra Pound	"In the Station of the Metro"
Richard Wilbur	"A Simile for Her Smile"
Dudley Randall	"Ballad of Birmingham"
Theodore Rotheke	"My Papa's Waltz"

Fiction

Aesop	"The Two Crabs"
O. Henry	"The Gift of the Magi"
Ernest Hemingway	"A Cat in the Rain"
James Baldwin	"Sonny's Blues"
George Saunders	"Puppy"

R. K. Narayan	"An Astrologer's Day"
John Updike	"The Rumour"
Guy de Maupaussant	"Maademoiselle"
Gabriel Garcia Marquez	"A Very Old man with Enormous Wings"
Charles Dickens	An excerpt from *Oliver Twist* as found in *Understanding Unseens*, 195-196

Drama

William Shakespeare	The first scene of *Hamlet*, Mark Antony's Speech, "If I profane with my "Unworthiest hands…." from *Romeo and Juliet*
George Bernard Shaw	An excerpt from *Pygmalion*

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	
CO2		2	3	4	5	6
CO3		2	3	4	5	6
CO4		2	3	4	5	6
CO5		2	3		5	

Mean: 3.4

ENG 1483 **British Prose I** **4 Hrs./4 Cr.**

This course aims at introducing students to the intellectual, social, religious, scientific, and political history of England from the 16th century up to the 19th century. The course will enable students to critically evaluate the nuances of British prose of these periods and thereby encourage them to learn various techniques involved in essay writing.

At the end of this course, students will be able to

i. appraise the didactic nature of English prose,
ii. analyze the character types peculiar to the first half of the 18th century,
iii. correlate the philosophical overtones of the late 18th century with the present times,
iv. critique the romantic elements in English prose and
v. generalize the different personality types.

Unit 1 **Renaissance Prose (12 hrs)**

Francis Bacon "Of Ambition," & "Of Travel" (SS)
Jeremy Taylor "Holy Dying"
Abraham Cowley "On Avarice"

Unit 2 **Neo-Classical Prose (12hrs)**

Joseph Addison "A Citizen's Diary" & "Ladies Head-dress"(SS),
Sir Richard Steele "A Prize Fight" & "The Pangs of the Jilted Lover"

Unit 3 **Transitional Prose (12hrs)**

Oliver Goldsmith "The Man in Black," & "National Prejudices" (SS)
Edmund Burke "A Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful"

Unit 4 **Romantic Prose (10hrs)**

S.T. Coleridge "Table Talk"
Charles Lamb "In Praise of Chimney Sweepers"
"A Dissertation upon a Roast Pig" (SS)
William Hazlitt "On the Ignorance of the Learned"

Unit 5 **Victorian Prose (14hrs)**

Thomas De Quincey "Confessions of an English Opium Eater: The Pains of Opium"
"On the Knocking at the Gate in Macbeth"(SS)
Thomas Carlyle "Heroes and Hero Worship"

References

Lewin, Gerald. *Prose Models*. Harcourt Brace Jovanovich, 1964.
Minto, William. *A Manual of English Prose Literature*. Atlantic Publishers, 1995.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4	5	
CO2		2	3	4	5	6
CO3		2	3	4	5	
CO4		2	3	4	5	6
CO5		2	3	4	5	6

Mean: 3.8

ENS 1485 Sports Literature 4 Hrs./4 Cr.

This course will enable students to realize the unique relationship between sports, society and literature. It aims at creating an interest in reading and writing about literature. It would attempt to study the way meanings are made in life and society through sports. It also purports to engage students with values that are and can be nurtured through sports.

At the end of the course students will be able to

i. discover the psychology of sports champions,
ii. understand the quintessence of disability sports narratives,
iii. correlate the themes of passionate struggle and triumph with cultural perspectives,
iv. critique gender politics in sports and
v. appraise various reflections of politics through life-writings.

Unit 1 Field stories (20 Hours)

Yuvraj Singh	*The Test of my life*: *From Cricket to Cancer and Back*
Haruki Murakami	"Most of what I know About Writing Fiction I learned by Running Every Day"
DeNeen Brown	"Six Pack Abs at Age 74" (SS)
David Halberstam	"Jordon's Moment"

Unit 2 Parasports (8 Hours)

Arunima Sinha	*Born Again on the Mountain*

Unit 3 Culture and sports (10 Hours)

Mary Kom	*Unbreakable* (SS)
Franklin Foer	"How Soccer Explains the American Culture Wars"

Unit 4 Gender and Sports (12 Hours)

Ruth Padawer	"The Humiliating Practice of Sex-testing Female Athletes"
Joyce Carol Oates	"Rape and the Boxing Ring"

Unit 5 Politics and Sports (10 Hours)

Maya Angelou	"Champion of the World"
Jessie Owens	"My Greatest Olympic Prize"
Walter White	"The Issue Transcends All"

Recommended Movies

Dangal
Bend It Like Beckham
Invictus

References

Bairner, Alan. et al., (eds.). *Routledge Handbook of Sports and Politic*. Routledge, 2016.
Crowe, Chris. *More than a Game: Sports Literature for Young Adults.* Scarecrow Press, 2004.
Dubey, Abishek. et.al. *She Dared, Women in Indian Sports*. Rupa Publications, 2019.
Goldthwaite, Melissa. A., et al. (eds). *The Norton Reader: Fourteenth Edition.* W.W. Norton Company, 2016.
Jarvie, Grant. *Sport, Culture and Society: An Introduction*. Routledge, 2006.
Tadie, Alexis. et al., (eds.). *Sport, Literature, Society: Cultural Historical Studies*. Routledge, 2014.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		3	3	4		
CO2		2		4	5	
CO3		2	3	4	5	
CO4		2		4	5	
CO5		2		4	5	

Mean: 3.5

ENG 1587 History of English Literature I 5 Hrs./5 Cr.

This course is a chronological survey of the major forces and voices that have contributed to the development of an English literary tradition from the Old English Period to the Age of Sensibility. It intends to focus on the emergence, evolution and progress of English literature during this period. It aims to introduce students to these various periods in the British literary history with a view to enabling them distinguish and identify the characteristics specific to each period. The course will showcase major literary movements and events in the context of the social, political, religious and economic changes that shaped English history.

At the end of the course, the students will be able to

i. trace the growth of English literature through the Old English and Middle English Period,
ii. identify the characteristic features specific to the Elizabethan age,
iii. compare and contrast the literary texts and genres of the Jacobean, Caroline and Commonwealth Periods,
iv. frame an overview of the social and historical context of the Restoration Period and
v. develop a chronological understanding of the major writers and their work in the Augustan Age.

Unit 1 The Old English Period (450-1066) to the Middle English Period (1066-1500) **(15 Hours)**
Unit 2 Elizabethan Age (1558-1603) **(10 Hours)**
Unit 3 Jacobean Age (1603-1625) Caroline Age (1625 to 1649) and Commonwealth Period (1649 to 1660) **(20 Hours)**
Unit 4 The Restoration Age to Enlightenment (1660 to 1700) **(15 Hours)**
Unit 5 Augustan Age (1700 to 1745) to Age of Sensibility (1745 to 1785) **(15 Hours)**

Textbook

Albert, Edward. *History of English Literature*, 5th edn. OUP, 2017.

References

Long, William J. *English Literature*. Generic, 2015.
Trevelyan, George M. *English Social History: A survey of Six Centuries-Chaucer to Queen Victoria*. Longmans, 1978.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4		
CO2	1	2	3	4	5	
CO3	1	2	3	4	5	
CO4	1	2	3	4	5	
CO5	1	2	3	4	5	6

Mean: 3.04

ENG 1231 Introduction to Cinema 3Hrs./2Cr.

This course aims at exposing learners to cinema as an art form with socio-cultural and political underpinnings. It deals with predominantly western films, their genres and movements. It also includes select Asian stalwarts and their representative works for analysis. The course will focus on different aspects of film production as well.

At the end of the course, students will be able to

i. distinguish/discuss the various aspects of cinema,
ii. interpret the visuals and visualize the text,
iii. analyse cinema as an industry and locate movies in social milieu,
iv. discuss/distinguish the views of acclaimed professionals in the field, and
v. evaluate films critically and also venture as script writers, actors and directors in cinema/TV/Social media besides free lancing.

Unit 1 **Film History (12 Hours)**
Origin and development, Early American cinema, Art & Dialectic in Soviet Film, German Expressionism, Italian Neo-realism, Japanese Film and Indian film.

Unit 2 **Aspects and Genres (8 Hours)**
Aspects: - premise, plot, characterization, screenplay, direction, acting, sound, & image.
Genres: - action, comedy, crime, drama, epic, horror, musical, romance, science fiction and war.

Unit 3 **Reading a Visual and Visualizing Script (8 Hours)**
Mise en scène: - set design, lighting, space, Composition, costume, makeup and hair styles, acting, film stock, shots, angles and aspect ratio.
Montage: - association of ideas, combination of sounds, optical effects

Unit 4 **Professionals Views (8 Hours)**

Baradwaj Rangan	*Kamal Hassan at 65: The Forgotten phase*
Edward Douglas	*Exclusive Mel Gibson Interview: A Candid and Rare Conversation*
The Hindu	*Craze for Hollywood films has come down, says PC Sreeram*
CBS News	*John Williams on Spielberg "Star Wars," and the power of Music*

Unit 5 **Screening and Critical Analysis (9 Hours)**
Film review, Script writing, Media blogging

Films for screening may include
1. *The Battleship Potemkin* (1925)
2. *Seven Samurai* (1954)
3. *Pather Panchali (*1955)
4. *Ben-Hur* (1959)
5. *Psycho* (1960)
6. *Chemmeen* (1965)

Short films for screening may include
1. *2+2=5* (2005)
2. *Aaba* (2017)
3. *Kuppaikkaaran* (2019)

7. *The Godfather* (1972)
8. *The Bicycle Thief* (1984)
9. *Katrathu Tamil* (2007)
10. *Joker* (2019)

References

Barnow, Erik and Krishnaswamy, S. *Indian Film: A Reviewing*. OUP, 1980
Beja, Morris. *Film and Literature: An Introduction*. Longman, 1997.
Ellis, Jack C. *A History of Film*. Allyn & Bacon, 1995.
Hayward, Susan. *Key Concepts in Cinema Studies*. Routledge, 2004
Monaco, James. *How to Read a Film.* OUP, 2009.
Robinson, David. *World Cinema: A Short History*. Eyer Methyen, 1981

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K`6
CO1	1	2	3		5	
CO2	1	2	3	4		
CO3			3	4	5	6
CO4			3	4	5	6
CO5			3	4	5	6

Mean: 3.7

ENG 1223 English for Communication 3 Hrs./2 Cr.

The purpose of the course is to create an ambience for students to speak English fluently and fearlessly, and to increase their potential to succeed in their professional and personal life.

At the end of this course, students will be able to

i. listen to discourses in English,
ii. speak English in their life situations,
iii. use English for practical purpose,
iv. express themselves fluently in any unpredictable circumstances and
v. practise listening and speaking with better understanding

Unit 1 **Listening Comprehension (10 Hours)**
Mobile, Television, Computer, News, Theatre, Talk Shows, Ratio, YouTube

Unit 2 **Communication Function (6 Hours)**
Greetings, introducing oneself, invitation, making request, expressing gratitude, complimenting and congratulating, expressing sympathy, apologising, asking for information, seeking permission, complaining and expressing regret.

Unit 3 **English in real life situations (10 Hours)**
At the College, Office, Library, Department, Bank, Railway Station, Post Office, Police Station, Travel Agency and Interview

Unit 4 **Fluency Development (10 Hours)**
Vocabulary enhancement, Conversational skills, Role play, Commentary etc.,

Unit 5 **English at Practice (9 Hours)**
Debates, Topic discussion, Story-Telling, Telephonic Conversation and Speech by Great Personalities

Activity: Independent Practice

Watching English movies
Listening to various News channels
Listening to Podcasts

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1				4	5	6
CO2		2	3	4	5	6
CO3			3	4	5	6
CO4			3	4	5	6
CO5		2	3	4	5	6

Mean: 4.3

ENG 1202 Reading & Writing Skills 3 Hrs./2 Cr.

The course aims at improving the learners' productive skills of English. It offers professional guidance on meaningful and aggressive reading experiences by familiarizing them with techniques and micro-skills of reading, comprehension abilities through literary and non-literary reading materials. It also strengthens their writing skills through the forms of writing that are useful to them academically and vocationally.

At the end of the course, students will be able to

i. practise the reading of simple prose texts silently and fast,
ii. produce their comprehension abilities,
iii. write letter of requests, permission and apology,
iv. write paragraphs with topic sentence and supportive sentences and
v. write five-paragraph essays on simple, contemporary themes.

Unit 1 Reading and comprehension skills **(10 Hours)**
Unit 2 Reading at various speeds, skimming & scanning, inferring & interpreting, predicting, reorganizing material, comprehension skills **(9 Hours)**
Unit 3 Writing leave letters and apology letters **(6 Hours)**
Unit 4 Paragraph writing, five-paragraph essay writing, **(10 Hours)**
Unit 5 Types of essay and paragraph writing: descriptive, argumentation, narrative, and expository **(10 Hours)**

Textbook

Sekar, John, J. 2014. *Reading and Writing Skills*. Department of English, The American College.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3			
CO2	1	2	3			
CO3	1	2	3	4	5	6
CO4	1	2	3	4	5	6
CO5	1	2	3	4	5	6

Mean: 3.1

ENG 1482 **British Poetry I** **5Hrs. /4 Cr.**

This course offers an introduction to the traditional forms of British poetry from the 16th century to the 18th century. The course presents an insight into the essential elements of poetry and helps students trace the rhyme scheme and metrical pattern in poems. Further it would offer an understanding of the nature and evolution of poetry and strengthen students' ability to read and analyze poems meaningfully.

At the end of the course, students will be able to

i. understand the characteristics of Elizabethan poetry,
ii. analyse the elements of metaphysical poetry,
iii. assess religious themes, symbols and motifs in poems,
iv. appraise the satire and wit embedded in the long verse narratives of the Neoclassical poets and
v. infer the idealization of the humble man, the country setting, and universal truths in the poems of the transitional poets

Unit 1 **Elizabethan Poetry (20 Hours)**

Philip Sidney	Sonnet 39**: "**Come sleep, O sleep**" (**from "Astrophel and Stella")
William Shakespeare	Sonnet 130: My Mistress' Eyes are Nothing like the Sun"
Edmund Spenser	"Amoretti": Sonnet 67 & Sonnet 75 (SS)

Unit 2 **Metaphysical Poetry (15 Hours)**

John Donne	"A Valediction: Forbidding Mourning"
Andrew Marvell	"The Definition of Love" (SS).
	"To His Coy Mistress"
George Herbert	"Redemption"

Unit 3 **Religious Poetry (20 Hours)**

John Milton	*Paradise Los*t (Book I)

Unit 4 **Neoclassical Poetry (10 Hours)**

John Dryden	"Mac Flecknoe"
Alexander Pope	"The Riddle of the World"
	"An Essay on Man: Epistle II (Stanza I&II)
	"Summer" (SS)

Unit 5 **Transitional Poetry (10 Hours)**

William Blake	"The Lamb," "The Tyger"
Robert Burns	"My Luve's like a Red Red Rose"
William Cowper	"Hatred and Vengeance," "The Sower" (SS)

References

Gardner, Helen. *The New Oxford Book of English Verse.* OUP, 1972.
Iona and Peter Opie. *The Oxford Book of Narrative Verse*. OUP, 1983.
Spearing, A. C. *Medieval to Renaissance in English Poetry.* CUP, 1985.
Quintana, Ricardo and Alvin Whitley. *English Poetry of the Mid and Late Eighteenth Century*. Alfred Knopf, 1963.

Mapping Of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2		4	5	
CO2	1	2		4	5	
CO3	1	2		4	5	
CO4	1	2		4	5	
CO5	1	2		4	5	

Mean: 3

ENG 1484 **British Fiction I** **4 Hrs./4 Cr.**

This course introduces the seventeenth and eighteenth century fiction. It deals with the different types of novels. It also deals with the beginnings of the English novel.

At the end of this course, students will be able to

i. understand the elements of allegory and read the novel from a puritanical context,
ii. analyse the themes of didacticism,
iii. examine satire and the political contexts,
iv. critique the aspects of the sentimental novel and modes of characterization and
v. infer the different narrative techniques and themes of gothic novel.

Unit 1 **Allegory (12 Hours)**
John Bunyan *Pilgrim's Progress* (1678)

Unit 2 **Didactic fiction (12 Hours)**
Daniel Defoe *Robinson Crusoe* (1719)

Unit 3 **Satire (12 Hours)**
Jonathan Swift *Gulliver's Travels: A Voyage to Lilliput* (Book I) (1726) (SS)

Unit 4 **Sentimental Novel (12 Hours)**
Oliver Goldsmith - *The Vicar of Wakefield* (1766)

Unit 5 **Gothic Novel (12 Hours)**
Horace Walpole *The Castle of Otranto* (1764)

References

Allen, Walter. *The English Novel***.** Penguin Books Ltd., 1954.
Cook, Terry. "Dividing the Swift Mind: A Reading of *Gulliver's Travels***.**" *Critical Quarterly***,** XXII, No.3, Autumn, 1980.
Eagleton, Terry. *The English Novel: An Introduction*. Blackwell Publishing Ltd., 2005.
Hilliard, Raymond F. "The Redemption of Fatherhood in *The Vicar of Wakefield." Studies in English Literature 1500-1900*. Vol. XXIII, No.3, Summer, 1983.
Kettle, Arnold. *An Introduction to the English Novel: Defoe to George Eliot*. Vol.1. Harper and Brothers, 1960.
Probyn, Clive T. *English Fiction of the Eighteenth Century 1700-1789*. Longman Group, 1987.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4		
CO2			3	4	5	6
CO3				4	5	
CO4				4	5	6
CO5					5	6

Mean: 4.4

ENG 1486 **British Drama I** **4 Hrs./4Cr**.

This course will enable students to read and interpret different sub-genres of drama in English Literature. It will also help students to know the different aspects of drama and the importance of Shakespeare in relation to other playwrights between the 16th and the 19th century.

At the end of this course, students will be able to

i. identify the features of Renaissance Drama,
ii. distinguish the aspects of Shakespearean comedy,
iii. examine the common themes in Shakespearean comedy,
iv. illustrate socio-political background of Restoration tragedy and
v. assess Comedy of Manners as a satire on contemporary society.

Unit 1 **Elizabethan Tragedy (12 Hours)**
Christopher Marlowe *Doctor Faustus*

Unit 2 **Shakespearean Comedy (12 Hours)**
William Shakespeare *A Midsummer Night's Dream* (ACTS I & II)

Unit 3 **Shakespearean Comedy (12 Hours)**
William Shakespeare *A Midsummer Night's Dream* (ACTS III, IV&V)

Unit 4 **Restoration Tragedy (12 Hours)**
John Dryden *All for Love*

Unit 5 **Comedy of Manners (12 Hours)**
Oscar Wilde *The Importance of Being Earnest* (SS)

References

Charlton, H.B. *Shakespearean Comedy*. Methuen & Co Ltd, 1938.
Griffiths, Stuart. *How Plays Are Made.* Heinemann Educational Books, 1982.
Neilson, William Allan (ed.). *Lectures on The Harvard Classics: Drama*. 1914.
Watson, G.J. *Drama: An Introduction.* Macmillan, 1983.

Mapping of Course outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4		6
CO2	1	2	3	4		6
CO3	1	2	3	4		6
CO4	1	2	3	4		6
CO5	1	2	3	4		6

Mean: 3.2

ENG 1588 History of English Literature II 5 Hrs./5 Cr.

This course is a sequential course to History of English literature I. It is a chronological survey of the major contexts and authors that had contributed to the development of English literature from the Romantic Age to the present. It aims to introduce the students to these various periods in the history of English literature, with a view to enable them distinguish and identify the characteristics specific to each period. The course will also throw light on the historical perspective and the social, political and religious background that shaped the history of other literatures in English.

At the end of the course, the students will be able to

i. trace the growth of English literature through the Romantic age,
ii. identify and distinguish the characteristic features specific to the Victorian age,
iii. develop an understanding of the works of the Modernist writers from a socio political and cultural perspective,
iv. assess the changing perspectives of writings through the age of postmodernism, and
v. develop an awareness of alternatively defined traditions and history of other literatures in English.

Unit 1 The Romantic Age (1798 to 1832**) (15 Hours)**
Unit 2 The Victorian Age (1832 to 1901) **(15 Hours)**
Unit 3 The Modern Age (1901…) **(15 Hours)**
Unit 4 History of other literatures in English I **(10 Hours)**
American Literature, Asian Literature
Unit 5 History of other literatures in English II **(20 Hours)**
Canadian, Australian, New Zealand, Indian, Caribbean and African

Textbook

Albert, Edward. *History of English Literature*. 5th edn. OUP, 2017.
A Handbook on history of other literatures in English prepared by the Department

References

Long, William J. *English Literature*. Generic, 2015.
Trevelyan, George M. *English Social History: A survey of Six Centuries-Chaucer to Queen Victoria*.
Longmans, 1978.
Walsh, William. Commonwealth Literature. Macmillan, 1979.

Mapping of the Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4		
CO2	1	2	3	4	5	
CO3	1	2	3	4	5	
CO4	1	2	3	4	5	
CO5	1	2	3	4	5	6

Mean: 3.04

ENG 1232 **Science Fiction** **3 Hrs./2 Cr.**

The purpose of this course is to provide an understanding of contemporary science fiction by tracing the origin of the genre. It will survey the history of the genre and then delve into representative themes in texts and films.

At the end of the course, students shall be able to

i. classify the science fiction,
ii. examine the space and time warps stemming from scientific theories,
iii. analyse the influence of science and technology in literature,
iv. assess the Other endangered habitants outside the earth and
v. relate science fiction to movies adapted from science fiction.

Unit 1 **Introduction (9 Hours)**
Classifications: Hard & Soft science fiction (material prepared by the Department)

Unit 2 **Time Travel Science Fiction (9 Hours)**
H.G. Wells *Time Machine*

Unit 3 **Cyberpunk (9 Hours)**
William Gibson *Johnny Mnemonic*

Unit 4 **Alien Science Fiction (9 Hours)**
Olaf Stapleton *Star Maker*

Unit 5 **Science Fiction Film adaptation (9 Hours)**
Alex Proyas *I, Robot* (SS)

References

Bould, M., and Robert, A. *The Routledge Companion to Science Fiction*, Routledge. 2009.
Kaveney, Roz. *From Alien to The Matrix: Reading Science Films*. I. B. Tauris. 2005.
Marshall B. Tymn, *The Science Fiction Reference Book*. Borgo Press. 1996.
Stableford, Brain. *Science Fact and Science Fiction: An Encyclopaedia*. Routledge. 2006.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2				4		
CO3					5	
CO4			3			
CO5						6

Mean: 4

ENG 1234 **Word Power** **3 Hrs./2 Cr.**

The course aims at helping students enrich their English vocabulary for academic and career purposes. They are introduced to a variety of strategies that enhance their ability to understand and retain new words. It also enables them to understand and apply the vocabulary gained in medicine, business, education, law, technology, sciences and the humanities.

At the end of the course, students will be able to

i. assess their present vocabulary range,
ii. grade their understanding of different and difficult words,
iii. analyse and apply the technical terms in every day usage,
iv. practise vocabulary for professional exams and
v. develop word power through word games.

Unit 1 **Introduction (8 Hours)**
Test of vocabulary range; test of verbal speed; test of verbal responsiveness; affixation- prefix, suffix; synonyms.

Unit 2 **Homonyms and Homographs (10 Hours)**
Words of foreign origin; antonyms; redundant words; phrases; acronyms; words commonly confused; slang and new words.

Unit 3 **Technical Terms (9 Hours)**
Personality types; behavior; relationships; family; medicines and science; buildings; education; law; technology and the humanities.

Unit 4 **Vocabulary for professional exams (10 Hours)**
TOEFL; IELTS; SAT; GRE; CAT; MAT; TANCET; BEC; GMAT

Unit 5 **Word Building through Language Games (8 Hours)**
Word building through puzzles; puns; riddles; word play; games.

References

Lewis, Norman. (2019) *Word Power Made Easy*. Bloomsbury.

Web sources

1. www.spelling-words-well.com
2. http://spellingbee.com
3. www.freetech4teachers.com
4. www.word-buff.com
5. www.vocabulary.com
6. http://www.merriam-webster.com/home.htm
7. http://infohawk.uiowa.edu

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2	3	4	5	
CO2	1	2		4		
CO3	1	2	3	4		
CO4	1	2	3			
CO5	1		3	4		6

Mean: 4.4

ENG 121V **Punctuation** **2 Hrs./2 Cr.**

Punctuation is important to writing as much as intonation is to speech. It primarily helps writers to indicate the pauses and the emphases on certain ideas or thoughts or arguments that are discussed in the text. This course aims at enabling first year undergraduate English literature students, who are expected to develop skills to document their responses in writing as the main mode of assessment and evaluation, to accurately use punctuation since it helps to strengthen the argument.

At the end of the course, students will be able to fluently use in their writing

i. the period, the question mark, and apostrophe,
ii. the comma, the colon and the semicolon,
iii. the exclamation, the dash, and the hyphen,
iv. the parentheses, the brackets, and ellipsis, and
v. the quotation marks, the ellipsis, and the interrobang (?!).

Unit 1 Period, Question mark, and Apostrophe **(6 Hours)**
Unit 2 Comma, Colon, and Semicolon **(6 Hours)**
Unit 3 Exclamation, Dash, and Hyphen **(6 Hours)**
Unit 4 Parentheses, Brackets, and ellipsis **(6 Hours)**
Unit 5 Quotation marks, Ellipsis, and Interrobang **(6 Hours)**

Methodology of Teaching-Learning
One hour of teaching a punctuation mark and one hour of interaction or discussion of teacher's feedback on students' use of the same in writing.

References
Butterworth, J. (1999). *Punctuation*. OUP.
King, G. (2004). *Good Punctuation*. Collins.
Straus, J. (2007). *The Blue Book of Grammar and Punctuation: An easy-to-use guide with clear rules, real-world examples, and reproducible quizzes*. Jossey-Bass.
Trask, R.L. (1999). *The Penguin Guide to Punctuation*. Penguin.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			6
CO2			3			6
CO3			3			6
CO4			3			6
CO5			3			6

Mean: 4.5

ENG 221V **Tenses** **2 Hrs/2 Cr.**

Tense is a basic concept of English Grammar. Tense enables users of English to convey the accurate time of action. Hence the course aims at helping students to master the uses of tenses.

At the end of the course, students will be able to

i. identify forms of the verb and modals,
ii. understand the concepts of tense and time,
iii. express action in the present,
iv. express action in the past and
v. express action in the future.

Unit 1 Forms of the Verb and Modals **(2 Hours)**
Unit 2 Tense & Time **(4 Hours)**
Unit 3 **The Present Tense (8 Hours)**
Simple Present, Present Progressive, Present Perfect, Present Perfect Progressive.
Unit 4 **The Past Tense (8 Hours)**
Simple Past, Past Progressive, Past Perfect, Past Perfect Progressive.
Unit 5 **The Future (8 Hours)**
Simple Future, Future Progressive, Future Perfect, Future Perfect Progressive.

Methodology of teaching-learning
One hour of teaching of the rules which govern tenses and one hour of exercises on the usage of the particular tense will be taken up.

References
Bourke, K. (2003). *English Verbs and Tenses*. OUP.
Davidson, G. (2003). *English Verbs and Tenses*. Learner's Publishing.
Fletcher, M. (1999). *Pictures of English Tenses: Level 1 & Level 2.* Brainfrendly Publication.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			6
CO2			3			6
CO3			3			6
CO4			3			6
CO5			3			6

Mean: 4.5

ENG 321V **Travel Writing** **2 Hrs./2 Cr.**

This course aims at introducing students to the genre of travel writing. It would enable students to transform travel experiences and observations into narratives. .

At the end of the course, students will be able to

i. understand Travel Writing as an emerging narrative,
ii. analyse different travel trends,
iii. explain the features of narrative journalism,
iv. demonstrate conventions of Travel Writing and
v. write widely across genres the experience of travel.

Unit 1 **Introduction (6 Hours)**
Introduction to Travel Writing.

Unit 2 **Understanding Travel Trends (6 Hours)**
Raul Dias "Notes from Bulgaria"

Unit 3 **Narrative Journalism (6 Hours)**
Priyadarshini Paitandy & Pradeep Kumar "What Air Travel Looks Like in the New Normal

Unit 4 **Conventions of Travel Writing (6 Hours)**
Paul Theroux *The Great Railway Bazaar*.

Unit 5 **Documentation & Publication (6 Hours)**
Researching, Rewriting and Self editing stories, breaking into print media for newspapers and magazines, Press tips, and syndicating their stories.

Reference

George, Don and Janine Eberle. *Lonely Planet's How to be a Travel Writer*. Penguin. 2017

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	6
CO2			3	4	5	6
CO3			3	4	5	6
CO4			3	4	5	6
CO5			3	4	5	6

Mean: 4.5

Undergraduate Department of Mathematics

w.e.f. 2020-2021

Course offered to Non-major students as Supportive by the Department of Mathematics (UG)

Sem	Part	Course Code	Course Title	Hrs/Wk	Credits	Marks
1	III	MAS 1472	Theory of Probability	5	4	60

Value Added Courses

Sem	Course Code	Course Title	Hrs/ Wk	Credits
1	MAT 121V	Mathematics for Competitive Examinations	2	2
3	MAT221V	Introduction to Astronomy	2	2
5	MAT321V	Hacks and Tips for Joint Admission Test - I	2	2
6	MAT322V	Hacks and Tips for Joint Admission Test - II	2	2

MAS 1472 Theory of Probability 5Hrs/4Cr

The aim of the course is to enable the students to understand the elementary concepts in probability as a measure of uncertainty and apply wherever there is a need in the field of data science. It also intends to introduce to the learner the concept of random variables and its ramifications in data science.

On successful completion of the course the student will be able to

i. illustrate with examples the basic concepts in probability
ii. identify and classify one dimensional discrete and continuous random variables
iii. identify and classify two dimensional random variables and apply while dealing with conditional distribution function.
iv. demonstrate the ability to apply the theoretical discrete distributions inexploratorydata analysis
v. determinethe ability to apply the theoretical continuous distributions inexploratorydata analysis.

Unit 1: Introduction: Sample space – Classical Probability – Empirical Probability – Axiomatic approach to Probability - Random Experiment and Event – Laws of Probability – Conditional Probability - Baye's Theorem. **(15 hrs)**

Unit 2: One dimensional random variable: Random Variable-Discrete and continuous distribution function-Probability density function. **(15 hrs)**

Unit 3: Two dimensional random variables: Discrete and continuous joint probability distribution function – Conditional Distribution Function. **(15 hrs)**

Unit 4: Discrete Distributions: Binomial, Poissonand Geometric distributions. **(15 hrs)**

Unit 5: Continuous Distributions: Rectangular, Normal and Gamma distributions. **(15 hrs)**

Textbook:

1. Gupta.S. C and Kapoor. V. K, Mathematical Statistics, Sultan Chand and Sons, 2001.

   Unit 1: Chapter 4 (sec 4.1, 4.3, 4.5 – 4.8)
   Unit 2: Chapter 5 (sec 5.1 – 5.4.3)
   Unit 3: Chapter 5 (sec 5.5 – 5.5.5)
   Unit 4: Chapter 7(sec 7.2 – 7.2.2, 7.2.4 – 7.2.6, 7.3 – 7.3.5, 7.5, 7.5.2, 7.5.3)
   Unit 5: Chapter 8 (sec 8.1 – 8.1.2, 8.1.4, 8.2 – 8.2.7, 8.3, 8.3.1)

References:

1. Pillai Bagavathi R.S.N, Statistics Theory and Practice, Eighth Edition, Sultan Chand and Company Ltd., New Delhi, 2017.
2. Rohatgi. V.K and Saleh. E, An Introduction to Probability and Statistics, Third Edition, John Wiley and Sons Inc., New Jersey, 2015.
3. Arumugam S and Thangapandian Isaac A, Statistics, New Gamma Publications Pvt. Ltd., 2003.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2	1		3			
CO3	1		3			
CO4				4		6
CO5			3			6

Mean: 3.2

MAT121V Mathematics for Competitive Examinations 2Hrs/2Cr

This course is designed for students who intent to apply for various competitive examinations. It enables the students to develop their quantitative skills which would strengthen their edge over others in competitive examinations. Adequate training is given so that they will overcome the fear of numbers with the required level of speed and accuracy. This will provide strategies and methods to solve problems in Mathematics section of any competitive examinations.

On successful completion of the course the student will be able to:

i. exhibit the efficacy in dealing with number system and simplification.
ii. demonstrate the use of mathematical logic as a tool for solving problems using profit and loss, ration and proportion and blood relation
iii. solve problems involving simple and compound interest, convert time and work, time and distance into mathematical equations and solve.
iv. formulate problems connected with age, numbers, sequence and ranking as simultaneous equations and solve.
v. solve problems involving statement & argument, statement & assumptions and statement & conclusion.

Unit 1: Number system and simplification – Average – Percentage –Series **(6 hrs)**

Unit 2: Profit and loss - Ratio and Proportion - Blood relation **(6 hrs)**

Unit 3: Simple and compound interest - Time, Speed and Distance - Time and Work **(6 hrs)**

Unit 4: Problem solving – Age and Numbers - Time sequence, number and ranking test **(6 hrs)**

Unit 5: Statement & Argument - Statement & Assumptions - Statement & conclusion **(6 hrs)**

References:

1. Aggarwal. R. S, A Modern Approach to verbal & non-verbal reasoning, S Chand & company Ltd., 2006.
2. Aggarwal. R. S, A Modern Approach to verbal reasoning, S. Chand & company Ltd., 2006.
3. Aggarwal. R. S, A Modern Approach to non-verbal reasoning, S. Chand & company, Ltd., 2006.
4. Aggarwal. R.S, A Modern Approach to logical reasoning, S. Chand & company Ltd., 2006.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2	3	4		
CO2			3	4	5	
CO3			3	4	5	
CO4			3	4	5	
CO5		2	3	4		

Mean: 3.6

MAT 221V **Introduction to Astronomy** **2Hrs/2Cr**

The course will concentrate on the celestial objects, various techniques used to fix an object in the sky, and the various parameters that help one to measure the distance of a star. The course also contains the laws governing the celestial bodies discovered by Keplar and Newton. The various phenomenon like eclipses and the waxing and waning of the moon, and the properties of different planets in the solar system, the development of calendar, and the astronomical instruments one uses to measure the celestial bodies are covered in the syllabus.

At the end of the course, the student will be able to

i. understand the celestial coordinates system.
ii. understand and appreciate the relative significance of the Earth with reference to celestial objects.
iii. understand the moon as the natural satellite of the Earth and its motion from the perspective of a person on the Earth.
iv. understand the Sun and its periodic motions.
v. understand the history of Evolution of Calendar.

Unit 1: Celestial Spheres: Celestial coordinates, Diurnal motion. **(6 hrs)**

Unit 2: The Earth: Zones of earth: Terrestrial Latitudes and Longitudes- Dip of Horizon Twilight. **(6 hrs)**

Unit 3: The Moon: Relation between sidereal and synodic months- Elongation-Phase of moon- Path of the moon with respect to the sun. **(6 hrs)**

Unit 4: Eclipses: Solar eclipse- Lunar eclipse-Ecliptic limits- Synodic period of the nodes of lunar orbit. **(6 hrs)**

Unit 5: Time: Equation of time- Seasons- Calendar- Conversion of time. **(6 hrs)**

References:

1. Kumaravelu S, SusheelaKumaravelu, Astronomy, SK Publishers, 2007.
2. Michael Zeilik, Astronomy The Evolving Universe- John Wiley & sons, 1988
3. George O.Abell, David Morrison, Sidney C. Wolff- Exploration of the Universe- Saunders College Publishing,1987.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2				4		
CO3			3			
CO4				4		
CO5					5	

Mean: 3.6

MAT321V Hacks and Tips for Joint Admission Test - I 2Hrs/2Cr

This is a preparatory course for any student of Mathematics aspiring to pursue postgraduate programs, integrated Ph.D. Programs at IISc, IITs and other premier institutions. This course aims at recalling the cherished concepts which are core for Mathematics learning and apply in tricky situations and predict the right answer in the given environment.

At the end of the course, students will be

i. reinforced with the concepts learnt in functions of a real variable and trained to tackle problems by applying and analyzing with the tools acquired.
ii. reinforced with the concepts learnt in Functions of multi Real Variables and trained to tackle problems by applying and analyzing with the tools developed.
iii. reinforced with the concepts learnt in Integral Calculus and trained to tackle problems with the knowledge they have gained.
iv. reinforced with the concepts learnt in Vector Calculus and trained to tackle problems with the skills and techniques they have learnt.
v. reinforced with the concepts learnt in Differential Equations and trained to tackle problems with the methods and procedures had been exposed to.

Unit 1: Functions of a Real Variable: Limit, continuity, intermediate value property, differentiation, Rolle's Theorem, mean value theorem, L'Hospital rule, Taylor's theorem, maxima and minima. **(6 hrs)**

Unit 2: Functions of Two or Three Real Variables: Limit, continuity, partial derivatives, differentiability, maxima and minima. **(5 hrs)**

Unit 3: Integral Calculus: Integration as the inverse process of differentiation, definite integrals and their properties, fundamental theorem of calculus. Double and triple integrals, change of order of integration, calculating surface areas and volumes using double integrals, calculating volumes using triple integrals. **(7hrs)**

Unit 4: Vector Calculus: Scalar and vector fields, gradient, divergence, curl, line integrals, surface integrals, Green, Stokes and Gauss theorems. **(6 hrs)**

Unit 5: Differential Equations: Ordinary differential equations of the first order of the form $y'=f(x,y)$, Bernoulli's equation, exact differential equations, integrating factor, orthogonal trajectories, homogeneous differential equations, variable separable equations, linear differential equations of second order with constant coefficients, method of variation of parameters, Cauchy-Euler equation. **(6 hrs)**

References:

1. Apostol T. M, Calculus, Volume I, 2nd. Edition, Wiley India, 2007.
2. Apostol T. M, Calculus, Volume II, 2nd. Edition, Wiley India, 2007.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	
CO2			3	4	5	
CO3			3	4	5	
CO4		2	3	4		
CO5		2	3	4		

Mean: 3.6

MAT 322V Hacks and Tips for Joint Admission Test - II 2Hrs/2Cr

This is a foundational course for any student aspiring to pursue postgraduate programs, integrated Ph.D. Programmes at IITs and IISc. This course is designed to provide opportunities to the students to develop academic talent to crack the national level entrance exams for higher studies.

At the end of the course, students will be

i. reinforced with the concepts learnt in Group Theory and trained to tackle problems with the knowledge they have gained.
ii. reinforced with the concepts learnt in Sequences of Real Numbers and trained to tackle problems with the tools and tricks acquired
iii. reinforced with the concepts learnt in Series of Real Numbers and trained to tackle problems with the knowledge they have gained.
iv. reinforced with the concepts learnt in Real Analysis and trained to tackle problems with the methods and knowledge they have gained.
v. reinforced with the concepts learnt in Linear Algebra and trained to tackle problems with the methods and procedures they have been exposed to.

Unit 1: Group Theory: Groups, subgroups, Abelian groups, non-Abelian groups, cyclic groups, permutation groups, normal subgroups, Lagrange's Theorem for finite groups, group homomorphisms and basic concepts of quotient groups. **(6 hrs)**

Unit 2: **Sequences of Real Numbers.** Sequence of real numbers, convergence of sequences, bounded and monotone sequences, convergence criteria for sequences of real numbers, Cauchy sequences, subsequences, Bolzano-Weierstrass theorem. **(6 hrs)**

Unit 3: Series of Real Numbers. Series of real numbers, absolute convergence, tests of convergence for series of positive terms – comparison test, ratio test, root test; Leibniz test for convergence of alternating series. **(6 hrs)**

Unit 4: Real Analysis: Interior points, limit points, open sets, closed sets, bounded sets, connected sets, compact sets, completeness of R. Power series (of real variable), Taylor's series, radius and interval of convergence, term-wise differentiation and integration of power series. **(6 hrs)**

Unit 5: Linear Algebra: Finite dimensional vector spaces, linear independence of vectors, basis, dimension, linear transformations, matrix representation, range space, null space, rank-nullity theorem. Rank and inverse of a matrix, determinant, solutions of systems of linear equations, consistency conditions, eigenvalues and eigenvectors for matrices, Cayley-Hamiltontheorem. **(6 hrs)**

References:

1. Gallian J. A, Contemporary Abstract Algebra, 9th Edition, Cengage, 2017.
2. Bartle R. G. and Sherbert D. R, Introduction to Real Analysis,4th Edition Wiley India, 2018.
3. Strang G, Linear Algebra and its Applications, 4th Edition, Brooks/Cole, 2006

4. Dummit D. S. and FooteR. M, Abstract Algebra, John Wiley & Sons, 2001.
5. Richard. R Goldberg, Methods of Real Analysis, Oxford & IBH Publishing Co. Pvt. Ltd., 2011.
6. KumerasanS,Linear Algebra: A Geometric approach, PHI, 2004.
7. Seymour Lipschitz, Anton H, Vasishtha A.R, Linear Algebra, Schaum's Outline Series, 2017.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3	4	5	
CO2			3	4	5	
CO3			3	4	5	
CO4			3	4	5	
CO5		2	3	4		

Mean: 3.8

UNDER GRADUATE DEPARTMENT OF PHYSICS

Value Added Courses

w.e.f. 2020-2021

Semester	Course Code	Course Title	Hrs./Wk.	Credits
I	PHY121V	Physics of Bio-molecules	2	2
II	PHY122V	Foundational Physics of Astronomy	2	2
III	PHY221V	Solar Devices–Installation and Maintenance	2	2
IV	PHY222V	Physics of Medical Equipment	2	2
V	PHY321V	CCTV Installation and Maintenance	2	2
VI	PHY322V	ICT tools for Physics	2	2

PHY121V **Physics of Bio-Molecules** **2Hrs/ 2Cr**

This course introduces students to the physics of biomolecules and experimental techniques used to assess their properties.

By the end of the course, students will be able to

i. identify the building blocks of biomolecules
ii. understand the forces responsible for dynamics of biomolecules
iii. explain the chemical reactions between biomolecules
iv. measure basic physical properties of bio fluids
v. analyse the results of some experimental techniques used in biomolecule characterization

Unit 1: The Building Blocks

Proteins- Lipids- Nucleic Acids- Carbohydrates- Water- Proteoglycans and Glycoproteins- Cells- Viruses- Bacteria- Other Molecules

Unit 2: Mesoscopic Forces

Cohesive Forces- Hydrogen Bonding- Electrostatics- unscreened Electrostatic Interactions- Screened Electrostatic Interactions- the Force between Charged Spheres in Solution- Steric and Fluctuation Forces- Depletion Forces- Hydrodynamic Interactions- Direct Experimental Measurements of Intermolecular and Surface Force

Unit 3: Motility

Diffusion- Low Reynold's Number Dynamics- Motility- First Passage Problem- Rate Theories of Chemical Reactions

Unit 4:Surface Phenomena

Surface Tension- Adhesion- Wetting- Capillarity- Experimental Techniques- Friction- Other Surface Phenomena

Unit 5: Experimental Techniques

Static Scattering Techniques- Dynamic Scattering Techniques- Osmotic Pressure- Force Measurement- Electrophoresis

Textbook

Applied biophysics, Tom Waigh - J. Wiley & Sons (2007).

References

1. "Water and Biomolecules: Physical Chemistry of Life Phenomena" by KunihiroKuwajima, KunihiroKuwajima, Yuji Goto, Fumio Hirata, Terazima and Mikio Kataoka, Springer, 2009.

2. "Physics of biomolecules and cells" by NATO advanced study institute

Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering					
K2: Understanding		**2**			
K3: Applying			**3**	**3**	**3**
K4: Analyzing			**4**		**4**
K5: Evaluating					
K6: Creating					
Mean					**3.1**

PHY122V Foundational Physics of Astronomy 2Hrs / 2Cr

This course is a novice to beginners in star gazing and imbibes a passion on sky watch.This is planned to introduce the basic concepts of astronomy. The students will familiarize themselves with instrumentation used for analyzing starlight and the innumerous celestial objects.

At the end of the course, the students will be able to

i. understand the specific aspects of the sky, adopting the unaided eye to do star gazing.

ii. identify the spectral classification of stars, its magnitudes and also illustrate the birthand death of stars and to estimate the stellar magnitudes.

iii. comprehend the planets, minor planets, satellites and their properties.

iv. utilize optical telescopes, either for formal research or as a hobby, and record common sky phenomena.

v. delineate the characteristics of galaxies and other celestial objects in the sky.

Unit 1Unaided Eye Astronomy

Sky with unaided eye- pole star- Nadir-Zenith-Celestial sphere – coordinate systems: Horizon system-longitude –latitude system-equatorial system- the ecliptic- RA/DEC coordinates- distance measurement, A.U- parsec.

Unit 2Constellations and Stars

Constellations- Zodiacs-Norton's map– Sky map-Stars- -Stellar distance – Stellar magnitude –spectral classification of stars- H-R diagram – Main sequence stars – Sun as a star- end state of stars – white dwarfs – Novae and Super novae – Neutron star – Black hole.

Unit 3 Solar System

Solar family –Planetary system-Asteroids and meteoroids-natural satellites of planets -seasons – Eclipse – Solar, lunar - Sun –layers of Sun- solar limb darkening-sunspot-solar imaging.

Unit 4 Telescopes and Mounting

Astronomical observations –Types of telescopes – Reflector and refractor type - Recording devices – Photography, Photomultipliers and CCDs. Radio telescope - IR, UV, X – Ray and Gamma ray telescopes- atmospheric seeing-Telescope mounting: Equatorial mounting, Alt-Azimuth mounting.

Unit 5 Galaxies& Mysterious objects

Galaxies; Milky Way galaxy -Types of galaxies - spiral –elliptical and irregulars- Andromeda galaxy -MilkyWay components: gas, stars, magnetic field and cosmic rays-21 cm line-Comets-Star clusters – Binaries-Nebula-Pulsars- Quasars- Aurora borealis- active galactic nuclei.

Textbooks

Jay M. Pasachoff, Roger Tory Peterson, A Peterson Field Guide to Stars and Planets 4th,Updated Edition , Wil Tirion (2019).

References

1. M.Pasachoff, Astronomy: From the earth to the Universe, Brooks/Cole, Thomson Learning, 2002
2. William Kaufmann, Astronomy: The Structure of the Universe, McMillan Publishing Co.inc, New York.(1999).
3. Frank H. Shu,The Physical Universe, An introduction to Astronomy, University Science Books, Mill Valley, California, (1982)

Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering	**1**				
K2: Understanding		**2**			
K3: Applying			**3**		**3**
K4: Analyzing			**4**		
K5: Evaluating				**5**	
K6: Creating					
Mean					**3**

PHY 221V Solar Devices–Installation and Maintenance 2Hrs / 2Cr

The aim of this course is to enable the Students to know the abundance of solar energy, radiation and to understand the principle of conversion solar energy into thermal conversion andelectricalenergy.Studentsgetexposedtovarioustypesofenergysources,installationand maintenance. They will know the different methods of energystorage.

By the end of this course, students will be able to

i identify the PV system anddesigning

ii list the requirements for installation and maintenance of solarpanel

iii describe the various technical prospects andtroubleshooting

iv identify various types of solar cooker, design and theiruses

v devise methods for energy storagesystems

Unit1 Solar Panel

Components of typical SPV system- Selection of systems design- Standards / regulations on earthing- safety measurement guidelines in solar plant- Designing a solar photo voltaic system

Unit 2 Solar Panel maintenance

PV plant installation- general and technical requirements- testing before installation, mounting solar modules –maintenance- precautions and preventive steps.

Unit3Solar Water Heating systems

General technical specification - environmental conditions- Sizing of solar water heater system- Installation - Maintenance and trouble shooting.

Unit 4Solar cooker

Principle of solar cooker- Types of solar cooker- Design – Reflector material – Tilt and Orientation – Benefits of Solar Cooker – Maintenance

Unit5 Solar Pond

Design – Construction – types – heat extraction system – salinity gradient – performance and efficiency – Maintenance of solar pond.

Textbook

1. S.P. Sukhatme, Solar energy principles of thermal collection and storage, IIEd. McGraw Hill Publications, New Delhi(2010).

References

1. Solar Energy, Fundamentals Design, modeling and Application: TiwariGN.-2015
2. Shah, Yatish T., Thermal Energy: Sources, Recovery, and Applications. CRC Press. (2018).
3. Hand book on Installation and Maintanence of Solar Panel, CAMTECH,Gwalior. (2013).
4. User's handbook on Solar Water Heaters –MNRE.
5. Solar C1ooking Basics - Rose Bazile.

Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering	**1**			**1**	
K2: Understanding		**2**	**2**		
K3: Applying		**3**	**3**		
K4: Analyzing	**4**				
K5: Evaluating					**5**
K6: Creating				**6**	**6**
Mean					**5.5**

PHY 222V Physics of Medical Equipment 2Hr / 2 Cr

To measure biological signals and to design a medical instrument, concepts of electronics and measurement techniques are needed.This course gives an introduction on the electronic principles used medical equipment. It enables them to gain knowledge on the functioning of various medical equipment involving diagnosis and treatment of disease in human.

At the end of the course, students will be able to

i. explain the basics of human physiology
ii. describe the principles of sensing and processing of biosignals in medical equipment
iii. explain the functioning of various monitoring equipment
iv. illustrate the working principles of various imaging equipment
v. elucidate the functions of therapeutic equipment

Unit 1Biosignals

Introduction – importance of bioinstrumentation – human body – bio signals – measurands – temperature – blood pressure – heart beat rate (ECG) – respiration – muscle tension (EMG) – blood volume pulse (BVP) – galvanic skin response (GSR) – brain activity (EEG)

Unit 2 Biosignal processing

Sensors – transducers – types – bio amplifiers – displays and recorders – telemetric systems

Unit 3Monitoring equipments

Blood flow and cardiac output measurement – oximeters – Pulmonary function measurements – Blood cell counters

Unit 4Imaging equipments

X – ray – Magnetic resonance imaging – 3D ultrasonic imaging systems – Thermographic equipment

Unit 5 Therapeutic equipments

Cardiac defibrillators – Heart-lung machine – Kidney machine – Drug delivery devices – Electrotherapy equipments

Text Book

M. Arumugam, Bio-medical Instrumentation, Ed.2, Anuradha Publications, 2003

Reference

1. Willard, Merritt, Dean and Settle, Instrumental methods of analysis, Ed.6 hill valley, California, 1996.
2. R.S. Khandpur,Handbook of Medical Instrumentation, Tata McgrawHill, 1999

Bloom's Taxonomy	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
K1: Remembering	**1**				
K2: Understanding		**2**			
K3: Applying			**3**	**3**	**3**
K4: Analyzing			**4**	**4**	**4**
K5: Evaluating					
K6: Creating					
Mean					4

PHY 321V CCTV Installation and Maintenance 2Hrs / 2Cr

This program is aimed at training candidates for the job of a "CCTV Installation Technician", in the Electronics sector/Industry and aims at building the following key competencies amongst the learner.

After completing the course the students will be able to,

i. understand and explain the concept in quality tools and apply such in day to day work to improve productivity & quality.
ii. install and Repair dysfunctional system.
iii. understand CCTV camera installation requirement in terms of equipment, system, tools, applications appropriate for a particular site.
iv. select suitable cameras and DVR to provide the better solution to the customers.
v. perform Trouble shootings and maintenance. Perform Testing and Commissioning.

Unit1 CCTV Camera Introduction

Constructing a video surveillance system.Explain functional of blocks and equipment required to implement a video surveillance system. Understanding types of CCTV Camera and their functionality. Site sketches and drawings.

Unit 2 CCTV Camera Installation

Safety and usage of the tools and components for CCTV installation. RJ45, BNC Connector Crimping - Camera Mounting Assembly – Power supply unit Connection - Network Cable Connection - Lens Adjustment– Safety – Site tidiness. Network Switch Installation and Configuration. Wireless Communication device Installation and configuration.

Unit3 CCTV Camera Configuration

Understanding the Configuration procedure-Create User Access- Assign IP Address- Assign Video Compression- Set Frame Rate- Set bandwidth- Set PTZ Preset - Set Time and Date, Time Zone – Set Recording mode – Set Privacy marking/Zone - Set OSD Name.

Unit4 Video Recorder Configuration

Recording & retrieving process of previously recorded footage to the controller of the system.DVR as interface to view and record the image transmitted by a camera.Explain the function of various blocks of DVR. Understand the recording format of a DVR - Create User Name and Password- Set Date and Time, Time Zone – Initialize hard Disk – Add Camera – Assign Recording type – Assign Frame Rate – Assign Video Compression – Set Bandwidth – Create Backup - Video Playback – Audio Integration.

Unit5 CCTV System warranty and troubleshooting

Warranty associated with the hardware product–documents for the hardware equipments–types of electronic surveillance products and functionalities. Company's policy on product's warranty and other terms and conditions– customer support and

service policy – camera specifications such as focus, lens type, zoom –hardware equipments before taking to the installation site –replace the hardware

Textbook

CCTV Camera Installation Training English Book. Paper pack, Mr.Prabhu, Jan 2017, CHIP SYSYEMS.

Bloom's Taxonomy	CO1	CO2	CO3	CO4	CO5
K1: Remembering	**1**				
K2: Understanding	**2**				
K3: Applying		**3**	**3**		
K4: Analyzing			**4**	**4**	
K5: Evaluating					**5**
K6: Creating					
Mean					**3.6**

References

CCTV camera equipment Installation, Servie& Maintenance, Govt of India, Ministry of skill development and Entrepreneurship directorate general of training

PHY 322V **ICT tools for Physics** **2Hrs / 2Cr**

This course provides an overview of applications of ICT in various fields and from different domains and helps the students developing innate and learned skills in realizing the ICT tools effectively in real life.

By the end of the course, students will be able to

i. acquire the knowledge of ICT and its components, usage of ICT in daily life.
ii. understand the educational applications of word processing,spreadsheets, presentation and drawing software.
iii. create a PDF file, condense files, using File and convert various file formats to PDF file.
iv. explore various possibilities of accessing internet and adopt different browsers for accessing internet resources.
v. categorize the types of multimedia and integrate multimedia resources in education and create e-content for a particular topic.

Unit 1 Introduction to an ICT system

What is ICT? - components of an ICT system - ICT in day-to- day life, ICT in Business-Financial services - Entertainment- public services-Education

Unit 2 Application software

Application software-Word Processing-Spreadsheets-Presentations-Graphics, Utility Software: PDF Creator-File Archiving-File Converter, Computer Security: Hacking-Computer Virus- Spyware and Spam-Anti-virus-Firewall-Misuse and abuse-Safe practices.

Unit 3 Network and Internet

Computer Network-LAN-WAN-Advantages of Networking- Internet-Concept and architecture- Accessing Internet - Locating Internet Resources - Navigating - searching - Selecting - Evaluating - saving and Bookmarking - Safe Practices – Browser - Types – Uses

Unit 4 Multimedia

Multimedia- Elements of Multimedia - Types of Multimedia - A Brief History of multimedia - Developing Multimedia - Interface Design Guidelines for Multimedia -Tools for Creating and Using Multimedia - Use of Multimedia in Education - advantages of Multimedia-demonstration of Physics concepts.

Unit 5 ICT for Assessment and e-content

Types of Assessment - Current Trends - Role of ICT -Computer Assisted Assessment (CAA) - Computer Adaptive Testing - Digital Tools and Options - Digital Rubrics - Tools for Creating Digital Rubrics - Digital Assessment Alternatives : Online Assessment - ICT for Self and Peer Assessment - Mobile Apps - Trends in Technology Electronic Content (e-content): Designing and Development of e-content - Graphics, Audio and Video-Creating and Editing .

Textbooks

1. Information communication technology (ICT) [concepts and applications**],** YekiniNureni, June 2014, DOI: 10.13140/RG.2.1.1802.72898.16.
2. Fundamentals of Multimedia, Ze-Nian Li, Mark S. Drew, Jiangchuan Liu, 2ed, Springer, 2014.

References

1. https://www.youtube.com/watch?v=TZtOkKqldCY
2. http://webopedia.com
3. http://www.library.georgetown.edu/.../research.../evaluating-internet-contentEvaluating
4. http://encyclopedia.jrank.org/articles/pages/6821/Multimedia-in-Education.html
5. Andrew S.Tanenbaum, Computer networks, Pearson Education, 2011.

Bloom's Taxonomy	CO1	CO2	CO3	CO4	CO5
K1: Remembering	**1**				
K2: Understanding		**2**			
K3: Applying			**3**		
K4: Analyzing		**4**	**3**		
K5: Evaluating					**5**
K6: Creating				**6**	**6**
Mean					**5**

UNDERGRADUATE DEPARTMENT OF CHEMISTRY
Value Added Courses

w.e.f. 2020-2021

Sem	Course code	Course Title	Hours	Credit
I	CHE 121V	Water and Purification Techniques	2	2
II	CHE 122V	Household Products	2	2
III	CHE 221V	Chemistry in Fireworks	2	2
IV	CHE 222V	Softwares in Chemistry	2	2
V	CHE 321V	Basics of Analytical Techniques	2	2
VI	CHE 322V	Pharma and Nutraceuticals Marketing	2	2

CHE 121V **Water and Purification Techniques** **2Hrs/2 Cr.**

Preamble:

This course highlights the sources, properties, purification and conservation of water. This course is aimed at providing chemistry knowledge for the removal of impurities present in the water, the need and ways of rain water harvesting and the related environmental issues.

At the end of the course, the students will be able to:

i. Classify types of water and its sources.
ii. Explain the properties of water and their biological, chemical and industrial applications.
iii. Describe various water quality parameters
iv. Outline the various water purification methods.
v. Discuss the need and method of rainwater harvesting.

Unit 1: Introduction (6 hrs)

Water- available water sources, characteristics of different water sources, classification of water, vulnerability of the water sources to contamination, water quality criteria, water formation, HydrologicalCycle, importance of water, water requirements: Domestic, Institutional, Industrial, Public andAgriculture

Unit 2: Properties of pure water (6 hrs)

Properties of pure water-colour, odour, surface tension, viscosity, boiling point, freezing point, heat capacity, heats of vaporization and fusion, cohesion, polarity and hydrogen bonding, pH, electrical conductivity, molecular structure at various temperature, biological, chemical and industrial applications of water, water as coolant, as universal solvent.

Unit 3: Parameters of natural water (6 hrs)

Physical parameters of natural water- turbidity, temperature, colour, taste and odour, solids, Total dissolved solids (TDS), electrical conductivity.
Chemical parameters of natural water- pH, acidity, alkalinity, hardness, dissolved oxygen, biological oxygen demand (BOD), chemical oxygen demand (COD).
Biological parameters of natural water-bacteria, viruses, algae, importance of water quality parameters, WHO limits for water quality of potable water.

Unit 4: Purification methods (6 hrs)

Definition: Hardness and alkalinity, Purification methods- Internal method- Lime – Soda process, Zeolite process, External method- Ion Exchange process, Sterilization and disinfection- Chlorination, Break point chlorination, Reverse Osmosis and Electro Dialysis.

Unit 5: Environmental effects on water (6 hrs)

Water for steam generation, Boiler troubles, Priming and Foaming, Scale formation, Boiler corrosion, Caustic embrittlement, environmental effects and controlling of BOD, COD, eutrophication and its causes, water pollution, water pollutants-sources, effects and controlling measures of water pollution, need for rain water harvesting and methods .

References:

1. B.K. Sharma and H. Kaur, Environmental Chemistry, Goel Publishing House, Meerut, 1996.
2. H.Kothandaraman and G.Swaminathan. Principles of Environmental Chemistry. B.I. Publications, Chennai, India. 1997.
3. A.K.De, Environmental Chemistry. 4th Edition, New Age International (P) Ltd., New Delhi, India. 2000.
4. AbnubhaKaushik, C.P.Kaushik "Perspectives in Environmental Studies" New Age International Publishers, 3rd Edition, 2009.
5. S.S. Dara, A Textbook of Environmental Chemistry and Pollution Control, 8th Edition, S. Chand and Sons, New Delhi, 2008.

Mapping of Bloom's Taxonomy with Course Outcome

CHE121V	K1	K2	K3	K4	K5
CO1	1				
CO2		2			
CO3		2			
CO4		2			
CO5			3		
Mean	2.0				

CHE122V **Household Products** ***2hrs /2 cr***

Preamble

This course is intended to expose the students to involve in the commercial products.It deals with various commercial products such as shampoo, soap, detergent, perfume, tooth paste and sanitizer products derived from ingredients.

Upon completion of the course, the students will be able to

i. Prepare shampoo, soap, detergent, perfume, tooth paste and sanitizer
ii. Explore industrial, technological and commercial dimensions of chemistry
iii. Gain information on the uses of chemistry in recent society
iv. Understand the functional role of various constituents of commercial products
v. Explain the chemical properties of ingredients

Unit 1: Shampoos & Hair colorants (6Hrs)

Ingredients - functions. Different kinds of shampoos – anti-dandruff, anti - lice, herbal and baby shampoos - manufacture of Shampoos.
Hair colorants – temporary colorants – semi and permanent colorants.

Unit 2: Soap and Detergent (6Hrs)

Soap and detergent: Difference between them - manufacture - different types of soap and their composition - action of soap and detergent - binders and builders.

Unit 3: Perfumes and Deodorants (6Hrs)

Essential ingredients of perfumes: vehicles − essential oil and synthetic fixatives fragrances - cosmetic formulations - environmental impacts of perfumes. Ingredients of deodorants - formulation

Unit 4: Products for Teeth (6Hrs)

Tooth pastes, tooth powders, mouth washes, teeth whiteners - general formulation and preparations.

Unit 5: Sanitizer and disinfectants (6 Hrs)

Importance of sanitizer and disinfectant – difference between sanitizer and disinfectant- effects of cleaning, sanitizing, and disinfecting products on the environment- choosing safer products – manufacture of sanitizer and disinfectants.

***Note :**

Preparation of Shampoo, Soap & Detergents, Perfumes, Tooth paste & Tooth powder, Sanitizer & Disinfectant will be given in the Laboratory.

References:

1. J.V.Simons, Science and Beauty Business Vol-1, Macmilan Education Ltd, 1989.
2. B.K. Sharma, Industrial Chemistry, Goel publishing & Co, 1995.
3. W.A.Poucher,Perfumes, Cosmetics and Soaps, (Vol.3), 9th Edition, SpringerScience Business Media, 1993.

Mapping of Course Outcomes with Bloom's Taxonomy

CHE122V	K1	K2	K3	K4	K5
CO1			3		
CO2			3		
CO3			3		
CO4			3		
CO5				4	
Mean	3.2				

CHE 221V **Chemistry in Fireworks** **2hrs/2Cr**

Preamble

This course deals withvarious fuels, oxidizers involved in fireworks, the manufacturing process of fireworks products and the fireworks material handling methods and transportation

On successful completion of the course, the student will be able to

i. Identify the history and preparation of Fireworks
ii. Describe the properties of fireworks chemicals.
iii. Apply the various oxidizers in pyrotech industry to prepare green crackers.
iv. Explain the use of colour producers and colour intensifiers
v. Outline procedures forsafe handling of fireworks and explosives.

Unit 1: Oxidizers (6 hrs)

History and development of fireworks- Physical, chemical properties of Potassium nitrate (KNO_3)-Potassiumchlorate ($KClO_3$) - Potassium perchlorate ($KClO_4$) - Barium perchlorate (Ba(ClO4)2).

Unit 2: Fuels (6 hrs)

Role of Sulfur (S) – Charcoal (C) – Magnalium (Mg+Al) – Aluminium Alloy (Mg+Al) – Magnesium(Mg) – Aluminium powder(Al) –Titanium(Ti) – Iron filings(Fe) – Black Copper Oxide (CuO).

Unit 3: Colourants (6 hrs)

Colour producers: Physical, chemical properties of Strontium nitrate ($Sr(NO_3)_2$) - Barium nitrate ($Ba(NO_3)_2$) - Sodium Carbonate (Na_2CO_3)-Copper sulphate - Red lead (Pb_3O_4)- Red iron oxide (Fe_2O_3)

Colour intensifiers: Role of PVC, Parlon in fireworks industry. Binders: Dextrin – Poly vinyl alcohol- green crackers-traditional crackers.

Unit 4: Manufacture & Safety (6 hrs)

Manufacturing of fireworks products: Flowers pots – Rockets – Caps – Atom Bomb – Ground Charka – Ariel Shots.

Safety measures: Raw materials storage – Weighing - Mixing– Filling – Drying – Packing - Product storage

Unit 5: Accidents & Handling (6 hrs)

Physical factors responsible for Accidents: Friction – Temperature – Humidity –Moisture – Pressure - Static electricity - Particle size – Purity of chemicals - Drying – Hygroscopicity. **Material Handling :**Manual handling –trucks-bullock carts – cycles – automobiles-fuse handling -handling the mix in the factory-material movement- transport restrictions -fire prevention and control.

Textbooks :

1 K. N. Ghosh, “The Principles of fireworks”, Second Edition, 1988.
2. Dr. Takeo Shimizu, “The art, science and technique of fireworks”, Director of Koa fireworks co Tokyo, 1981.

References:

1.Michael S. Russell “**The Chemistry of Fireworks**”, Royal Society of Chemistry,UK, 2009.
2. Geoffrey Lunn, “**Guide to Dust Explosion Prevention and Protection**”, Institution of Chemical Engineers, UK, 1992

Mapping of Course Outcomes with Bloom’s Taxonomy

CHE221V	K1	K2	K3	K4	K5
CO1			3		
CO2			3		
CO3			3		
CO4		2			
CO5		2			
Mean	2.6				

CHE 222V **Softwares in Chemistry** **2hrs/2cr**

Preamble

The objective of this course is to introduce and makes students have a hands-on experience in handling the chemistry software's like Chemdraw, MS Excel, Origin, Smiles, Gaussian and Gauss view. This course concerns with the applications of computer to draw, manipulate and analyze chemical structures and data. Also enriches them to utilize chemistry searchengines effectively.

On successful completion of the course, the student will be able to

i. Identifyand design Chemical structureusingChemDraw and Chem3D
ii. Describe MS excel to calculate, plot and analyse chemical data
iii. Prepare and analyses scientific graphing and data analysis using Origin
iv. Evaluate various chemical properties through Gaussian
v. Apply chemical search engines for effective searching and downloading the articles

Unit 1: ChemDrawand Chem3D software (6 Hrs)

ChemDraw: Introduction, download and installation process, Drawing various chemical structures (acyclic, cyclic, polycyclic, heterocyclic), nomenclature generation, conversion of name into molecular structure, calculation of physical properties such as density, molecular weight, ^{1}H, ^{13}C NMR prediction from molecular structure. Drawing structure of bigger molecules such as proteins, carbohydrates, and RNA/DNA, bio arts, use of templates.

Chem3D: 3D structure of molecules, conversion of 2D structure into 3D structure, File extensions, Cartesian coordinates, Dihedral angles, Energy minimization, calculation of surface properties, calculation of molecular electrostatic potential (MEP) surface, electrostatic potential (ESP) surface, solvent accessible surface. Atomic charge calculations, Calculation of dipole moments, MM2 calculations, Calculation of UV and IR spectra using MM2 calculations.

Unit 2: Excel (6 Hrs)

Introduction, create a spreadsheet, enter, format data, basic functions and formulae, create charts, tables and graphs. Incorporate tables and graphs into word processing documents, simple calculations.Plotting of Graphs - Planck's Distribution Law, Maxwell Boltzmann Distribution Curves as a function of temperature and molecular weight, determination of vapour pressure from Van der Waals Equation of State, Goal Seek Function - Acid-Base Titration Curve, Linear and Non Linear Least squares fit –Arrhenius temperature dependence of a rate constant, Linear and Non - Linear Regression - Michaelis-Menten Kinetics for Enzyme Catalysis.

Unit 3: Origin (6 Hrs)

Introduction to Origin, basic features like Scientific graphing, drawing various 2D &3D plots, Data analysis,statistics, signal processing, curve fitting,peakanalysis,conversion of graph to various file format like JPEG, GIF, EPS, TIF, PNG.

Unit 4: Gaussian and Gaussview (6 Hrs)

Introduction, download and installation process, Drawing various chemical structures (acyclic, cyclic, polycyclic, heterocyclic), Optimising a molecule,Basis Sets and Pseudo-potentials, frequency analysis,Molecular Orbitals, NBO analysis,Thermochemistry,Potential Energy Surface Scan.

Unit 5: Search Engines and Smiles (6 Hrs)

SEARCH ENGINES: Introduction to online chemical database search, Searching and downloading research papers using keywords in Scopus, Science direct, and Google scholar, reaction search, product search, reactant search, structure search using Sci-finder.

SMILES: Introduction - definition - usage of the Smiles in chemistry: and rings - geometrical isomers

References:

1. Prof. Dr. StefenBienz, Short Manual to the Chemical Drawing Program, ChemDraw, University of Zurich
2. ChemDraw v17.0 User Guide - Columbia University Libraries
3. K.V. Raman, Computers in Chemistry, Tata McGraw-Hill Ltd., New Delhi, 1993.
4. S. R. Crouch, F. J. Holler, Applications of MS Excel in Analytical Chemistry, Thomson, 2004.
5. J. B. Foresman and A. Frisch, Exploring Chemistry with Electronic Structure Methods, 3rd ed., Gaussian, Inc.: Wallingford, CT, 2015.
6. Origin User Guide, Origin Lab Corporation, 2016.
7. PiotrSzarota, Smile: A User's Manual, January 2011, Publisher: Editorial Aresta, ISBN: 8493826049

Website Links:

https://www.originlab.com/pdfs/Origin2017_Documentation/English/Origin_User_Guide_2017_E.pdf

http://resources.qiagenbioinformatics.com/manuals/clcdrugdiscoveryworkbench/current/index.php?manual=Copy_paste_SMILES_strings.html

https://www.daylight.com/dayhtml/doc/theory/theory.smiles.html

www.dartmouth.edu

www.chem.uzh.ch

https://library.columbia.edu/content/dam/libraryweb/locations/dsc/Software%20Subpages/ChemDraw_17_manual.pdf

Mapping of Course Outcomes with Bloom's Taxonomy

CHE222V	K1	K2	K3	K4	K5
CO1			3		
CO2			3		
CO3			3		
CO4			3		
CO5			3		
Mean	3.0				

CHE 321V **Basics of Analytical Techniques** **2hrs/2cr**

Preamble

This course deals with basics of various analytical techniques like Spectrophotometry, IR Spectroscopy, Atomic spectrometry, Voltametry and Chromatography. Principle, instrumentation, sampling and demonstration of the different techniques will be presented.

At the end of the course, the students should be able to

i. Explain the principle of different techniques
ii. Describe the instrumentation of the techniques
iii. Handle instruments
iv. Choose the appropriate technique for a specific purpose
v. Handle samples and perform experiments

Unit 1: Spectrophotometry (6 Hrs)

Introduction – electromagnetic spectrum – absorption laws of spectrophotometry – instrumentation: design and working principle - single-beam, double-beam and diode array spectrophotometers

Demonstration of spectrophotometric experiment

Unit 2: Infra Red Spectroscopy (6 Hrs)

Basic principles-Vibrational modes - Vibrational frequency – Principle – Instrumentation - Sampling techniques – Finger print region

Demonstration of FTIR experiment

Unit 3: Atomic spectrometry (6Hrs)

Flame emission spectrometry – theory – Atomic absorption spectrometry – Principle, instrumentation – sample preparation

Demonstration of AAS experiment

Unit 4: Voltametry (6 Hrs)

Electrodes – cell reactions – Voltametric cell – current voltage curve – supporting electrolyte – Linear sweep and cyclic voltametry : Principle and applications

Demonstration of CV experiment

Unit 5: Chromatography (6 Hrs)

Principles of chromatographic separation – classification – HPLC : Principle, Stationary phases, instrumentation, method development

Demonstration of Chromatographic separation experiment

References:

1. U.N.Dash, Analytical Chemistry: Theory and Practice, Sultan Chand & Sons, New Delhi,2004
2. Gary D.Christian, Analytical Chemistry, John Wiley & Sons, VI edition, 2005
3. Kaur, Instrumental Methods of Chemical Analysis, PragatiPrakashan, 2012.
4. Willard Merritt, Instrumental Methods of Analysis, 7th edition, CBS publishers & distributers, New Delhi.

Mapping of Course Outcomes with Bloom's Taxonomy

CHE321V	K1	K2	K3	K4	K5
CO1		2			
CO2		2			
CO3			3		
CO4			3		
CO5			3		
Mean	2.6				

CHE 322V **Pharma and Nutraceuticals Marketing** **2hrs/2cr**

Preamble

The objective of the course is to impart working knowledge to students to cater the needs of industry, to motivate them to develop technical skills and to train them in skills that would help them in finding best placements, particularly, in pharma and food industry.

On successful completion of the course, the student will be able to

i. Explain various anatomical, physiological and pathologicalsystems in human body
ii. Describe Nutraceuticals and pharmaceuticals and their dosage forms
iii. Classify drugs, explain their pharmacology
iv. Develop skills in marketing of pharma products
v. Compile and prepare presentations and apply the knowledge acquired in fields

Unit 1: Basic Anatomy, Physiology and Pathology (6Hrs)

Musculo-skeletal, Alimentary, Respiratory,Sensory,Urino–genital, Hemopoitic, Endocrine, Cardio vascular and Immune systems.

Unit 2: Pharmaceuticals and Nutraceuticals (6Hrs)

Drug discovery – concept to market– patenting – Formulating – Large scale manufacture of drugs – problems of purity of drugs and dosage forms – packaging, storing and dispensing of drugs and nutritional supplements.

Unit 3: Pharmocology (6Hrs)

Different medical treatments – Pharmacodynamics and pharmacokinetics- ADME – classification of drugs based on biological action – Forms and Route of Administering of drugs– Adverse drug reactions – Drug profile.

Unit 4: Marketing (6Hrs)

Pharma market structure overview – Selling and marketing – creating demand - detailing - planning for field - salesmanship- role, requirement and responsibility of a medical representative - tour schedule – work report – time management– interaction with doctors, stockists, retailers

Unit 5: Computers in Marketing and Field Training (6Hrs)

Planning, organizing - diary - detailing kit - Accounting -word - excel - presentation in power point - flash for animation– Apps in marketing–corresponding through social media - Field training in whole sale and retail outlet and training with marketing personnel.

References:

1. SekharMukhopadhay,Pharmaceutical Selling A Text book, Sterling Publishers Private Limited, 1997
2. Yalayyaswamy,Human anatomy and physiology for Diploma in Pharmacy, N N CBS, New Delhi, 2018.
3. R. M. Mehta, Drug Store and Business Management, Vallabh Prakashan,2003
4. P.N. Mallick, Medical Lecture Notes for Medical Representatives and Others, VoraMedical Publications,2001
5. Graham Patrick, Medicinal Chemistry, Viva Books Private Limited 2002.
6. G.L David Krupadanam, D Vijaya Prasad, K VaraprasadRao, KLN Reddy, C Sudhakar, Drugs, Universities press, Orient Longman Ltd.2001

Mapping of Course Outcomes with Bloom's Taxonomy

CHE322V	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3				4		
CO4						6
CO5						6
Mean	4.0					

UNDERGRADUATE DEPARTMENT OF BOTANY
w.e.f. 2020-2021

Semester	Part	Course No.	Course Title	Hr.	Cr.	Marks
1	I	***12XX	TAM/HIN/FRE	3	2	30
	II	ENG1201	Conversational Skills	3	2	30
	IIIC	**BOT1551**	**Ethnoecology**	**5**	**5**	**75**
	IIIC	**BOT1453**	**Learning Basic Skills In Biology(LBSB)**	**4**	**4**	**60**
	IIIC	**BOT1455**	**LAB I (Ethnoecology and LBSB)**	**4**	**4**	**60**
	IIIS	CHE13XX	Chemistry for Botanist -1(theory)	3	3	45
	IIIS	CHE11XX	Chemistry for Botanist -1(lab)	2	1	15
	IVE	***12XX	Basic Tamil/Adv.Tamil/ Non-Major	3	2	30
	IVLS	***12XX	Life Skill -1	3	2	30
	V	***11XX	NCA/NCN/NSS/PED/SLP		-	
			Total	**30**	**25**	
2	I	***12XX	TAM/HIN/FRE	3	2	30
	II	ENG1202	Reading and Writing Skills	3	2	30
	IIIC	**BOT1552**	**Genetics and Plant Breeding**	**5**	**5**	**75**
	IIIC	**BOT1454**	**Evolution & Phycology**	**4**	**4**	**60**
	IIIC	**BOT1456**	**LAB II (Phycology &Genetics)**	**4**	**4**	**60**
	IIIS	CHE13XX	Chemistry for Botanist – 2(theory)	3	3	45
	IIIS	CHE11XX	Chemistry for Botanist – 2 (lab)	2	1	15
	IVE	***12XX	Basic Tamil/Adv.Tamil/Non-Major	3	2	30
	IVLS	***12XX	Life Skill -2	3	2	30
	V	***11XX	NCA/NCN/NSS/PED/SLP		1	
			Total	**30**	**25+1**	
3	I	***22XX	TAM/HIN/FRE	3	2	30
	II	ENG2201	Study Skills	3	2	30
	IIIC	BOT2551	**Microbiology**	5	5	75
	IIIC	BOT2553	**Archegoniatae**	4	5	75
	IIIC	BOT2355	**Horticulture**	4	3	45
	IIIC	BOT2657	LAB III (Micro+Arche +Horticulture)	2+2+2	6	90
	IIIS	ZOO2349	General Zoology-I	3	3	45
	IIIS	ZOO2151	Lab in General Zoology-I	2	1	15
	V	***21XX	NCA/NCN/NSS/PED/SLP			
			Total	**30**	**27**	

Semester	Part	Course No.	Course Title	Hr.	Cr.	Marks
4	I	***22XX	TAM/HIN/FRE	3	2	30
	II	ENG2202	Career Skills	3	2	30
	IIIC	BOT2552	**Mycology and Pathology**	5	5	75
	IIIC	BOT2454	**Cell Biology**	4	4	60
	IIIC	BOT2456	**Anatomy and Reproductive Biology of Angiosperms (ARBA)**	4	4	60
	IIIC	BOT2658	LAB IV (Myco+Cellbio+ARBA)	6	6	90
	IIIS	ZOO2350	General Zoology II	3	3	45
	IIIS	ZOO2152	Lab in General Zoology II	2	1	15
	V	***21XX	NCA/NCN/NSS/PED/SLP		1	
			Total	**30**	**27+1**	
5	IIIC	BOT 3651	**Plant Systematics**	6	6	90
	IIIC	BOT3653	**Biochemistry**	6	6	90
	IIIC	BOT3555	**Analytical Techniques and Research Methodology**	5	5	75
	IIIC	BOT3657	LAB – V (Pt Systematics + Biochem)	3+3	6	90
	IVEVS	BOT 3259	Environmental Studies	4	2	30
	IVLS	***32XX	Life Skill – 3	3	2	30
				30	**27**	
6	IIIC	BOT3852	**Plant Biotechnology (Lab cum Theory)**	4+3L	8	75+45
	IIIC	BOT3454	**Entrepreneurial Botany**	4	4	60
	IIIC	BOT3656	**Plant Physiology (Lab cum Theory)**	5+2L	6	60+30
	IIIC	BOT3558	**Botany Project**	5	5	75
	IVLS	***32XX	Life Skill IV	3	2	30
	IVVE	VAL32XX	Value Education	4	2	30
			Total	**30**	**27**	

Supportive Courses

Semester	Part	Course No.	Course Title	Hr.	Cr.	Marks
1	**IIIS**	**BOT1357**	**Plant Biology I (theory)**	**3**	**3**	**45**
1	**IIIS**	**BOT1159**	**Plant Biology I (lab)**	**2**	**1**	**15**
2	**IIIS**	**BOT1358**	**Plant Biology II (theory)**	**3**	**3**	**45**
2	**IIIS**	**BOT1160**	**Plant Biology II (lab)**	**2**	**1**	**15**
3	IIIS	BOT2359	Botany for Chemists- I (theory)	3	3	45
3	IIIS	BOT2161	Botany for Chemists – I (lab)	2	1	15
4	IIIS	BOT2360	Botany for Chemists- II(theory)	3	3	45
4	IIIS	BOT2162	Botany for Chemists – II (lab)	2	1	15

***Life Skill Courses**

Semester	Part	Course No.	Course Title	Hr.	Cr.	Marks
1	**IVLS**	**BOT1251**	**Mushroom Culture Technology**	**3**	**2**	**30**
2	**IVLS**	**BOT1252**	**Nursery and Gardening**	**3**	**2**	**30**
5	IVLS	BOT3251	Medicinal Botany	3	2	30
6	IVLS	BOT3252	Biofertilizers and Biopesticides	3	2	30

***Non Major Courses**

Semester	Part	Course No.	Course Title	Hr.	Cr.	Marks
1	**IVE**	**BOT1253**	**Food and Nutrition**	**3**	**2**	**30**
2	**IVE**	**BOT1254**	**Plant Wonders**	**3**	**2**	**30**

Value Added Courses

Semester	Course No.	Course Title	Hr.	Cr.
1	BOT121V	Edible Mushrooms	2	2
2	BOT122V	Gardening Techniques	2	2
3	BOT221V	Plant propagation	2	2
4	BOT222V	Organic farming	2	2
5	BOT321V	Plantation crops	2	2
6	BOT322V	Skills in Biology	2	2

* All Job oriented courses

Programme Specific Outcomes (PSOs) for Undergraduates

1. Identify the diversity of nature to pursue his own career opportunity without disturbing the ecological balances.

2. Subscribe to the idea of climate conscious approaches while dealing with development activities

3. Probe new avenues in plant biology and pursue research

4. Explore suitable biotechnological approaches to develop the bio-entrepreneurship

5. Employ themselves in bio-based industries that offer Green jobs.

6. Evaluate and manage bioresources without bias and profiteering motives

7. Get back to the community as leaders and do such things that will appreciate the diverseness and togetherness in harmony with nature.

8. Draw from biotic associations in nature insights on to manoeuvre positive and negative influences that are essential for communal co living and societal interferences.

9. Learn from plants the idea of adaptations and acclimatization to entrain themselves to remain steadfast rather than running away from difficult situations.

10. Translate the idea of grand unification of life to draw lessons of pluralism and inclusivity.

BOT1551 Ethnoecology 5 Hr./5 Cr.

Preamble: This course is designed for the fresher as an introduction to the ecology of their own community and landscape. The study material is prepared to introduce the basics of ethnoecology and its components with reference to Madurai. The course is aimed at giving proper explanation for the better understanding of their surroundings. Further to understand the local knowledge on agriculture, natural resources management and traditional practices of the local community in their day to day life. After the completion of this course the student will be able to understand and appreciate the evolution of mankind and their tradition.

At the end of the course, students will be able to

i. understand the climatological changes and apply his knowledge in taking suitable initiatives to protect and conserve life support systems
ii. analyse the origin of human race and learn their habitat, cultural practices and occupation and identify the invasive and native plant species.
iii. relate sangam literature and landscapes and learn about the importance of sacred groves.
iv. assess the extent of environmental degradation in urban Madurai and join the initiatives of city administration in developing and ensuring a clean and green Madurai.
v. quantify the natural wealth and resources by using appropriate field methods to maintain the environmental serenity and take efforts to enhance the ecological elegance.

Unit 1: Climate and Geography (15 hr)
Global, regional and local climatic conditions (overview) -Altitudinal Zonation and forest types of Tamilnadu- Significance of Forests and Grasslands- Climate Change.

Unit 2: Human Ecology (15 hr)
Origin of human race ethnic communities of the world – Migration of human population – Occupation and culture - Local ethnic communities - Population explosion - Impact on Animal and Plant population; Native, exotic, and invasive species of plants - Vaviloviancentres of Origin.

Unit 3: Ecological History (15 hr)
Sangam Literature and landscapes - Sacred Groves, Nandavanam - Plants and Animals of socio-religious importance –Geography of Western Ghats & Eastern Ghats - Cultural ecology of Madurai .

Unit 4: Urban Madurai (15 hr)
Urbanization and Tourism- Sources of water – Vaigai - Irrigation practices- Land use-ecological conflicts- Agrobiodiversity - Monoculture - Waste management - Smart city.

Unit 5: Vegetation and Floristic Elements (15 hr)
Analysis of local species diversity - Field ecology: Quadrat (frequency, density and abundance) Transect (belt and line)- Study of air microflora.

Textbooks:

1. Pushpendra K. Karhana 2004. Agriculture Science " A complete study package" Arihant Publishers (ISBN- 13 ; 978-8183482875)
2. Krishnamurthy, K.V. 2003. A text Book on Biodiversity (principles and Practice), Science Publishers, USA. (ISBN 1578083257, 9781578083251)

References

1. Anonymous, 2011. Handbook of Agriculture, Indian council of Agricultural Research Krishi Anusandhan Bhavan -I Pusa, New Delhi- 110012 (ISBN NO: 81-7164-050-8)
2. Prathipal Singh, 2010. Introduction to biodiversity. Ane books Pvt. Ltd. New Delhi. (ISBN 978-1-8052-185-0)

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1	5	5	4	5	5	5
CO 2	5	5	4	5	3	3
CO 3	5	5	4	4	3	3
CO 4	5	5	5	5	5	5
CO 5	5	5	5	5	5	5

Mean: 3.9

BOT 1453 Learning Basic Skills in Biology 4 Hr. /4Cr.

Preamble:
This is a unique course which aims to equip students to develop a basic understanding in biology and self-learning skills to comprehend and communicate with clarity and authenticity. It will also teach soft skill to the fresher in Botany who will be mostly from semi urban background of Madurai and give them the confidence to maneuver their linguistic and cognitive limitation. The course will also provide a gateway to the students and open their thinking and sensitivities to learn and appreciate in science and help to harbour and nurture innovative ideas in day to day life.

At the end of the semester, students will be able to

i. see the growth of botanical studies from an exploratory standpoint that they shall be entrained to appreciate the idea of conceptualizing a botanical thought that no less sooner they will acquire skills to build their own cognitive capabilities by resorting to perform appropriate and suitable experiments

ii. acquaint themselves with the contours of communications and equip themselves adequately with the reading writing, listening skills and master the ability to make graphical and pictorial presentations of their ideas to get groomed as a budding botanist

iii. familiarize themselves with the scientific conventions of making scientific measurements, data collections and data interpretations that a professional training needed to initiate original scientific discoveries and pursue career in leading scientific discourses later in life.

iv. find themselves nurtured with personality development and leadership traits to set proper goals, develop problem solving abilities, plan and schedule events that they may eventually emerge as mangers and custodians of nature.

v. turnconfident in hiring the services of the emerging frontiers of computational technology and ICT tools to emerge as an updated, informed, tech-savvy, skilled learner and a technician that he shall be vested with a competitive edge to compete with his peers in effectively realizing their dreams and ambitions of life

Unit 1. History of Natural Sciences (10hr)
Insights on botanical edifice - Contributions of Indian Botanists- S.R. Kashyap (Bryology) – Birbal Sahni (Paleobotany) – P.Maheswari (Embryology) M.S. Swaminathan (Plant Breeding) – Jagadish Chandra Bose (Biophysics).Contributions of Naturalists of International Acclaims – Charles Darwin (Evolution) GJ Mendel (Genetics) Louis Pasteur (Microbiology) Watson and Crick (Cell Biology).

Unit 2. Communication in Biology (20 hr)
Observational Skills: Inputs from Class lectures- Seminars- Field Visits; Serendipity in science (Penicillin Invention, Newton Law); Communication and Presentation skills- Verbal and nonverbal - use of scientific words- photographs- cartoons- tables and graphs – common barriers and impediments in communication. Reading and Comprehension skills: Academic reading tips, making notes while reading.

Writing Skills : Purpose of writing (Class room, Examination, Scientific Publication)- logical sequence- botanical terms, interpretation of results and inferences- experimental records - Mnemonics.

Unit 3: Quantitative Biology (10 hr)

Units and measurement - International system of Units (SI)- Seven basic units - Distance (Meter)- Mass (Kilogram)- Time (seconds)- Electric Current (Ampere)- Temperature (Kelvin) Quantity (Mole) - Luminous intensity (Candela). Fundamental measurement- Volumetric and gravimetric Measurements- Tool and Techniques- Constants and standards- Principles of Calibration and Minimizing error – Collection, Processing and preservation of data.

Unit 4 : Soft Skills (10 hr)

Personality and Leadership Traits- Intra personal skills- self confidence- Goal setting- Problem solving abilities- Reflective thinking and strategic planning- Time management and effective planning.

Unit 5: Computer in Biology(10hr)

Basic Computing and Arithmetic logic skill – Computer - Software & Hardware - Exploring MS office - Basics of networking and Internet applications - Smartphone and its application in biology.

Textbooks:

1. Sanjay Kumar, Pushp Lata (2015) Communication skills 2nd edition. Oxford University Press. India. ISBN: 978-0199457069
2. DineshMaidasani(2008) Learning computer fundamentals, MS office and Internet and Web technology. Laxmi Publication. India. ISBN: 8131804062

References:

1. Adir J, (1997) Effective communication, Pan Book. U.K. ISBN 0330347861
2. Ghosh (2012) Managing soft skills for personality development, Mc Graw Hills India ISBN 978-0-07-107813-9
3. Jones A., Reed R & Weyers (2012), J. Practical skills in Biology, Pearsons review. ISBN 978- 1408245477.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	3	2	1
CO2	5	5	5	5	4	4
CO3	5	5	5	5	5	3
CO4	5	5	5	5	5	5
CO5	5	5	5	5	5	5

Mean: 4.5

BOT 1455 **4Hr./4Cr.**

Ethnoecology and Learning Basic Skills in Biology- Lab 1

Preamble:
This is a basic course for those who have freshly joined in the field oriented biology courses. The primary objective of this course is to inculcate quantitative thinking and critical analysis among students. It is designed to promote systematic observation skills to promote documentation of the facts that are observed in the field. While studying the basic field ecology concepts students will be given a chance catalog the field information and data with precision and accuracy. At the end of this course students will know to enumerate, tabulate, rank, measure, estimate both qualitative and quantitative information collected aat the study area. They will be also trained to present given information with clarity and accuracy to their class and any other relevant forums.

At the end of the semester, students will be able to

i.learn and appreciate the college campus diversity.
ii. observe various ecological spots.
iii. experiment the use of measuring instruments and landscaping.
iv. acquire hands on training with the use of computer softwares.
v. visit agricultural fields to appreciate ecology of irrigation field.

Learning Basic skills in Biology
Visual documentaries:
1. National scientists.
2. International scientists.

Skill Assessment:
3. Observational and Interpretation Skills
4. Oral Presentation skills (Group wise presentation)
5. Report writing
6. Personality development
7. Time Management – 80:20 Rule

Fundamental Measurement:
8. Physical measurements
9. Volumetric apparatus & Gravimetric apparatus

Exploring with computers:
10. MS Word & Excel, Power Point Presentation
11.Data mining – Scientific web sites
12.Use of Smart phones in Biology.

Ethnoecology
1. Enumeration of trees at the American college campus.
2. Observation of structural modifications and ecological adaptations of plants.
3. Raunkier's biological spectrum.
4. Floristic elements in temples and parks.
5. Vegetation mapping (quadrat study 1mx1m).
6. Sacred groves in Madurai (any one site)
7. Importance of irrigation and traditional water management in Madurai
8. Survey of traditional crops and native foods in Madurai.

9. Visit to archeological site and remains excavated(Keezhadi)
10.Madurai smart city project.
11.Basic Landscape Mapping (application of GPS and GIS)
12. Waste management & Recycling.

References:

1. Bendre, A.M.Kumar (2006) A text book of Practical Botany. (Vol I and II).Rastogi publication New Delhi. ISBN 81-7133-852-6
2. Jones A., Reed R & Weyers (2012) J. of Practical skills in biology, Pearsons Review. ISBN 978-1408254477.
3.Sundararajan, S. (2000) Practical manual of Angiosperm Taxonomy. Anmol publication. New Delhi. (ISBN 81-261-0687-5)

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	3	2	1
CO2	5	5	5	5	4	4
CO3	5	5	5	5	5	3
CO4	5	5	5	5	5	5
CO5	5	5	5	5	5	5

Mean: 4.5

BOT 1357 **Plant Biology I** **3Hr./3Cr.**

Preamble:
This course is designed for zoology major students as a supportive course to enable them to understand the world of plants. It gives an overall view on diversity in structure, organization and evolutionary trend in the plant kingdom. Plants are broadly divided into non-vascular and vascular plants and from each group a plant will be taken for a detailed study. The course also has a lab component, in which students will experiment and learn more about the type specimens. At the end of the course the students would have accomplished the basic understanding of the plant kingdom.

At the end of the course, the students will be able to

i. look at plants on earth with a geological and geographical perspective and recognize their placing in the five kingdom classification, an arrangement in which algae can be shown as the progenitor of the plant world with a special emphasis on its own ecological and economic potential
ii. describe the general characters of bryophytes, classify liverworts, hornworts and mosses as the structure and reproduction of *Riccia* and
iii. the alternation of generation in mosses are scrutinized in the process of highlighting the ecological and economic importance of the group
iv. present pteridophytes as first land plants and explain their general character and life cycle with morphology and reproduction of *Pteris* asa case study to illustrate the nifty-gritty and diversity of ferns and explore their ecology and evolutionary significance
v. describe and characterize gymnosperms as the constituents of the early forests of planet earth keeping a closer watch on *Pinus,* explaining its external and internal morphology, reproduction and seed formation and use the study to find the feasibility of cashing on industrial and domestic utilities
vi. trace the origin of flowering plants, defining a flower and a fruit and gain an overview on the Bentham and Hooker's classification to deal with floral biology and study the significance of fruits and seeds.

UNIT 1: Introduction:(9 hr)
Geological timescale -Five kingdom classification – evolution of plants -co-evolution-biological diversity.

UNIT 2: Non – vascular plants: (9 hr)
General characters of algae – occurrence, and structure of alga (*Caulerpa*) - economic importance of algae- General characters of Bryophytes and morphology of *Riccia*-economic importance of Bryophytes.

UNIT 3: Lower Vascular plants:(6 hr)
Non-flowering plants – General characters of Pteridophytes – morphology of ferns (*Pteridium aquilinum*)- economic importance of ferns

UNIT 4: Primitive seed plants: (6 hr).
General characters of Gymnosperms–morphology and reproductive structures of*Pinus* – economic importance of gymnosperms

UNIT 5: Flowering plants: (15 hr)
Bentham and Hookers classification (up to series level) -Diagnostic characters of Malvaceae (Polypetalae)-Solanaceae (Gamopetalae)- Euphorbiaceae (Monochalamydeae) - Poaceae (Monocotyledons) with a species from each family as an example.

Textbooks:

1. Pandey, B. P. 2005. *College Botany*, Vol I. (5th ed.) S. Chand & Company New Delhi. ISBN 81-219-0593-1
2. Pandey, B. P. 2009. *College Botany*, Vol II. (7th ed.) S. Chand & Company New Delhi.ISBN 81-219-0601-6

References:

1. Vashishta, P. C. 2001. *Pteridophyta* (Vascular Cryptogams). S. Chand & Company, New Delhi. ISBN 81-219-0828-0
2. Vashishta,P. C. 2009. *Gymnosperms*. S. Chand & Company, New Delhi. ISBN 81-219-2618-1
3.Vashishta, B.R., A. K. Sinha & A. Kumar 2005. *Bryophyta*. S. Chand & Company, New Delhi.ISBN 81-219-0463-3
4. Bhattacharyya, B. 2005. *Systematic Botany*. Narosa Publishing House, Chennai. ISBN 81-7319-542-0

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	4	5	5	3	2	1
CO2	4	5	5	3	2	1
CO3	4	5	3	3	2	1
CO4	4	5	4	3	2	1
CO5	3	4	5	4	4	2

Mean: 3.3

BOT 1159 Plant Biology- I (Lab) 2Hr./1Cr.

Course Outcome:

At the end of the lab course, the students will be able to

i. identify the diverseness of various plant forms in their own habitats in day to day life and do comparative study of structure and reproduction of thallus forms to higher plants.
ii. to distinguish species in a selective ecosystem with the knowledge he acquired about the anatomical variations among the lower plant forms which differentiates terrestrial plants from aquatic habitats.
iii. categorize the tissue organization in thallophytes, pteridophytes and gymnosperms.
iv. classify the flowering plants by investigating the floral structures of the given plant and identify the family to which the particular plant belongs to.
v. describe the economic importance of plants with specific attention to the plant produces from which he is benefited in life.

1. Algae – *Caulerpa* as example vegetative and reproductive structure
2. Bryophytes – Riccia (gametophyte and sporophyte structure)
3. Pteridophytes – morphological and anatomical structure of sporophyte and sorus organization
4. Gymnosperms – Morphological features of *Pinus* (Stem, needle and cones)
5. Gymnosperms – Anatomical features of *Pinus* (male and female cones)
6. Angiosperms – Morphology of vegetative and reproductive structure of Malvaceae *(Hibiscus rosa-sinensis* as example)
7. Morphology of vegetative and reproductive structure of Solanaceae (*Datura metel* as example)
8. Morphology of vegetative and reproductive structure of Euphorbiaceae (*Euphorbia cyathophora* as example)
9. Morphology of vegetative and reproductive structure of Poaceae (*Oryza sativa* as example)
10. Economic botany – plants used as food and medicine
11. Field trip to nearby areas such as Alagar Hills orSirumalai

References:

1. Sundararajan, S. 2003. Practical manual of plant morphology. Anmol publication New Delhi. (ISBN 81-261-1403-7)
2. Bendre, A. M., A. Kumar, 2006. A text book of practical botany. Vol I. Rastogi Publication New Delhi. (ISBN 81-7133-809-7)
3. Bendre, A. M., A. Kumar, 2006. A text book of practical botany. (Vol I and II) Rastogi Publication New Delhi. (ISBN 81-7133-852-6)
4. Sundararajan, S. 2000. Practical manual of Angiosperm Taxonomy. Anmol publication New Delhi. (ISBN 81-261-0687-5)

BOT 1251 Mushroom Culture Technology (Life skill) 3Hr. /2Cr.

Preamble:
As a two credit course offered to the first year student of any major, it will be taught as life skill course. Skill development is being recognized as the priority of higher education in any said branch of science. This course is designed to motivate fresh students to learn the science of cultivating mushrooms. It is an introductory level course and designed to help the students to grow mushrooms in simple and cheap substrates like hay and organic debris and other locally available substratum. The nutritive and economic potential of mushrooms will be taught with illustration. Demonstration and field visit components may help the students to get hands on experience. At the end of the course the students will develop skills in commercial cultivation, harvest and marketing. It is taught as a lab cum theory course which will span 4 hours per week. This course is also designed to carter to the need of young entrepreneurs who would like to start a food based industry.

At the end of the course, the students will be able to

i. list different varieties of mushroom, distinguish between edible and non edible, and classify them.
ii. characterize, compare the cultivating mushroom and trace the lifecycle.
iii. experiment the cultivation procedure, design new culture technique, analyze the pest and factors affecting growth of mushroom.
iv. develop technologies for harvesting, packaging and acquire knowledge to avail loan from banks
v. summarize uses of mushroom and create new recipes for marketing.

Unit 1. Introduction (9 hr)
Mushroom a type of fungi –Characteristics features of fungi – Differences between fungi and other organisms. mushroom classification – History of mushroom cultivation – Naming of mushroom – Popular mushroom – Edible and poisonous mushrooms – Institutes cultivating mushroom – Varieties available in Tamilnadu.

Unit 2. Morphology and Taxonomy of Mushroom: (9 hr)
Morphological characters and taxonomical position of Agaricus - Pleurotus – Volvariella – Shiitake –life cycle of any one species – Spore collection – fruiting body.

Unit 3. Cultivation of Mushroom: (9 hr)
Tray method for large cultivation – Packet method for small scale cultivation – outdoor mushroom cultivation Pure culture of spores – compost making – spawn types and spawning – casing of soil – Time interval for water sprinkling – Pest identification and control – environmental control.

Unit 4. Harvesting and Packaging :(9 hr)
Manual harvesting method – Asepsis –Packing – Labeling –Marketing –Shelf life of mushrooms – Budget.

Unit 5. Uses of Mushroom: (9 hr)
Economic value of various mushrooms – Food and Dietary Component –Medicinal value – Mushroom recipes.

Textbooks:

1. Tripathy D.P 2005. Mushroom cultivation. Oxford and IBH publishing co. pvt.Ltd.New Delhi. ISBN 8120416449
2. Nita Bahl. 2000. Handbook on mushrooms, Oxford &IBH publishing pvt. Ltd. India. ISBN 9788120413993

References:

1. Kaul T.N. 2002. Biology and conservation of mushrooms.Oxford and IBH publishing co.pvt.Ltd. New Delhi. ISBN 81-204-1513-2.
2.Stamets P and Chilton J. S 1985. The mushroom cultivator, Richmond publishing company. U.K. ISBN096-1079-80-0.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	5	4	1
CO2	5	5	4	4	4	4
CO3	5	5	5	5	5	5
CO4	5	5	5	5	5	5
CO5	5	5	5	3	3	5

Mean : 4.7

BOT 1253 Food And Nutrition (NME) 3Hr./ 2Cr.

Preamble:
Human perspective towards food keeps changing, taking advantage of this; global marketers introduce food varieties in the market every year. In general, a food preferred by consumers is determined by the media and the advertisement agencies. Hence, Today's youth and children are attached towards a variety of packaged, preserved fast food. Enough cautions are posed by health advisors about these junk foods, but still awareness id poor about healthy foods among the educated too. There is a need for a scientific analysis of the food colorants and preservatives. They would be able to choose healthy foods and avoid junk foods and further they would be able to carry this knowledge to their family and friends.

At the end of the course, the students will be able to

i. Comprehend the idea of defining food as a concept, classify foods, identify palatable nutritious meal, traditional and ethnic food and get idea on dealing with food security and hunger
ii. Identify the carbohydrate, protein, fat, mineral and vitamin source of food.
iii. Gain a knowledge on the types of food preservative -significance of sweeteners, emulsifiers and probiotics -methods of coloring it with suitable colorants, adding flavor
iv. Adulteration, know the methods of checking food quality in the light of legal implications and food laws that the flipside of consuming low quality food on human health is realized
v. Acquire the needed skills from the dietary point of view to classify food, define balanced diet, and do BMI calculations for carrying out comparative analysis of food types for securing gainful employment in food industry.

Unit 1: Food facts:(9 hr)
Concept of food- Brief history of food and agriculture- Cuisines and culture- Classification of foods-(Western foods, Indian food, continental foods, Ethnic foods, Junk foods, Fast foods)- Famous food recipes of Madurai

Unit 2:Nutrientprofile:(9 hr)
Carbohydrates -Protein – Fats - Vitamins – Minerals- Fibres – water – Nutritional deficiency diseases - Nutraceuticals.

Unit 3: Food preservatives and additives: (9 hr)
Food preservatives- types- expiry date- Artificial sweeteners-Emulsifiers –Probiotics- Enzymes- Microbes in food industry. Food colorants- Types- Food flavors- Types- advantages and limitations of food additives and preservatives

Unit 4: Food Adulteration:(9 hr)
Adulterants- types of adulteration- simple tests in identifying adulteration in food stuffs- Impact on health- case study. Food policies and laws.

Unit 5: Know your food:(9 hr)
Balance diet and choice of food – BMI calculation – Nutritional requirements based on age, body mass and gender- role of dieticians- Master Health Checkup Programs - Comparative analysis of Cooked food Vs Raw food-vegetarian food Vs non vegetarian food- prevention of loss of nutrients.

Textbooks:

1. Srilakshmi, B. 2006. Nutrition science.2nd edition New age international publishers, ISBN 81-224-1633-0
2. Sumathi R.M 2007. Fundamentals of food, Nutrition and Diet therapy, New age International Publication ISBN 81-22419828

References:

1. Anita Tull 1996. Food and Nutrition Oxford University press,U.K. ISBN: 01-98327668
2. Annie Fredrick 2006. Text book of Food and Nutrition, Lotus Press ISBN: 8193820735
3. Sanjeev R. 2014. Ayurvedic science of Food and Nutrition, Springer Publication ISBN: 978-1-9627-408245477.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	5	2	2
CO2	5	5	5	5	5	2
CO3	5	5	4	3	2	1
CO4	5	5	5	3	3	2
CO5	5	5	5	5	3	3

Mean: 4

BOT 1552 Genetics and Plant breeding 5Hr./5Cr.

Preamble:
The course introduces the basics of genetics dealing with inheritance of characters, about principles pertaining to plant breeding and crop improvement. Starting from the basic rules drawn from Mendel's experiments, the idea of chromosomal theory of inheritance will be introduced that will lay foundations and students will be able to study applied studies, with real time examples. It will help them to understand DNA as the genetic material. The unit on population genetics will brief about the mutations, genetic drift and chances for speciation. Basics of plant breeding and traditional methods in crop improvement will be discussed citing regional examples. Discussion on plant breeding and crop improvement will not be exhaustive, but the content would suffice the learner to apprentice the need for breeding, conservation and management of genomes of useful plant stocks. Students should be able to understand the science of inheritance of characters and reasons behind the variations noticed in the population. He should be able to appreciate the importance of plant resources, need to develop hybrid varieties and conserve them for the future generation.

At the end of the course, the students will be able to

i. conceptualize the laws governing our inheritance, compare and contrast the allelic and genic and polygenic interaction.
ii. acquire knowledge about chromosome organization and recognize sex and sex linked inheritance.
iii. formulate hardy Weinberg law, assess the effect of mutagens and appreciate the traits in humans.
iv. distinguish between qualitative and quantitative traits, expertise in various methods of breeding.
v. represent the right of farmer and breeder, adapt strategies to develop resistant varieties and gain knowledge and practical experience in the activities of breeding and conservation centres.

Unit 1: Fundamentals of Genetics (15 hr)
Mendel's history and experiment- laws of inheritance- Allelic interaction -Gene interactions- (Duplicate dominant,epistatis, complementary gene)- multiple allele inheritance (human blood group)- polygenic inheritance (ear length in Maize)- Sex linked inheritance (color blindness).

Unit 2: Chromosomal Structure and Inheritance(15 hr)
Chromosome organization – types of chromosomes, sex chromosome- Sex determination in human, animals and plants (*Melandrium*)- sex linked inheritance- chromosomal aberration-, linkage and mechanism of crossing over.

Unit 3: Population Genetics (15 hr)
Hardy-Weinberg Law- penetrance and expressivity- spontaneous and induced mutation, mutagens- genetic drift and erosion- Introduction to speciation- human traits-Pedigree and family tree.

Unit 4: Plant Breeding (15 hr)
Objectives – Qualitative and quantitative characters- Conventional methods of selection -Self pollinated crops - Cross pollinated crops - Hybridization types - Procedure of hybridization - hybrid vigour.

Unit 5: Crop ImprovementProgram(15 hr)
Crop improvement for resistant, tolerant and high yielding varieties. Traditional breeding programmes in Rice- Plant genetic resources of India- Germplasm centres -Sugarcane breeding institute (Coimbatore) - Tamil Nadu Rice Research Institute (Aduthurai) - Coconut Research Station (Sholavandan) - Institute of Forest Genetics and Tree Breeding (Coimbatore) - National Research Centre for Banana (Tiruchirappalli).

Textbooks:
1. Ahluwalia,K.B. (2009). Genetics, 2edn. New Age International Publishers. ISBN 978-81- 224-2390-7
2. Chahal, G.C and Gosal,S.S (2002) Principles and Procedures of Plant Breeding. Narosa Publishing House. ISBN 81-7319-374-6

References:
1. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics, John Wiley & Sons Inc., India. 5th edition. ISBN 0470388250
2. Klug, W.S., Cummings, M.R., Spencer, C.A. (2007). Concepts of Genetics. Pearson Education. 7 th edition. ISBN 813170811X
3. Sinnott,E.W., Dunn,L.C. and Dobzhansky,T. (2004).Principles of Genetics. Tata Mc Graw Hill. ISBN : 0-07-099-413-7.
4. Hayward,M.D, Bosemark,N.O, Romagosa,T(eds) Plant Breeding Principles and prospects Springer publication. ISBN 9780412433900
5. George Acquaah, (2012) Principles of plant genetics and breeding.2 ndedition.Wiley Blackwell Publishers. ISBN 9781118313695

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	4	4	4	4
CO2	5	5	4	4	4	4
CO3	5	5	5	5	5	5
CO4	4	4	5	5	3	5
CO5	5	5	4	3	5	3

Mean: 4.4

BOT 1454 Evolution and Phycology 4Hrs./4Cr.

Preamble:
The course provides an overview of formation and conditions of early earth, emergence of life forms and evolution process. Students will be inducted into the plant kingdom starting from algae as the simplest autotrophs and evolutionary trends. They will be able to comprehend the characteristics features of the major groups of algae, and their economic importance will be assessed.

At the end of the course, the students will be able to
i. understand formation of earth and explain the earliest environmentconditions..
ii. analyze emergence of life and general theories on evolution.
iii. illustrate the evolutionary links from algae to vascular plants.
iv. formulate the characteristic features, life cycle patterns of major classes of algae.
v. assessthe applications and economic potential of algae

Unit 1: Genesis of Life(12 hr)
Earth formation – Geological time scale – emergence of life - Miller and Urey experiment – basic theories on evolution – Origin of Species – contributions of Darwin and Lamarck – tree of life – evolution of human.

Unit 2: Origin of Plants: (12 hr)
Life forms – Five kingdom classification – evolutionary history of plants – fossils – Stromatolites – oxygenic photosynthesis - prokaryotic algae – endosymbiosis – chloroplast and membranes – vascularization – evolutionary trends from algae to land plants.

Unit 3: Salient Features and Classification ofAlgae: (12 hr)
Characterization and classification of Algae: pigments, storage reserves, cell wall, flagella, eyespot and pyrenoids - thallus construction – reproduction – Outline of classification (Smith, 1955) – Salient features of Cyanophyceae, Chlorophyceae, Phaeophyceae and Rhodophyceae – Contributions of Indian algologists.

Unit 4: Type Studies: (12 hr)
Cyanophyceae (*Anabaena*) – Chlorophyceae(*Chara*, *Oedogonium*) – Phaeophyceae (*Sargassum*) – Rhodophyceae (*Gracilaria*).

Unit 5: Applied Phycology: (12 hr)
Mass cultivation: SCP (*Spirulina*) –marine algae Mariculture (*Kapphaphycus*) - diatomaceous earth – algae as food, Agar agar (*Gracilliaria*, *Gelidiella*), Carrageenans, Alginates - biofertilizers, biofuel – Docosahexaenoic acid (DHA), Seaweed Liquid Fertilizer – algal blooms – symbiotic association (*Azolla*, Lichens).

Textbooks:
1. Kumar, H.D.(1988). Introductory Phycology. East West Press. India. ISBN: 81-859-3896-2
2. Sharma,O.P. (2007). Textbook of algae. Tata McGraw Hill, India. ISBN 0-07-451928.

References:

1. Bold, H.C and Wyne. M.J. (1978). Introduction to the algae: Structure and reproduction. Prentice-Hall. ISBN 0134777867
2. Lee, R.E. (2008). Phycology, Cambridge University Press, Cambridge. 4th edition. ISBN: 9780521141444
3. Morris, I. (1971). An Introduction to Algae. Hutchinson University Library. ISBN: 0-090-80713-8
4. Raven, P.H., Evert, R.F and Eichhorn, S.E. (2013). Biology of plants. 8th Ed. W.H. Freeman
Publishers, ISBN: 1464113513.
5. Smith, G.M. (1971). Cryptogamic Botany Vol.1. Algae and Fungi. Tata McGraw – Hill book
company. 2ndEdn. ISBN :0070995761.
6. Stewart, W.N and Rothwell G.W. (2010). Paleobotany and the Evolution of Plants. Cambridge University Press. 2ndEdn. ISBN 10:0521126088
7. Willis,K.J and McElwain.J.C (2002). The Evolution of Plants. Oxford University Press.ISBN: 0198500653

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	5	4	1
CO2	5	5	5	5	5	1
CO3	5	5	5	3	2	1
CO4	5	5	4	3	2	1
CO5	5	5	5	4	4	4

Mean: 4

BOT 1456 Botany Lab-II (Genetics and Evolution & Phycology) 2Hr/2 Cr.

Course Outcome:

Thestudents will be able to

i. verify mendel's laws, test the purity of gametes, identify the interaction between alleles and distinguish various gene interaction, identify different blood group in human, familiarize with polygenes which influences quantitative traits, determine sex of animals, categorize human traits as dominant and recessive and perform probability test for gene inheritance.

ii. test viability of seed, experiment with emasculation techniques and familiarize with different hybridization techniques by visiting plant breeding stations.

iii. interpret the formation of earth, emergence of life and theories on evolution process.

iv. investigate the habitat and diversity of cyanobacteria and higher algal forms during the field study and draw a comparative analysis of thallus structure and life cycle patterns of important forms.

v. identify the different types of lichens and preserve algal specimens

Genetics and Plant Breeding

1. Verification of Mendel's law – I (Monohybrid ,test and back crosses)
2. Verification of Mendel's law - II (Dihybrid cross)
3. Gene interactions – problem solving
4. Study of Mendelian traits in human
5. Barr bodies & Giant chromosome - Chironema
6. Blood grouping- multiple alleles
7. Probability test – beads/coin/dice
8. Chromosome mapping
9. Drosophila experiment
10. Collection and submission of local rice / vegetable cultivars
11. Determination of seed viability
12. Method of emasculation – pollen dusting and bagging
13. Visits - Cotton, millet, sugarcane research centres (Coimbatore), Banana Research Centre (Trichy), National facilities - NBPGR, ICRISAT.

References:

1. Gardner,E.J.,Simmon,M.J and Snustad .D.P. (1991) . Principles of Genetics. John Willey and Son (Asian) Ltd. Singapore. ISBN:0-471-50487-4
2. Stansfield,W.D. (1991). Theory and problems of Genetics. 3rd ed. McGraw Hill Inc. ISBN 0-07-060877-6
3. Chahal,G.C and Gosal,S.S (2002) Principles and procedures of Plant breeding. NarosaPubli. House. ISBN 81-7319-374-6

Evolution and Phycology:

1. Formation of earth - documentary & discussion
2. Darwinism: Galapagos Island – documentary & discussion
3. Fossils – Stromatolites and Diatoms

Morphology and reproductive structures of

4. *Cyanophyceae – Nostoc, Anabaena* and *Oscillatoria* movement
5. *Chlorophyceae – Chlamydomonas, Volvox*
6. *Chlorophyceae - Oedogonium, Caulerpa, Chara*
7. *Phaeophyceae– Sargassum, Dictyota*
8. *Rhodophyceae – Batrachospermum, Gracilaria*
9. Algal cultivation Race way (*Spirulina)* – Demo
10. Marine algal cultivation (Mariculture) – Demo
11. Lichens – types and uses
12. Collection and preservation of algae

References:

1. Bendre, A. M., A. Kumar, 2006. A text book of practical botany. Vol I. Rastogi Publication New Delhi. (ISBN 81-7133-809-7)
2. Pandey, B. P. 2005. *College Botany*, Vol I. (5th ed.) S. Chand & Company New Delhi. ISBN 81-219-0593-1

BOT 1358 Plant Biology II 3Hr./3Cr.

Preamble:
This course gives an overview of life process happening inside plants and this will broaden the understanding of the students on various functional events including water and mineral uptake, transport of photosynthates, growth & development and nitrogen fixation. The course also has a lab component to have a hand on experience of verifying the theory under natural setting. At the end of the course students will be able to appreciate the plant as the only system, which is equipped to capture light energy and convert it into chemical energy.

At the end of the course, the students will be able to

i. look at plant as a functionally self-contained entity and use the understanding on mechanics and structures for water and mineral uptake, transport and utilization in their cells and tissues as model system to create and fabricate machines, filters and devices of human utility modeled on the inputs they have received from this course
ii. understand the translocation of food and sap, regulation water and food transport , ventilating mechanism with a role for stomatal apparatus, and process of liquid loss from hydathodes and lenticels that the heat release and hydraulic components of plant function can be analyzed for adoption in designing relevant production and processing units required for industrial and environmental applications
iii. look at chloroplast as photovoltaic battery involved in thermodynamic functions that the light trapping, transfer and transduction processes are elucidated as functions initiated by chlorophyll form from the biophysical viewpoint and the role of phytochromes and cryotochromes are interpreted as environmentally regulated switches with precision ad sensitivity.
iv. critically look at the paradox of nitrogen as a common as well as scarce resource to plants and evaluate the nitrogen cycle and the prokaryotic process nitrogen fixation that serves as source of nitrogenous input and look at nitrate reduction and amino acid synthesis that form the hub of nitrogen metabolism.
v. gain an overview of plant growth & development in outline, study plant growth promotion and regulation by auxins, gibberellins and cytokinins besides ABA and ethylene that they may acquire the prowess of commercially manipulating plant development to their own advantage.

Unit 1: Water Relations: (9 hr)
Pipeline systems in plants- Water potential- Guttation- Imbibition- Osmosis-Tissue organization of xylem and phloem – role in conduction.

Unit 2:TransportSystems: **(9 hr)**
Transport-Water - Mineral –Photosynthates– Stomatal mechanism- Evapotranspiration.

Unit 3: Photobiology: **(9 hr)**
Photosynthetic pigments- Photosynthetic electron transport- Path of carbon in photosynthesis –photoperiodism – phytochrome- cryptochromes – photomorphogenesis.

Unit 4: Nitrogen Metabolism: **(9 hr)**
Nitrogen sources – Nitrogen cycle - symbiotic and asymbioticNitrogen fixation - Biofertilizers.

Unit 5: Growth hormones: (9 hr)

Growth and measurement - Plant hormones - growth promoters- (auxin, gibberellin, cytokinins) – growth inhibitors(ethylene, ABA) - Plant Movements (nastic and tactic) –.

Textbooks:

1. Srivastava. H. S. 2005. *Plant physiology*. Rastogi Publications, Meerut. ISBN 81-7133-785-6
2. Ghosh. M. S. 1996. *Plant physiology*. (Ist Central Edition) New Central Book Agency (P) Ltd. ISBN 81-7381-478-3.

References:

1. Bidwell. R. G. S. 1975. *Plant physiology*. Macmillan Publishing Co. INC. New York. ISBN-0-02-309430-3
2. Williams. M. B. 1984. *Advanced Plant Physiology*. Pitman Publishing New Zealands Ltd. Wellington.ISBN-0-273-02306-3
3. Salisbury. F. B. & Ross C.W. 1992. *Plant Physiology*. Fourth Edition. Eastern Press. Bangalore. ISBN-981-243-853
4. Sinha. R. K. 2004. *Modernplant physiology*. Narosa Publishing house New Delhi. ISBN 81-7319-333-9

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	4	5	4	3	2	1
CO2	4	5	3	3	1	1
CO3	4	4	4	5	3	2
CO4	4	4	4	5	3	1
CO5	4	4	4	5	5	2

Mean: 3.4

BOT 1160 Plant Biology II (LAB) 2Hr./1Cr.

Course Outcome:

At the end of the course, the students will be able to

i. investigate the movement of food and water through the specialized tissues ,intercellular translocation in plants with the influence of environmental factors.
ii. analyse the external factors which brings changes in the physiology of plants through live experiments**.**
iii. **e**quip himself to calculate the duration, rate of reaction and measurements of various physiological reactions.
iv. explore the movements in plants with response to different stimuli and analyse the role of microbes in fixing atmospheric nitrogen which the plants cannot able to do.
v. apply the knowledge of growing plants in soilless environment with the supplement of mineral nutrients.

1. Osmosis using potato osmoscope
2. Plasmolysis using Onion peel &*Tradescantia* leaf.
3. Measurement of (DPD) Diffusion Pressure Deficit using potato tubers.
4. Ascent of sap (Ringing and Girdling experiment)
5. Transpiration using potted plant & bell jar, cobalt chloride method to compare the transpirational rates
6. Evolution of O_2 during photosynthesis using Wilmott bubbler counter.
7. Effect of different wavelength of light during photosynthesis
8. Measurement of growth using auxanometer
9. Phototropism & Gravitropism using potted plants
10. Use of biofertilizer to promote root nodule
11. Methods of studying plant nutrition – Hydroponics
12. Symbiotic nitrogen fixation – legume root nodule

References:

1. Kumar B. 2006. *A Text book of practical botany.* Rastogi Publication. Meerut. ISBN 81-7133-809-7
2. Santra. S.C..Chatterjee.T. P.& Das A. P. 2005. *College Botany-Practical.* Vol-I. New Central Book Agency (P) Ltd. India ISBN-81-7381-357-4.

BOT 1252 Nursery and Gardening (LS) 3 Hr./2Cr.

Preamble:
This course is designed for students who have passion for collecting plants and adopting them at safe and protected areas. The course is envisaged in such a way to develop fine skills in planning for various types of gardens with specific theme ad purpose. Landscaping is also added in order to enhance the scope of the course. At the end of this course student will use the given space in an intelligent manner and transform it as a thematic garden.

At the end of the course, the students will be able to

i. Identify the varieties of plants maintained in a nursery, forecast the risk of climatic factors affecting nursery plants, create facilities of his own.
ii. Develop seed storage strategies, track the pest and evolve the right method to control them.
iii. Specialize himself in cultivation technique and manage the nursery.
iv. Categorize the plants, select right choice of the plant for different gardens and develop himself as a entrepreneur
v. Recognize the various types of parks and gardens in his locality, appreciate the role of parks in society thereby conserving it.

Unit 1: Nursery Development (9 hr)
Definition –Objectives and Scope for nursery –role of nursery curator– Facilities needed(land –soil - water- climate-special growing structure-manure/fertilizer – pesticide – pots – polybags - labour- transport)-steps in raising nursery - factors affecting nursery plants- varieties of plants sold in nursery and trade.

Unit 2:Propagation by Seeds: (9 hr)
Storage - viability – treatment methods -sowing – germination and seedling stage- soil mixture –transplanting – watering – control of pest in nursery.

Unit 3:VegetativePropagation and Maintenance: (9 hr)
Cutting- layering –budding –grafting –collecting season – planting methods – treatments for propagating materials – propagules – growing in special structures – hardening – pruning – cleaning – fertilizing.

Unit 4:NurseryPlants: (9 hr)
Ornamental plants (flowering) - Crotons - medicinal plants – arboreal – climbers – fencing plants – Ornamental palms – Orchids – Gymnosperms – ferns – Cacti – Bonsai.

Unit 5:Gardens and Parks: (9 hr)
Definition - Objectives and scope – Types of garden – landscape gardening –- water garden- ornamental gardening in homes – Kitchen garden - Components of garden/ parks – choice of the plants for garden components – Rockery – Role of gardener - Benefits of garden – Popular parks and gardens –Role of parks in well being of human and environment.

Textbooks:

1.Kumar, N., 2017, Introduction to Horticulture, Med tech publishers, India.ISBN 9386479834
2. Sadhu, M.K., 1989, Plant propagation, New Age International publishers. India. ISBN 8122400655

References:

1. Agarwal, P.K.1993, Hand Book of Seed Technology, Dept. Of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi.ISBN 8120409949
2. Bose T.K. Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi.ISBN 9788120402294
3.Edmond Musser, Andrews. 1997. Fundamentals of Horticulture, McGrawHill Book Co., New Delhi.ISBN 9780070189782
4.Janick Jules. 1979. Horticultural Science. (3rd Ed), W.H.Freeman and Co., San Francisco, USA.ISBN 0716717425

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	4	4	4	4
CO2	3	3	3	4	4	4
CO3	4	4	4	4	4	4
CO4	4	4	4	4	4	4
CO5	5	4	4	4	4	5

Mean: 3.9

BOT 1254 Plant Wonders(NME) 3 Hr./2Cr.

Preamble:
This course is aimed to impart knowledge on plants to non science students. It introduces the microscopic to giant Angiosperms of the plant kingdom. Students will learn about different groups of plant, basic plant processes and their contributions to the human being. Uniqueness of plants in terms of size, shape, habitat and their associations will be highlighted. They will develop a desire to further explore the plant kingdom and also to conserve plants.

At the end of the course, the students will be able to

i. relate plants and civilization, identify plants as source of food, fuel, energy.
ii. acquire knowledge about various life forms of plant, able to benefit from the uses of plants
iii. describe the amazing plants, utilize plants as fertilizer
iv. rank the plants according to their magnitude, identify the indicators of pollution and minerals
v. discover plants in various extreme environment, discuss the plant's adaptation.

Unit 1: Plant as Resource: (9 hr)
Plants and civilization: Difference between plants and animals – Plants and man-Plants as source of food, energy, fuel and medicine - Plants in protection of environment.

Unit 2: Plant Groups: (9 hr)
Unique characters and Importance of - Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms.

Unit 3:Plants of Curiosity: (9 hr)
Sensitive plants (*Mimosa pudica*)- Aromatic plants(*Tagetus*)- fertilizing plants(*Tephrosia purpurea*) –camaouflage plants (*Corydalis hemidicentra*) – stinky plants(*Titan arum*)Biolumenscing plants – model plants- dancing plants- seed dispersing plants

Unit 4:Amazing Plants: (9 hr)
Tallest, largest, oldest and smallest plant -magnitudes in size, flowers, leaves and fruits – Epiphytes(*Vanda*) – Parasites(*Cuscuta*) – Orchids(*Bulbophyllum*) – Insectivores*(Nepenthes*) pollution indicators-mineral indicators

Unit 5: Extreme Plants and Their Adaptation: (9 hr)
Plants thriving inspace (*chlorella*) – volcanoes(hawaiian*argyroxiphium*)- ocean(-sea weed) – swamps(mangroves -*Avicennia*) –desert (*Saguaro cactusti*) – alpine (Junipers) – tundra (arctic lichen) .

References:

1. Pandey B.P. 2005 Collage Botany : Vol I, 5th edn. S.Chand&Company LTD. New Delhi. ISBN -81-219-0593-1
2. Raven PH Evert RF and Eichhorn SE 2013. Biology of plants. VIIIth Ed. W.H. Freeman Publishers, 1464113513.
3. Santna, S.C..Chatterjee, T.P and A.P. Das 2004 Collage Botany Practical (Vol II) New Central Book Agency (P) Kolkatta. ISBN -81-7381-320-5
4. Starr,C. 2007. Biology : concepts and applications. VI edn. ISBN 81-315-0284-8.

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Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	4	5	5	3	3	4
CO2	5	5	5	5	3	2
CO3	5	5	5	3	2	2
CO4	5	5	3	3	2	2
CO5	5	5	5	2	2	2

Mean: 3.7

Value Added course

BOT 121V **Edible Mushrooms** **2 Hr./ 2 Cr.**

Preamble:
As a two credit course offered to the first year student of any major, it will be taught as life skill course. Skill development is being recognized as the priority of higher education in any said branch of science. This course is designed to motivate freshers to learn the science of cultivating mushrooms. It is an introductory level course and designed to help the students to grow mushrooms in simple and cheap substrates like hay and organic debris and other locally available substratum. The nutritive and economic potential of mushrooms will be taught with illustration. students will develop skills in commercial cultivation, harvest and marketing. This course is also designed to carter to the need of young entrepreneurs who would like to start a food based industry.

At the end of the course, the students will be able to

i. List different varieties of mushroom, distinguish between edible and non edible, and classify them.
ii. Characterize, compare the cultivating mushroom.
iii. Experiment the cultivation procedure, design new culture technique, analyze the pest and factors affecting growth of mushroom.
iv. Summarize uses of mushroom and create new recipes for marketing.
v. Obtain training from agricultural institutes

Unit 1: Introduction: (6 hr)
Characteristics –history of mushroom cultivation – Nomenclature – Popular, edible and poisonous.

Unit 2:Edible Mushrooms(6 hr)
Morphological characters and taxonomical position of *Agaricus* - *Pleurotus* – *Volvariella* – *Calocybe*– Shiitake.

Unit 3: Cultivation of Mushroom: (6 hr)
Tray method for large cultivation – Packet method for small scale cultivation – facilities required – cultivation procedures - Budget

Unit 4: Harvesting and Processing:
Harvesting and packaging -– Food and Dietary value –Medicinal value – Mushroom recipes.

Unit 5:Research Institutes: (6 hr)
Institutes cultivating mushroom –collection of spawn- Varieties available in Tamilnadu – Mushroom culture training –TNAU (Coimbatore) – Mushroom cultivation training Institute (Dehradun).

Textbooks:
1. Tripathy D.P 2005. Mushroom cultivation. Oxford and IBH publishing co. pvt.Ltd.New Delhi. ISBN 8120416449
2. Nita Bahl. 2000. Handbook on mushrooms, Oxford &IBH publishing pvt. Ltd. India. ISBN 9788120413993

References:

1. Kaul T.N. 2002. Biology and conservation of mushrooms.Oxford and IBH publishing co.pvt.Ltd. New Delhi. ISBN 81-204-1513-2.

2. Stamets P and Chilton J. S 1985. The mushroom cultivator, Richmond publishing company. U.K. ISBN 096-1079-80-0.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	5	5	5	5	4	1
CO2	5	5	4	4	4	4
CO3	5	5	5	5	5	5
CO4	5	5	5	5	5	5
CO5	5	5	5	3	3	5

Mean :3.7

BOT 122V **Gardening Techniques** **2 Hr./2Cr.**

Preamble:
This course is designed for students who have passion for collecting plants and adopting them at safe and protected areas. The course is envisaged in such a way to develop fine skills in planning for various types of gardens with specific theme ad purpose. Landscaping is also added in order to enhance the scope of the course. It is a course where there is no need any perquisites except love and passion for plants and intelligent special perception. At the end of this course student is expected to use the given space in an intelligent manner and transform it as a thematic garden.

At the end of the course, the students will be able to

i. identify and distinguish various gardens of the world.
ii. classify various gardens of Indian styles.
iii. create different types of garden and planning the design of garden .
iv. perform the different propagation techniques for garden plant cultivation.
v. categorize the various plant varieties planted in a garden

Unit 1: Introduction to Gardens: (6 hr)
Definition - Objectives and scope – Types of garden – formal garden- informal garden – British garden - Mughal garden- French garden –Japanese garden - Hanging garden- Vertical garden – medicinal garden.

Unit 2: Gardens in India: (6 hr)
Landscape garden (Mysore) –Rock garden (Chandigarh) - Water garden (Kolkatta) - ornamental garden (Lal Bagh) - Botanical garden (Ooty) – Kitchen garden –Terrace garden – Popular Indian Gardens (JNTBGRI, RBG).

Unit 3: Establishment of Garden: (6 hr)
Components – choice of plants –Facilities required –Planting -Role of gardener – Benefits.

Unit 4: Gardening Practices (6 hr)
Cutting- layering –budding –grafting –seasonal attributes – planting methods – treatments for propagating materials – Propagules – growing in special structures – hardening – pruning –cleaning – fertilizing - irrigation.

Unit 5: Garden plants: (6 hr)
Ornamental (flowering) - Crotons - medicinal – arboreal – climbers – ornamental palms – Orchids – Gymnosperms – ferns – Cacti – Bonsai –biofencing – edges & hedges.

Textbooks:

1.Kumar, N., 2017, Introduction to Horticulture, Med tech publishers, India. ISBN 9386479834
2. Sadhu, M.K., 1989, Plant propagation, New Age International publishers. India. ISBN 8122400655

References:

1. Agarwal, P.K.1993, Hand Book of Seed Technology, Dept. Of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi. ISBN 8120409949
2. Bose T.K. Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi. ISBN 9788120402294
3.Edmond Musser, Andrews. 1997. Fundamentals of Horticulture, McGraw Hill Book Co., New Delhi.ISBN 9780070189782
4.Janick Jules. 1979. Horticultural Science. (3rd Ed), W.H.Freeman and Co., San Francisco, USA.ISBN 0716717425

Mapping of Course Outcomes with Bloom's Taxonomy

	K1 Recall	K2 Understand	K3 Apply	K4 Analyze	K5 Evaluate	K6 Create
CO1	3	3	4	4	4	4
CO2	3	3	3	4	4	4
CO3	4	4	4	4	4	4
CO4	4	4	4	4	4	4
CO5	5	4	4	4	4	5

Mean: 3.9

BOT221V **Plant Propagation** **2Hrs./2Cr.**

PREABMBLE:

The course provides an overview of plant propagation that include methods of propagating by seeds, bulbs, divisions, layers, cuttings, budding, grafting, and micropropagation. The knowledge and information on timing, technique, and material for making cuttings, environmental conditions, and media requirements for rooting cuttings of ornamental plants, fruit trees, shrubs, and flowering plants will be gained. Various propagation structures, soils, and fertilizer requirements will be considered.

At the end of the course, the students will be able to	**Unit**	**Hrs P/S**
CO1 : acquire knowledge of plant propagation technique and its application	1	6
CO2: get vast information on various plant growing structures	2	5
CO3: create skills in the art of plant propagation by vegetative cuttings.	3	7
CO4: create skills in the art of plant propagation by seeds	4	5
CO5: update the technique of plant propagation using micropropagation tool.	5	7

Unit I Basics of plant propagation: Scope and importance - government schemes for developing of nurseries – Role of NGO - establishment of nursery - site selection - tools and implements - preparation of nursery beds, transplanting techniques - plant propagation material.

Unit II Plant growing structures: Shade net - Mist chamber - greenhouse - glasshouse - polyhouse - cold frames - hot beds – nursery beds – soil media – pot mixture and containers - manures and manuring – crop health management.

Unit III Vegetative propagation : Stock-scion relationship – Cutting (stem, root, leaves) - Layering (Air, Mound, Ground) – Budding (T- Budding, Patch, Chip budding) – Grafting (tongue, cleft, Approach, side, Veneer) - Raising clonal nursery - factors influencing rooting of cuttings - root stock influences - hardening – Propagation of ornamental plants by rhizomes, corms tubers, bulbs and bulbils – Indoor plants – Anthuriam, Adenium.

Unit IV Seed propagation: Seed selection- seed viability – sowing - germination - dormancy –seed treatments -– seed dressing – raising seed beds – seedling vigour – measures for pest and disease control during storage and godown sanitation- Seed Certification and Quality Control – Seed production of medicinal plants- Aromatic plants - Hybrid seed Production.

Unit V Micro propagation: Micro propagation – protocol - media composition - sterilization techniques - explants - shoot multiplication - root formation - acclimatization and hardening - constraints and problems - packing, transport and marketing - establishment of commercial tissue culture units - status of micro propagation in India and globe - nursery certification – marketing of propagative plant materials.

Text books

Adams, C.R. and M. P. Early. 2004. Principles of horticulture. Butterworth – Heinemam, Oxford University Press.

Bansil. P.C. 2008. Horticulture in India. CBS Publishers and Distributors, New Delhi.

Hartmann & Kester's Plant Propagation: Principles and Practices, 9th Edition. 2018. F. Davies, R. Geneve and S.B. Wilson. (Required, ISBN-13: 978-0134480893).

Kumar, N.1997. Introduction to Horticulture, Rajalakshmi Publication, Nagercoil.

Reference books

Beyl, C.A. and R.N. Trigiano. 2015. Plant Propagation Concepts and Laboratory Exercises, 2nd edition.

CRC Press, Boca Raton, FL. Dirr, M.A. and C.W. Heuser, Jr. 2006. The Reference Manual of Woody Plant PropagationFrom Seed to Tissue Culture, 2nd edition. Timber Press, Inc., Portland, OR. Kyte, L.,

Bhattacharjee.S.K. 2006. Amenity Horticulture, Biotechnology and Post harvest technology. Pointer publishers. Jaipur

Chadha, K.L. 2001, Handbook of Horticulture, ICAR, New Delhi.

Chandra, R. and M. Mishra. 2003. Micropropagation of horticultural crops. International Book Distributing Co., Lucknow.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	4	4	4	5
CO2	3	3	5	4	4	4
CO3	4	3	4	4	3	5
CO4	4	4	4	4	3	4
CO5	4	4	5	4	5	5

Mean :3.9

BOT321V PLANTATION CROPS 2Hr/2Cr

PREAMBLE

This add-on course is designed as an topping to UG curriculum offered in the college to Botany majoring and other department students as an optional will help students to understand and appreciate the high-value attached with commercial crops which in turn serve earning foreign exchange to the country and at the same time provide the livelihood for sizable population of rural poor and masses at the semi urban back drop. This course is aimed to inculcate the know-how of growing and cultivating economically important crops that are intertwining in our daily life. It will kindle in young minds the inquisitiveness towards probe the wealth of nature in lesser known context. After completing this course the students will beable get a holistic picture of plantation crops.

At the end of the certificatecourse, the students will be able to

CO1: recognize the important plantation crops that contribute to the commercial side of the agricultural economy.

CO2: appreciate how these crops help to conserve and foster ecological balance and at the same time offer the livelihood to the rural masses.

CO3: develop a comprehensive idea to rear plantation crops in India at diverse agro-climatic profile.

CO4:analyse and develop strong market intelligence and harness the potential to provide a competitive edge to the Indian farmers.

CO5:familiarise themselves and put into practice the knowledge gained using the produce harvested/gathered from plantation crops that they may eventually take entrepreneurial venturesadvocating and promoting value added products

Unit I: Plantation Crops: Importance – plantation crops vs major agricultural, horticultural and fruit crops – plantation crops status in India – Topographical data – scope and economic value – research potential.

Unit II: Tea: Origin and distribution– area and production – soil – climate – varieties – vegetative propagation –establishment– pruning – manuring – harvesting (plucking) – processing and manufacturing of tea –classification, grading – packing – marketing.

Unit III: Coffee and Cocoa: Coffee–origin and distribution- soil and climate requirement-varieties–establishment – planting – pruning – manuring– plant protection – processing – grading and packing. Cocoa – origin and distribution – climate and soil – varieties – propagation – plantation establishment – manuring and irrigation – pruning – plant protection – harvesting, processing (fermentation) and yield.

Unit IV: Arecanut, Coconut and Palmyra: Arecanut:Importance–climate and soil, cultivars selection and raising of – varieties – seedling index – establishment – manuring- irrigation – plant protection – harvesting, processing and yield. Coconut: origin and distribution – composition and uses of coconut – climate and soil – cultivars and hybrids–establishment of coconut plantation – manuring – irrigation – plant protection – harvest and yield – post harvest processing – value addition. Palmyra: origin and distribution – soil and climate requirement –economic importance – varieties – propagation and planting–irrigation – leaf pruning and ablation – plant protection – diseases and disorders – harvesting, processing and yield – edible and commercial products.

Unit V: Cashewnut andRubber: Origin and distribution –importance– climate and soil– varieties and propagation– seed, clonal and budding – establishment and management – irrigation– manuring–plant protection– harvesting, yield, processing and grading.Rubber: origin and distribution – climate and soil – propagation – polyclonal seedlings – planting and after care – manuring – plant protection – harvesting (tapping, marking and bark renewal) – yield – processing of latex- commercial products.

Textbooks

1. Dashora, L. K., Abhay, D., &Lakhawat, S. S. (2006). *Production technology of plantation crops, spices, aromatic and medicinal plants*. Agrotech Publishing Academy.
2. Kumar, N. J. B. M. (2006). *Introduction to spices, plantation crops, medicinal and aromatic plants*. Oxford and IBH Publishing.
3. Shanmugavelu, K. G., & Madhava Rao, V. N. (1979). Spices and plantation crops. *Spices and plantation crops.*
4. Shanmugavelu, K. G., Kumar, N., & Peter, K. V. (2002). *Production technology of spices and plantation crops*. Agrobios.

References

1. Carr, M. K. (2012). *Advances in irrigation agronomy: plantation crops*. Cambridge University Press.
2. Chakraverty, A., Mujumdar, A. S., & Ramaswamy, H. S. (Eds.). (2003). *Handbook of postharvest technology: cereals, fruits, vegetables, tea, and spices* (Vol. 93). CRC press.
3. Dhillon, B. S., & Tyagi, R. K. (Eds.). (2005). *Plant genetic resources: horticultural crops*. Alpha Science Int'l Ltd..
4. Kulkarni, S., & Hedge, Y. R. (2002). *Diseases of plantation crops and their management*. Agrotech Pub. Academy.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO 1	4	5	5	5	5	5
CO 2	3	5	5	5	5	5
CO 3	4	5	5	5	5	5
CO 4	4	5	5	5	5	5
CO 5	5	5	5	5	5	5

Mean : 4.8

UNDERGRADUATE DEPARTMENT OF ZOOLOGY
w.e.f. 2020-2021

SEM	Part	Course No.	Course Title	Hours	Credits	Marks
1	I	TAM/FRE/HIN/ 0000		**3**	**2**	**30**
1	II	ENG 1201	Conversational skills	**3**	**2**	**30**
1	IIIC	ZOO 1621	Invertebrata	**6**	**6**	**90**
1	IIIC	ZOO 1223	Invertebrata Laboratory	**2**	**2**	**30**
1	IIIC	ZOO 1531	Cell Biology(Theory cum Lab)	**(3+2) 5**	**5**	**75**
1	IIIS	BOT 1437	Plant Biology - I	**(3+2) 5**	**4**	**60**
1	IVE	NME 0000	Non MajorElective 1	**3**	**2**	**30**
1	IVLS	XXX0000	Life Skill course - I	**3**	**2**	**30**
1	V	XXX 0000 or XXX 0000	NCA/NCN/NSS or Extension activity SLP			
			Total	**30**	**25**	**375**
2	I	TAM/FRE/HIN/0000		**3**	**2**	**30**
2	II	ENG 1202	Reading & Writing Skills	**3**	**2**	**30**
2	IIIC	ZOO 1622	Chordata	**6**	**6**	**90**
2	IIIC	ZOO 1224	Chordata Laboratory	**2**	**2**	**30**
2	IIIC	ZOO 1532	Economic Zoology(Theory cum Lab)	**(3+2) 5**	**5**	**75**
2	IIIS	BOT 1438	Plant Biology – II	**(3+2) 5**	**4**	**60**
2	IVE	NME 0000	Non MajorElective 2	**3**	**2**	**30**
2	IVLS	XXX 0000	Life Skill course - II	**3**	**2**	**30**
2	V	XXX 0000 or XXX 0000	NCA/NCN/NSS or Extension activity SLP			
			Total	**30**	**25+1**	**375/390**
3	I	TAM/FRE/ HIN/0000		**3**	**2**	**30**
3	II	ENG 2201	Study Skills	**3**	**2**	**30**
3	III C	ZOO 2623	Microbiology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
3	III C	ZOO 2625	Animal Physiology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
3	III C	ZOO 2433	Genetics	**4**	**4**	**60**
3	III C	ZOO 2335	Evolution	**3**	**3**	**45**
3	III S	CHE 2413	Chemistry for Zoologist - I	**5**	**4**	**60**
3	V	XXX 0000 or XXX 0000	NCA/NCN/NSS or Extension activity SLP			
			Total	**30**	**27**	**405**

SEM	Part	Course No.	Course Title	Hours	Credits	Marks
4	I	TAM/FRE/ HIN/0000		**3**	**2**	**30**
4	II	ENG 2202	Career Skills	**3**	**2**	**30**
4	III C	ZOO 2624	Biological Chemistry (Theory cum Lab)	**(4+2) 6**	**6**	**90**
4	III C	ZOO 2626	Ecobiology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
4	III C	ZOO 2428	Molecular Biology	**4**	**4**	**60**
4	III C	ZOO 2330	Molecular Biology Laboratory	**3**	**3**	**45**
4	III S	CHE 2414	Chemistry for Zoologist -II	**5**	**4**	**60**
			Total	**30**	**27+1**	**405/420**
5	III C	ZOO 3637	Immunology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
5	III C	ZOO 3639	Entomology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
5	III C	ZOO 3641	rDNA technology (Theory cum Lab)	**(4+2) 6**	**6**	**90**
5	III C	ZOO 3543	Developmental Biology (Theory cum Lab)	**(3+2) 5**	**5**	**75**
5	IV LS	XXX 0000	Life Skill course-III	**3**	**2**	**30**
5	IV	ZOO 3200	Environmental Studies	**4**	**2**	**30**
			Total	**30**	**27**	**405**
6	III C	ZOO 3838	Biotechnology (Theory cum Lab)	**(5+3)8**	**8**	**120**
6	III C	ZOO 3446	Project	**4**	**4**	**60**
6	III C	ZOO 3642	Biodiversity (Theory cum Lab)	**(4+2) 6**	**6**	**90**
6	III C	ZOO 3544	Bioinformatics (Theory cum Lab)	**(3+2) 5**	**5**	**75**
6	IV LS	XXX 0000	Life Skill course – IV	**3**	**2**	**30**
6	IV VE	VAL 0000	Value Education	**4**	**2**	**30**
			Total	**30**	**27**	**405**
			Grand Total for Semester I – VI	**180**	**158+2**	**2370/2400**

C: CORE S: SUPPORTIVE E: NON MAJOR ELECTIVE LS: LIFESKILL VE: VALUE EDUCATION

Courses offered by the Department of Zoology to Non-Major Students

Part III Supportive

SEM	Course No.	Course Title	Hrs.	Cr	Marks
III	ZOO 2447	General Zoology – I Theory cum Lab	**(3+2) 5**	**4**	**60**
IV	ZOO 2448	General Zoology – II Theory cum Lab	**(3+2) 5**	**4**	**60**
		Total	**10**	**8**	**120**

Part IV Non-Major Electives

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	ZOO 1251	Human Biology	**3**	**2**	**30**
II	ZOO 1252 or ZOO 1254	Forensic Biology or Apiculture	**3**	**2**	**30**
		Total	**6**	**4**	**60**

Part IV: Life Skill Courses

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	ZOO 1249	Poultry Farming	**3**	**2**	**30**
II	ZOO 1256	Ornamental Fish Culture	**3**	**2**	**30**
V	ZOO 3255 or ZOO 3257	Medical Lab Technology or Ornithology	**3**	**2**	**30**
VI	ZOO 3258	Human Reproduction and Conception Control	**3**	**2**	**30**
		Total	**12**	**8**	**120**

Value Added Courses

SEM	Course No.	Course Title	Hrs.	Cr
I	ZOO 121V	Bee keeping	**2**	**2**
II	ZOO 122V	Aquarium fish keeping	**2**	**2**
III	ZOO 221V	Clinical Lab Techniques	**2**	**2**
IV	ZOO 222V	Shrimp culture	**2**	**2**
V	ZOO 321V	Fish farming	**2**	**2**
VI	ZOO 322V	Dairy farming	**2**	**2**

PROGRAMME SPECIFIC OUTCOMES

Upon completion of this Programme, the graduates will be able to:

1. Apply the knowledge of Zoology in various aspects of society, industry and nature.
2. Identify and analyze problems using the principles of natural science.
3. Design solution for problems in areas in public health, environment and society.
4. Conduct investigations of higher order to solve problems in society and environment.
5. Perform procedures as per laboratory standards.
6. Apply concepts for the benefit of society from areas such as Economic Zoology, Entomology, Immunology and Evolution.
7. Contribute to the sustainability of the environment from the areas of Environment Studies, Ecobiology and Biodiversity.
8. Develop work and environment ethics based on the inputs from Biotechnology, Biodiversity and Genetics.
9. Develop communication skills through seminars & oral presentations, and become competent to take up careers in academics, research and to pursue higher studies.
10. Integrate individual and team work by laboratory and project work.

Mapping of Courses with Programme Specific Outcomes (PSOs)

Course Code	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
ZOO 1621	✓		✓	✓	✓					
ZOO 1223	✓					✓		✓	✓	✓
ZOO 1531	✓	✓								
ZOO 1251	✓	✓								
ZOO 1249	✓		✓			✓				
ZOO 1622	✓	✓								
ZOO 1224	✓	✓							✓	✓
ZOO 1532	✓					✓	✓			
ZOO 1254	✓					✓	✓		✓	
ZOO 1252		✓	✓	✓	✓	✓			✓	
ZOO 1256	✓	✓				✓	✓		✓	
ZOO 2623	✓	✓		✓	✓	✓	✓		✓	
ZOO 2625	✓	✓								
ZOO 2433	✓			✓	✓	✓		✓	✓	
ZOO 2335	✓	✓		✓		✓				
ZOO 2447	✓	✓		✓					✓	
ZOO 2624	✓				✓					
ZOO 2626		✓	✓	✓	✓		✓	✓	✓	✓
ZOO 2428	✓	✓		✓						
ZOO 2330					✓				✓	✓
ZOO 2448	✓		✓			✓			✓	
ZOO 3637	✓				✓	✓				
ZOO 3639	✓		✓			✓			✓	
ZOO 3641			✓		✓				✓	
ZOO 3543	✓	✓			✓				✓	
ZOO 3255		✓		✓	✓			✓		✓
ZOO 3257	✓	✓	✓				✓		✓	
ZOO 3200	✓	✓					✓	✓	✓	
ZOO 3838				✓	✓	✓		✓	✓	
ZOO 3446		✓	✓	✓					✓	✓
ZOO 3642			✓		✓		✓	✓	✓	
ZOO 3544					✓				✓	
ZOO 3258	✓	✓				✓				

Mapping of Programme Specific Outcomes (PSOs) with POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓	✓		✓	✓		✓	✓	✓	
PSO2	✓	✓		✓		✓	✓	✓		
PSO3	✓	✓	✓	✓		✓	✓		✓	✓
PSO4	✓	✓	✓	✓		✓	✓	✓	✓	✓
PSO5	✓	✓	✓			✓	✓	✓		
PSO6	✓	✓		✓	✓	✓	✓	✓	✓	✓
PSO7	✓	✓	✓	✓	✓	✓	✓		✓	✓
PSO8	✓	✓	✓	✓		✓	✓			✓
PSO9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PSO10	✓	✓	✓	✓		✓	✓			

ZOO 1622 Chordata 6hrs / 6cr

This course provides a general and basic understanding of chordates. It discusses the diversity, adaptations, affinities, organization, comparative study and taxonomic status of chordates. Type study for each class is also included.

Upon completion of this course, students will be able to:

i. Outline and classify prochordates and chordates.
ii. Explain the characteristics of Agnatha and Pisces.
iii. Assess the adaptations and evolutionary importance of Amphibia and Reptilia.
iv. Outline and classify Aves and Mammalia with examples.
v. Compare the various systems of Chordates.

Unit 1: Chordata and Prochordata 18 hrs

Salient features - outline classification of phylum chordata up to class level with examples - Prochordates- classification -*Amphioxus* sp., *Balanoglossus*sp. and *Ascidian*sp. - life history - affinities - retrogressive metamorphosis.

Unit 2: Agnathaand Pisces 18 hrs

Classification up to orders with examples - *Petromyzon*sp.- life history, comparison between lampreys and hag fishes - scales - fins - S*coliodon* sp.Electric organs - parentalcare - migration – economic importance of fishes - accessory respiratory organs.

Unit 3: Amphibia and Reptilia 18 hrs

Classification up to orders with examples- adaptive features of Anura, Urodela, Apoda - *Rana*sp.- parentalcare - *Calotes* sp. - statusof *Sphenodon*sp.- identificationof poisonous and non-poisonous snakes – biting mechanisms – poison apparatus - venom - Jacobson'sorgan - South Indian amphibians and snakes.

Unit 4: Aves and Mammalia 18 hrs

Classification up to orders with examples - flight adaptations - migration, adaptive radiation of beaks and feet – characters of *Archaeopteryx* - features of Ratitae- *Columba*sp.,*Rattus* sp.- adaptation of aquatic mammals, flying mammals - dentition and adaptive radiation in mammals - economic importance - South Indian birds and mammals.

Unit 5: Comparative anatomy 18 hrs

Integument and its derivatives - endoskeleton - skull,girdles (Birds & Reptiles)- digestive system (Shark & Birds) - nervous system (Shark & Birds)- sense organs (Shark & Frog).

Textbook

Jordan EL and Verma PS (2013) Chordate Zoology, S.Chand& Co Ltd., New Delhi.

References

Romer, AS (1992)The vertebrate body, 3rdEdition,Vakils, Fefer and Simons Pvt. Ltd, Mumbai.

Ayyar, E (1982) Manual of Zoology Vol.II-.S.Viswanathan (Printers & Publishers) Pvt. Ltd., Chennai.

Kotpal, RL (2014)Modern textbook of Zoology Vertebrates. 3rd Edition Rastogi Pubications, Meerut.

Saxena, RK and Saxena, S (2008) Comparative anatomy of vertebrates.Viva books Pvt. Ltd., New Delhi.

Mapping of Course Outcomes with Bloom's Taxonomy

ZOO 8

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3					5	
CO4		2				
CO5				4		

Mean = 3

ZOO 2335 Evolution 3h / 3cr

Evolution influences every aspect of the form and behavior of organisms. This course includes origin of life and evidences for evolution, theories of evolutionary thought, fossilization, isolation, speciation, natural selection and emphasis the biological and cultural evolution of man.

Upon completion of this course, students will be able to:

i. Explain the origin of life and evidences for evolution
ii. Analyze the various theories of evolution
iii. Discuss the concepts of evolutionary trends
iv. Analyze the isolating mechanisms and adaptations
v. Evaluate the evolution of horse and human

Unit 1: Origin of life and evidences for evolution 9hrs

Origin of life - theories -special creation - Cosmozoic - spontaneous generation - Chemical evolution - Bio-elements - selection - opinion of J.B.S. Haldane and A.L. Oparin - Urey Miller hypothesis - Origin of biomolecules - Coacervation - Origin of pro- and eukaryotic cell - Evidences - anatomical, physiological, embryological, biochemical and molecular phylogenetic evidences.

Unit 2: Theories of evolution 9hrs

Lamarckism and Neo-Lamarckism - Darwinism and Neo-Darwinism - Germplasm theory - Mutation theory - Modern synthetic theory - Hardy Weinberg law and its importance.

Unit 3: Trends in evolution 9hrs

Geological eras - Fossils and fossilization - dating of fossils - Extinctions - Living fossils - adaptations - variations and origin - adaptive trends - Polymorphism - transient and stable - Mimicry and Coloration - Batesian and Mullerian mimicry.

Unit 4: Isolation and its role in evolution 9hrs

Isolating mechanisms - different types - Species concepts - definition of species - origin of species - Allopatric and Sympatric speciation - Genetic drift - Founder's Principle.

Unit 5: Evolutionary Processes 9hrs

Natural selection in action - Industrial Melanism - Evolution of horses - Time and place of origin, major evolutionary trends, phylogeny of probable sequence species of horse - Eocene, Oligocene, Miocene, Pliocene, and Pleistocene forms - Orthogenesis - Evolution of man & cultural evolution.

Textbook

Stebbins GL (1966) Process of Organic Evolution. Prentice Hall, New Delhi.

References

Darwin, RC (1859) On the Origin of Species by the means of Natural Selection, John Murrey, Abemarel Street London.

Dobzansky, T(1976) Genetics and the origin of species. Oxford and TBH Publishing Co., New Delhi.

Dodson, EO (1960) Evolution: process and product. Affiliated East- West Press, New Delhi.

ZOO 10

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3			3	4		
CO4		2		4		
CO5					5	

Mean = 3.3

ZOO 2428 Molecular Biology 4hrs / 4cr

Molecular biology deals with the study of structure and function of genes and genomes. Students will learn the finest details of molecular configurations of genes, their physical properties and their nature of replication, recombination, mutation and transposition. This course also introduces how genes express and accurately transmit genetic information, and the mechanism of its regulation.

Upon completion of this course, students will be able to:

i. Explain the molecular nature of nucleic acids.
ii. Analyze the mechanisms involved in DNA replication,recombination, mutation and DNA repair.
iii. Compare the transcription process in prokaryotes and eukaryotes.
iv. Discuss the mechanisms involved in transcription.
v. Evaluate the different transposable elements and assess regulation of gene expression.

Unit 1: The molecular nature of DNA and RNA 12hrs

Introduction to gene structure and function – DNA double helix –Alternate forms of DNA – Physical properties - G:C content, c-value and c_ot curves – Extra nuclear genomes - Structure and types of RNA – human genome project.

Unit 2: DNA replication, recombination, Mutation and repair systems 12 hrs

Semicon servative replication - bidirectional - unidirectional - rolling circle and θ model replication - enzymology of DNA replication- Homologous and site specific recombination, Mutation - types -DNA repair mechanisms.

Unit 3: Transcription 12hrs

RNA polymerases -Mechanisms of transcription in prokaryotes and eukaryotes- General transcriptional factors of eukaryotes - Post-transcriptional processing - capping, polyadenylation, splicing and alternate splicing.

Unit 4: Translation 12hrs

Genetic code - Deciphering of genetic code - Salient features of genetic code - 3D structure of tRNA -codon-anticodon interaction - Wobble hypothesis - Mechanism of protein synthesis in prokaryotes and eukaryotes - Inhibitors of protein synthesis - Post translational modification.

Unit 5: Transposition, Regulation of gene expression 12hrs

Transposable elements - IS,Tn3,Tn10 and Mu, Fine control of prokaryotic transcription - *Lac*operon - Gene regulation in eukaryotes: GAL system in yeast, Role of chromatin structure in gene regulation- DNA binding proteins.

Textbook:

Malacinski GM (2003) Freidfelder's Essentials of Molecular Biology. IV Edition, Narosa Publishing House, New Delhi, India.

References:

Brown TA (2007) Genomes 3. III Edition, Garland Science Publishing, New York.

Watson JD, Kopkins NK, Roberts JW, Stertz JA and Weiner AM (1994) Molecular Biology of the Gene. Benjamin and Cummings Pub Co., California, USA

ZOO 12

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3			3			
CO4				4		
CO5					5	

Mean = 3.2

ZOO 2433 Genetics 4hrs / 4cr

This course aims to focus on the basic principles of genetics by presenting the important concepts of classical, microbial, population and human genetics. It deals with basic concepts of simple inheritance characters and gene mapping.

Upon completion of this course, students will be able to:

i. Analyze the patterns of Mendelian and non-Mendelian inheritance.
ii. Explain sex determination, linkage and crossing over.
iii. Predict the genetic basis of behavior.
iv. Explain the mechanisms of genetic recombination in bacteria and viruses.
v. Assess the concepts of human genetics, compute gene and genotypic frequencies.

Unit 1: Mendelism 13 hrs

Mendel's study of heredity –symbols- terminology- laws –related problems - multiple alleles - gene interactions –epistasis, incomplete dominance, complementary and supplementary genes, - quantitative traits - inbreeding.

Unit 2: Sex determination, Linkage and crossing over 14 hrs

Sex determination – XX/XY, XX/XO, ZZ/ZO and ZZ/ZW – environmental and hormonal determination -sex linked inheritance – X and Y linked - dosage compensation, Lyon's hypothesis - Barr bodies. Linkage –discovery–Concept - types - Morgan experiment in Drosophila - cytological proof for crossing over – Creighton and McClintock experiment - mechanism of recombination – recombination frequency.

Unit 3: Behavioural genetics 10 hrs

Nest cleaning behavior in honey bees – Nurturing behaviourin mice - Biological rhythms in Drosophila - *per* gene - single gene mutations and human behavior – LeschNyhan Syndrome, Huntington's disease – complex human behaviour – twin studies – intelligence – personality.

Unit 4: Genetics of bacteria and viruses 10 hrs

Mutant phenotypes in bacteria - transformation and conjugation - discovery, mechanism. T_4 and lambda phage - plaques - transduction - discovery - generalized and specialized mechanism.

Unit 5: Human genetics 13 hrs

Mendelian traits in man - pedigree analysis - karyotype analysis– Q, G, R, C banding– chromosome variation - euploidy, aneuploidy, polyploidy - chromosomal abnormalities – Down's, Klinefelter's, Turner's and cri du chat syndrome -inborn errors of metabolism – phenylketonuria, alkaptonuria and albinism- genetic counseling – eugenics, euthenics and euphenics.

Textbook

Snustad, DP and Simmons, JM (2010). Principles of Genetics 5th Edition. John Wiley & Sons Inc.

References

Hexter, W and Yost, HT (1980) The Science of Genetics. Prentice Hall of India Pvt Ltd., New Delhi.

Levine, L (1969) Biology of the Gene. The CV Mosby Company, St. Louis, USA.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3				4		
CO4			3			
CO5					5	

Mean = 3.2

ZOO 2624 Biological Chemistry 4+2 = 6hrs / 6cr
(Theory cum Lab)

Biological chemistry includes enzymes, and mechanism of enzyme action. It also includes chemistry and metabolism of carbohydrates, amino acids & proteins, lipids & nucleic acids. Citric acid cycle and oxidative phosphorylation are also included.

Upon completion of this course, students will be able to:

i. Assess the structure and metabolism of carbohydrates.
ii. Understand the structure of amino acids & proteins.
iii. Discuss the mechanism of enzyme action and the regulation of enzyme activity.
iv. Assess the chemistry and metabolism of lipids and nucleic acid and convergence of metabolic pathways.
v. Analyze the various metabolic pathways and their significance

Unit 1: Carbohydrates 12hrs

Structure, Classification, Properties and Biological significance -Monosaccharides - ribose, glucose, fructose - Disaccharides - Sucrose and lactose. Polysaccharides - Starch and Glycogen.

Unit 2: Amino acids and proteins 12hrs

Standard and non-standard amino acids, Classification based on structure, side chains, charges, polar and non polar - Structural organization of proteins - primary, secondary, tertiary and quaternary - Properties and Biological significance of amino acids and proteins.

Unit 3: Enzymes 12hrs

Classification - Substrate specificity - Factors affecting rate of enzyme activity - Mechanisms of enzyme action - Regulation of enzyme activity - Enzyme inhibition - Coenzymes and cofactors - Isozymes.

Unit 4: Lipids and Nucleic acids 12hrs

Lipids: Classification, structure of Simple lipids - fats, Compound lipids - phospholipids - lecithin, glycolipids - gangliosides and lipoproteins and Derived lipids - Steroids - Cholesterol. Nucleic acids - components - nitrogenous bases - nucleosides - nucleotides - Biological significance of lipids & nucleic acids.

Unit 5: Metabolism of carbohydrate, lipids and proteins 12hrs

Glycolysis - significance of Glycogenesis, Gluconeogenesis and Pentose phosphate pathway - Deamination and transamination reactions -Urea cycle - β-oxidation of fatty acids - TCA cycle - Electron transport chain - Oxidative phosphorylation.

Laboratory component includes exercises as follows:

- Colorimetry
- Spectrophotometry
- pH metry
- Paper Chromatography
- Electrophoresis
- Centrifugation
- Qualitative analysis of carbohydrates

- Qualitative analysis of amino acids & proteins
- Qualitative analysis of lipids
- Enzyme kinetics I
- Enzyme kinetics II

Textbook

Voet D and Voet JG (2004) Biochemistry. 3rd Edition. John Wiley & Sons Inc. USA.

References

Satyanarayana,U and Chakrapani, U(2008) Essentials of Biochemistry, 2nd Edition, Books and Allied (P) Limited, Kolkata.

Murray RK, Granner DK, Mayes PA and Rodwell VA (2000) Harper's Biochemistry. 25th Edition. Appleton & Lange, USA.

Lehninger AC, Nelson DL and Cox MM (2001) Principles of Biochemistry. 4th Edition, W.H. Freeman Company, USA.

Plummer DT (1996) An introduction to Practical Biochemistry. Tata McGraw Hill, New Delhi.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1				4		
CO2		2				
CO3			3			
CO4				4		
CO5				4		

Mean =3.2

ZOO 3544 Bioinformatics 3+2=5hrs / 5cr
(Theory cum Lab)

This course is designed to introduce bioinformatics tools and analysis methods to students. Upon completion of the course, students should feel confidence in dealing with the vast amounts of biomedical and genomic data and online tools that will be relevant to their work in the coming decades.

Upon completion of this course, students will be able to:

i. Discuss the differences between internet and WWW and their characteristics.
ii. Outline HTML, URL, browsers, search engines and applications of bioinformatics.
iii. Use various bioinformatics tools to analyze sequence data and visualize structure data.
iv. Explain various biological databases.
v. Outline pair-wise and multiple sequences alignments and scoring.

Unit 1: Internet and World Wide Web 5 hrs
Introduction to internet - Working of Internet - Use of Internet - Working with E-mail - An overview of Computer viruses - General Precautions - Overview of World Wide Web (Web Server and Client)

Unit 2: Information gateway 8 hrs
Introduction to Search engine and Searching the Web - Downloading files - Introduction to Web Browsers - Understanding HTML and URL, Domain name, IP Address - Blogging - Overview of available Bioinformatics resource in web.

Unit 3: Biological Data and Bioinformatics 8 hrs
Bioinformatics and its relation with molecular biology -Sequence data and analyzing tools (FASTA, BLAST, BLAT)-Structure data-visualization and analysis tools (RASMOL, SPDBV)- Applications of Bioinformatics.

Unit 4: Biological Database 12 hrs
Biological Databases - Nucleic acid databases (NCBI, DDBJ, and EMBL) - Protein sequence databases (Primary, Composite, and Secondary) - Specialized Genome databases(SGD, TIGR, and ACeDB) - Structure databases (CATH and SCOP).

Unit 5: Sequence Alignments 12 hrs
Sequence alignments – Alignment scoring – Local alignment and Global alignment - Pairwise alignment (BLAST and FASTA) and multiple sequence alignment (ClustalW) - Phylogenetic analysis (MEGA)

Textbook:
Ignacimuthu, S(2005) Basic Bioinformatics. II Edition, Narosa Publishing House, NewDelhi.

References:

Teresa K, David A and Parry-Smith (2001) Introduction to Bioinformatics. I Edition, Pearson Education, New Delhi.

Lesk, AM (2002) Introduction to Bioinformatics. I Edition, Oxford University Press, USA

ClaverieJM andNotredameC (2006) Bioinformatics for Dummies. II Edition, John Wiley & Sons, Inc., USA.

Xiong, J (2006) Essential Bioinformatics. Cambridge University Press,New York.

Laboratory component includes exercises as follows:

- Bibliographic databases and full text research articles retrieval (PUBMED).
- Sequence retrieval from GenBank
- Flat file comparison – GenBank, EMBL and DDBJ
- Sequence alignment –BLAST, FastA
- Multiple sequence alignment – Clustal W
- Phylogenetic tree construction
- Protein sequence and structure databases- Uni ProtKB,PDB
- Visualization of protein structure- RasMol, SPDBV
- Identification of restriction map sites using software.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4			3	4		
CO5				4		

Mean =3.2

ZOO 3637 Immunology 4+2=6hrs / 6cr
(Theory cum lab)

This course attempts to provide a basic understanding in Immunology. The course covers cells and organs of the immune system, antigens, antibody structure, antibody diversity, antigen-antibody interactions, cell mediated and humoral immune response and complement. In the section on disorders of immune system, autoimmunity, hypersensitivity reactions, immunodeficiency disorder and graft rejection are dealt. The laboratory component includes identification and enumeration of blood cells, location of lymphoid organs in selected vertebrates, preparation of antigens, immunization techniques, repetitive bleeding methods, antibody titration and skin test for allergy reactions.

Upon completion of this course, students will be able to:

i. Explorethe importance of Immune cells and lymphoid organs.
ii. Understand the nature of antigens, antibody and their interactions.
iii. Demonstrate the immune response mediated by MHC and lymphocytes
iv. Evaluate immune regulation and immune tolerance.
v. Analyze the hyper and poor activity of immune system.

Unit 1: Overview of the immune system 10 hrs
Introduction -historical perspectives - innate (non-specific) and acquired (specific) immunity - cells involved - vaccines - primary & secondary lymphoid organs.

Unit 2: Antigens, antibody and their interactions 10 hrs
Antigen - Types- factors influencing immunogeneticty - adjuvants - Structure and Biological properties of Immunoglobulin classes – IgG, IgM, IgA, IgD and IgE. Primaryinteractions-affinity and avidity-secondary interaction-agglutination-precipitation.

Unit 3: Immune Response: **14 hrs**
Humoral and cell mediated immunity – Primary and Secondary response - MHC – Structure-Antigen Processing and Presentation – Biology and Activation of B and T Lymphocytes.

Unit 4: Regulation of Immune Response and Tolerance 14 hrs
Cytokines - Complement components- Biological properties - Classical and alternate pathways - Immune tolerance – Auto immunity – SLE and Rheumatoid arthritis.

Unit 5: Hypersensitivity, Immunodefficiency disorders and Transplantation 12 hrs
Overview of Type I, II, III, IV Hypersensitivity reactions - Immunodeficiency disorders - AIDS - Graft rejection - types of Grafts and mechanism of graft rejection.

The Laboratory component includes exercises as follows:

- Total and differential count of blood cells
- Lymphoid organs in vertebrates I – fish
- Lymphoid organs in vertebrates II- Chick
- Preparation of Soluble and Insoluble Antigens
- Routes of immunization
- Bleeding techniques and separation of serum and plasma
- Antibody titration – Ammonium Sulphate precipitation method
- Isolation of Lymphocyte using Ficoll Solution
- Ouchterlony double immunodiffusion (ODI)

- Mancini's single radial immunodiffusion (SRID)
- Immunology of ABO blood grouping
- Skin test for allergy reactions

Textbook

Coico R and Sunshine G (2009) Immunology – a short course. 6th Edition, Wiley Blackwell, New York.

References

Garvey JS, Cremer NE and Sussadorf DH (1977) Methods in Immunology. 3rd Edition, The Benjamin Cummings Pub co., Massachusetts.

Kindt TJ, Osborne BA and Goldsby RA (2006)Kuby Immunology. 6th Edition. W.H. Freeman and Co., New York.

Hudson, L and Hay, F (1989) Practical Immunology. 3rd Edition, Blackwell Science Publishers, Oxford.

Roitt IM, Brostoff J and Male D (2001) Immunology. 6thEdition, Mosby, London.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1				4		
CO2		2				
CO3				4		
CO4					5	
CO5				4		

Mean =3.8

Value Added Courses

ZOO 121V **Bee Keeping** **2hrs / 2cr**

This course is designed to make the students know about scope and the importance of apiculture, bee morphology, anatomy, life cycle, honey processing, bee products, honey bee enemies and diseases. Honey properties and application in various fields are also covered.

Upon completion of this course, students will be able to:

i. Discuss the introduction and scope of apiculture
ii. Explain the honey bee morphology, anatomy and life cycle
iii. Analyze methods of honey process and bee products
iv. Evaluate different bee enemies and diseases
v. List out the honey properties and its products

Unit 1: Introduction to apiculture **6 hrs**

History of bee keeping - Definition -Bee keeping in worldwide - Traditional bee keeping in India - Modern beekeeping - Urban or backyard beekeeping - Apiculture development in India - institutions involved - Role of Central Honey Bee Research & Training Institute.

Unit 2: Honey Bee morphology, anatomy and life cycle **6 hrs**

Morphology of honey bees - Honey bee species - indigenous and exotic - identification - origin, systematics and distribution of honey bees - colony life and social organization - queen, drone, worker -communication of honey bees.

Unit 3: Honey processing and bee hive products **5hrs**

Honey extraction and handling - Quality control standards - Honey testing kit - Processing of honey - Other valuable by products of honey bees - Bee venom and Royal jelly extraction - Propolis.

Unit 4: Honeybee enemies and diseases **7hrs**

Bee enemies -wax moth, ants, wasps andpests -diagnosis and identification. Bacterial disease - American Foulbrood and European Foulbrood. Viral diseases - Deformed Wing Virus, Sac brood Virus, Black Queen Cell Virus, Kashmir Bee Virus, Acute Bee Paralysis and Virus. Fungal disease - Chalk brood and Stonebrood. Protozoan disease –Nosemosis andNosemacerana.

Unit 5: Honey - its properties and application in various fields **6hrs**

Honey - its medicinal properties - application in various fields - other valuable byproducts of honey bees - value added honey products - properties of honey products - Nutrients and composition of honey -acid content and flavor effects.

Textbook

Ambrose DP (2004) The insect structure, function and biodiversity. Kalyani Publishers, New Delhi

References

Ted Hooper (2010) Guide to Bees & Honey: The World's Best Selling Guide toBeekeeping. Northern Bee Books, Oxford.

Morse, RA and Flottum, K (1998) Honey Bee Pests, Predators and Diseases. Third Edition, WicwasPublishers,.3rd edition.

Cramp, D(2012) The Complete Step-by-step Book of Beekeeping: A Practical Guide to Beekeeping, from Setting up a Colony to Hive Management and Harvesting the Honey. Lorenz Books, London.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			
CO2		2				
CO3				4		
CO4					5	
CO5	1					

Mean = 3.0

ZOO 122V **Aquarium Fish Keeping** **2hrs / 2cr**

The main objective of the course is to impart knowledge on fish culture and breeding of commercially important ornamental fishes. It gives an overview on the biology of aquarium fishes, fish feed, transportation techniques, entrepreneurship, budget and maintenance of aquarium.

Upon completion of the course the students will be to:

i. Appreciate the basic concepts of aquarium fish keeping.
ii. Understand the biology of aquarium fishes.
iii. Acquire knowledge on the preparation of fish feeds.
iv. Outline the fish transportation techniques.
v. Examine the factors involved in maintenance and management of aquariums.

Unit 1: Introduction to Aquarium Fish Keeping **6 hrs**

Introduction to aquarium keeping and its types- aquarium accessories- basic knowledge on profile of ornamental fishes in world and India- scope of aquarium fish industry as a cottage industry- exotic and endemic species of aquarium fishes.

Unit 2: Biology of Aquarium Fishes **6 hrs**

Common characters and sexual dimorphism of fresh water and marine aquarium fishes such as Guppy, Molly, Sword tail, Gold fish, Angelfish, Blue morph, Anemone fish and Butterfly fish - breeding and rearing of live bearers.

Unit 3: Food and feeding of Aquarium fishes **5 hrs**

Use of live fish feed organisms- preparation and composition of formulated fish feeds - aquarium fish as larval predator.

Unit 4: Fish Transportation **6 hrs**

Live fish transport- fish handling - packing - forwarding techniques.

Unit 5: Maintenance of Aquarium **7 hrs**

General aquarium maintenance -health management in ornamental fish farming- aquarium plant propagation- management of ornamental aquatic plants and its trading- budget for setting up an aquarium fish farm as a cottage industry.

Textbook

Yadav BN (2006) Fish and fisheries. 4th Edition. Daya Publishing house, New Delhi.

References

Dick Mills, 1987. Illustrated Guide to Aquarium Fishes. Published by Galley and Price, an imprint of W.H. Smith and Sons Limited, England.

Cato JC and Brown CL eds. (2003) Marine ornamental species: collection, culture and conservation. Blackwell Publishing, Ames, Iowa.

ZOO 24

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			
CO2		2				
CO3				4		
CO4		2				
CO5				4		

Mean = 3.0

ZOO 221V Clinical Lab Techniques 2hrs / 2cr

This course provides a comprehensive coverage of the procedures and routine diagnostic tests in a clinical lab. It deals withcollection of biological samples, reagent preparation, storage of chemicals and maintenance of lab records. This course will help the students to acquire knowledge about the biochemical, microbiological and immunological tests in clinical labs and also about the basic biomedical instruments.

Upon completion of this course, the students will be able to:

i. Appreciate the biological sample collection procedures
ii. Explain the composition of blood and routine blood tests in labs.
iii. Outline the reactions involved in identification of infectious microbes in blood & fertility tests
iv. Demonstrate the routine urine tests performed in labs.
v. Outline the basic biomedical instruments available in clinical labs.

Unit 1: Biological sample collection, chemical preparation & storage methods 4 hrs
Collection of urine - sputum - pus- cerebrospinal fluid - swab - eye and ear exudates - blood and stool samples –Phlebotomologicalmethods – BMI - Reagent & buffer preparation, calculations- Storage of chemicals and maintenance of lab records.

Unit 2: Blood tests&Blood group determination 7 hrs
composition of blood - glucose and HbA1c test - Plasma lipids, proteins and lipoproteins, cholesterol, uric acid in blood - Enzymes of clinical importance - cardiac markers - Blood grouping and typing principles.

Unit 3: Urine tests and analysis of miscellaneous fluids 7 hrs
Composition of urine -microscopic examination of urine sediments -rapid chemical tests of urine-Protein & glucose- Cerebrospinal fluid - physical and microscopic examinations - clotting.

Unit 4: Identification of infectious agentsand fertility tests 6 hrs
Identification of bacteria in blood - swab and exudates - culturing pathogenic microbes - antigen antibody reactions - hormonal and Immunologic test for pregnancy - Semen analysis.

Unit 5: Biomedical instruments 6 hrs
Use of microscopes in cell counting -WBC, RBC, Platelets - Centrifugation- Separation of plasma - Stethoscope, Sphygmomanometer - ECG - EEG - X-ray -Microtome and processing of tissues - PCR and auto analyzer.

Textbook

Mukherjee KL(1990). Medical Laboratory Technology, A procedure Manual for routine diagnostic tests,TATAMcGraw-hill publishing company limited, New Delhi.

References

Sood, R (1988) Medical Laboratory Technology. Jaypee Pub Ltd., New Delhi.
Syrey MF, William JM andElvyn GS (1978) Diagnostic microbiology. The C.V.Mosby Co.

ZOO 26

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			
CO2		2				
CO3				4		
CO4				4		
CO5		2				

Mean =3.0

ZOO 222V **Shrimp culture** **2hrs / 2cr**

Shrimp culture is a vibrant economic activity contributing to agriculture, national economy, nutritional security, employment generation and foreign exchange. This course is vested with responsibilities in guiding and coordinating shrimp culture practices.

Upon completion of this course the students will be able to

i. Gain in depth knowledge and field exposure on sustainable shrimp culture practices.
ii. Learn effective soil and water quality management practices.
iii. Create basic understanding on nutritional requirements of shrimp and feeding practices.
iv. Provide holistic knowledge on shrimp pathogens and their control measures.
v. Familiarize the students with concepts and principles of shrimp farm management and prepare them to exploit business opportunities.

Unit 1: Sustainable Shrimp farming **5 hrs**

Present global and national scenario - Extensive, semi- intensive, intensive and super intensive culture practices - Freshwater, brackish water and marine shrimps - *Penaeus monodon, P. indicus, Macrobrachiumrosenbergii and M.malcolmsonii.*

Unit 2: Anatomy and physiology of shrimp **5 hrs**

Body organization and structure of shrimp - Digestive - respiratory - urinogenital systems - egg and larval stages of development.

Unit 3: Pond construction and water quality management **5 hrs**

Site selection - designing - components and construction of tanks - pump and pipeline systems - water intake and outlet design - aerator and fabrication - water quality analyses.

Unit 4: **Feeding and disease management** **5 hrs**

Types of feed dry and non-dry - Feeding practices and schedule - feed economics and evaluation (FCR, PER and NPU) - feed additives - Viral, bacterial and fungal pathogens - clinical symptoms, diagnosis and control measures

Unit 5: Harvest, post-harvest technology and marketing management **5 hrs**

Harvesting techniques - shrimp grading and quality evaluation - chilling and freezing techniques - packaging and marketing - marketing channels and problems - role of co-operative societies, government and non-government organizations.

Textbook

Rao, PS(1983) Fisheries economics and management in India, Pioneer publishers anddistributors.

References

Bliss, DE (1983) The biology of Crustacea, Vol.1-10, Academic press, New York.

MPEDA (Marine Products Export and development Authority), 1996. A manual of shrimp farming, MPEDA, Kochi, India

CMFRI (1982) Manual of research methods for fish and shell fish nutrition. CMFRI, special publication No.8, CMFRI, Cochin, India.

ZOO 28

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			3			
CO2						6
CO3			3			
CO4					5	
CO5		2				

Mean = 3.8

ZOO 321V **Fish farming** **2hrs / 2cr**

This course is designed to make the students know about the scope of aquaculture, principle of site selection for fish, preparation of fish pond, Types of fish culture, Integrated fish farming and also cultural organisms, diseases & control measures and marketing.

Upon completion of this course, students will be able to

i. Explain the scope of Aquaculture-Principle of site selection
ii. Analyze the preparation of fish pond
iii. Discuss about the types of fish culture
iv. Evaluate the Integrated fish farming
v. Identify the culturable organisms

Unit 1: **Site Selection** **6 hrs**

Definition of aquaculture - scope of aquaculture - principle of site selection for fish farms - water - soil types and other parameters

Unit 2:Preparation of fish pond **6 hrs**

Construction of fish farm- liming irrigation fertilization- water quality management

Unit 3: Types of fish culture **6 hrs**

Types of culture-monoculture- composite fish culture- monosex culture- pen culture - cage culture- culture in Pokkalifields - culture in Bheries

Unit 4: **Integrated fish farming** **6 hrs**

Integrated fish farming - paddy cum fish culture- fish cum poultry farming- fish cum dairy farming - fish cum pig farming

Unit 5: Culturable organisms, diseases and marketing **6 hrs**

Culture of Indian major carps - Tilapia- fresh water prawn culture - marketing of fishes - types of fish marketing - Protozoan and bacterial diseases of fishes - control measures.

Textbook

Gupta.SK and Gupta PC (2006) General and Applied Ichthyology. S. Chand & Co., New Delhi

References

Santhanam, R, Sukumaran, N and Natarajan, P (1990) A Manual of Fresh water Aquaculture. Oxford &IBH Publishing Co. Pvt. Ltd.

Shanmugam, K(1990) Fishery biology and aquaculture. LeoPathippagam, Madras, India.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2	1	2	3			
CO3	1	2	3			
CO4				4	5	6
CO5			3	4	5	6

Mean 3.2

ZOO 322V **Dairy Farming** **2hrs / 2cr**

This is a comprehensive course deals mainly with the methods involved in dairy farming. The course covers about the principles of dairy farming in India and importance of milk and products. It also deals with the description of characters of breeds of cattle and buffaloes. Aspects of breeding methods and management of dairy farm also covered.

Upon completion of this course, students will be able to:

i) Summarize the principles and importance of dairy farming in India.
ii) Differentiate the various breeds of cattle, their advantages and disadvantages.
iii) Identify the breeds of buffaloes and their management.
iv) Discuss the various methods involved in breeding of dairy animals.
v) Utilize the methods adopted in the management of dairy farm.

Unit 1: Dairy farming in India **6 hrs**

Dairy development in India - present and future - Nutritive value of milk - Milk and milk products and their role in human nutrition - Dairy Cooperatives - NDRI, NDDB, TCMPF etc.

Unit 2: Breeds of cattle **6 hrs**

Indigenous breeds - Milch /milk breeds-Dual purpose-draught breeds-cross breeds - exotic dairy breeds - advantages and disadvantages

Unit 3: Breeds of buffaloes **6 hrs**

Indian buffalo breeds - Murrah - Jaffrabadi - Nili-Ravi - Mehsana - Surti – Nagpuri. Life span -economic uses of water buffaloes - Breeding and management problems - Nutrition, health and other relevant information about buffalo

Unit 4: Breeding of dairy animals **7 hrs**

Selection methods - Individual, family and sibling selection - economic characters in dairy cattle - System of breeding - classification-advantages and disadvantages - Reproductive system of cow and bull - Artificial insemination - Embryo transfer technology - semen collection and insemination - pregnancy diagnosis - state and national breeding policies

Unit 5: Housing and dairy farm management **5 hrs**

Selection of site - systems of housing - sanitation and cleaning - care and management of calves, heifer, milch, pregnant, bulls and bullocks - Feed formulations- common diseases of dairy animals and their management.

Textbook

Banerjee GC (2019) A text book of animal husbandry. EighthEdition, Oxford and IBH Publishing Pvt. Ltd., New Delhi.

References

Tomar, SS (2010) Text book of animal breeding. Kalyani Publishers, New Delhi.

Kumar, AT (2008) Handbook of animal husbandry. Indian Council of Agricultural Research (ICAR), New Delhi.

Sastry, NSR and Thomas, CK (2005) Livestock production management. Kalyani Publishers, New Delhi

Dairy India (2007) Edited by Sharad Gupta, Dairy India Yearbook Publications, 2007, pp xxiv+840

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2					5	
CO3				4		
CO4		2				
CO5			3			

Mean = 3.2

UNDERGRADUATE DEPARTMENT OF ECONOMICS

w.e.f. 2020-2021

Value Added Courses

Sem	Course No	Course Title	Hours	Credits
I	ECO 121V	Introduction to Agri-business வேளாண்சார் வணிகம் -அறிமுகம்	2	2
III	ECO 221V	Economics of Tourism சுற்றுலாபொருளாதாரம்	2	2
V	ECO 321V	Economics of Insurance காப்பீட்டுப் பொருளாதாரம்	2	2

ECO 121V INTRODUCTION TO AGRI – BUSINESS 2Hrs/2Cr

The aim of this course is to give an opportunity to have an insight into agri– business ultimately leading to become an agri-entrepreneur.

From this value added course, the students are able to

i. Understand the role of agri-business in Indian economy.
ii. Analyze the self business in agro-based industries
iii. Formulate the suitable agri business
iv. Inculcate skill of marketing to do agriculture and allied business
v. Evaluate the effectiveness of agriculture policies in India

Unit 1:Introduction (5 hrs)
Scope - nature - significance of agricultural business - role of agriculture in the economy

Unit 2:Agro-based Industries (5 hrs)
Importance – Objectives - Sugar industry, rice mill, cotton, oilseeds, fertilizer industry- Problems – Remedial measures

Unit 3:Agro-allied Business I (7 hrs)
Importance – Function, processing and marketing of horticulture, floriculture, medicinal plants – Agri-business

Unit 4:Agro-allied Business II (7 hrs)
Production and marketing of sericulture and silk products, livestock and dairy products, Agriculture and handicraft – Problems - Effects

Unit 5: Government Initiatives (6 hrs)
National Agricultural Policy of Government of India - Agricultural Patenting, Subsidy, Government programmes in agriculture - WTO and AOA

References:

1. Konig, G., Da Silva, C. A. and Mhlanga, N., (2013), Enabling Environments for Agri-business and Agro-industries: Regional and Country Perspectives, FAO, Roma (Italia).
2. Palanithurai, G. and Ramesh, R., (2011), Globalisation and Rural Development. Concept Company, Delhi.
3. Palmere, A.,(2011), Principles of Service Marketing. Oxford University Press.
4. Various Reports of APEDA, National Horticulture Board (NHB) & Director of Horticulture.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1					
CO 2		2	3		5	
CO 3		2	3	4		6
CO 4		2	3	4	5	6
CO 5		2	3	4	5	6

Mean 3.7

ECO 121V **வேளாண்சார் வணிகம் -அறிமுகம்** **2Hrs/2 Cr.**

இப்பாடத்திட்டம் வேளாண்மைபற்றியநுண்ணறிவைப் பெறவும், வேளாண்தொழில் முனைவோராகமாறவும் வழிவகுக்கிறது.

இப் பாடத்திட்டத்தில் மாணவர்கள் கற்றுக் கொள்ளுதல்

i. இந்தியபொருளாதாரத்தில் வேளாண் வணிகத்தின் பங்கைப் புரிந்துகொள்ளுதல்
ii. வேளாண் சார்ந்ததொழில்களில் சுய தொழில்களைகண்டறிதல்
iii. வேளாண் வணிகத்தைஉருவாக்குதல்
iv. வேளாண்மைமற்றும் உபதொழில் வணிகத்தினைமேற்கொள்ளும் திறனைவளர்த்தல்
v. இந்தியாவில் வேளாண் கொள்கைகளின் செயல்திறனைமதிப்பீடுசெய்தல்

அலகு–1 அறிமுகம் **(5 hrs)**

வேளாண் வணிகத்தின் நோக்கம் - இயல்பு - முக்கியத்துவம் -பொருளாதாரத்தில் வேளாண்மையின் பங்கு.

அலகு–2வேளாண் தொழிற்சாலைகள் **(5 hrs)**

முக்கியத்துவம் - நோக்கம் - சர்க்கரைஆலைகள்இ அரிசிஆலைகள் ,நூற்பாலைகள் ,எண்ணெய் ஆலைகள் ,உரத் தொழிற்சாலைகள் - பிரச்சனைகள் - தீர்வுநடவடிக்கைகள்

அலகு–3வேளாண் சார்ந்ததொழில்கள் - I **(7 hrs)**

முக்கியத்துவம் - செயல்படுத்துதல் - பதப்படுத்துதல் மற்றும் சந்தைபடுத்தல் தோட்டக்கலை,மலர் வளர்ப்புமற்றும் மருத்துவதாவரங்கள் - வேளாண் வணிகம்

அலகு–4வேளாண் சார்ந்ததொழில்கள் - II **(7 hrs)**

உற்பத்தி - சந்தைபடுத்தல் பட்டுபுழுவளர்ப்புஇ பட்டுபொருட்கள் ,கால்நடை,பால் பொருட்கள் ,தேனீவளர்ப்பு - கைவினைப் பொருள்கள் - பிரச்சனைகள் - விளைவுகள்

அலகு– 5அரசின் திட்டங்கள் **(6 hrs)**

இந்தியஅரசின் தேசியவேளாண் கொள்கைஇ அரசின் திட்டங்கள், வேளாண் காப்புரிமைஉலகவணிகஅமைப்பு (WTO)மற்றும் வேளாண் தொடர்பானஒப்பந்தம்(AOA).

References:

1. Konig, G., Da Silva, C. A. and Mhlanga, N., (2013), Enabling environments for agribusiness and agro-industries development: Regional and country perspectives, FAO, Roma (Italia).
2. Palanithurai, G. and Ramesh, R., (2011), Globalisation and rural development. Concept publishing company, Delhi.
3. Palmere, A.,(2011), Principles of Service Marketing. Oxford University Press.
4. Various Reports of APEDA, National Horticulture Board (NHB) & Director of Horticulture

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1					
CO 2		2	3		5	
CO 3		2	3	4		6
CO 4		2	3	4	5	6
CO 5		2	3	4	5	6

Mean 3.7

ECO 221V ECONOMICS OF TOURISM 2hrs/2Cr

The aim of this course is to provide clear understanding on the fundamentals of tourism and it also elucidates the impacts and motivations of travel and tourism.

i. Comprehend different dimensions of tourism.
ii. Elaborate on how tourism originated
iii. To elucidate the different travel motivations of tourism
iv. Appraise the impacts of Socio- Economic tourism
v. Evaluate the performance of the national tourist organizations

Unit 1: Introduction (5hrs)

Tourism: Concepts, - Definitions - Types of tourism-Traveler - Excursionists; Forms of tourism: Domestic and International.

Unit 2: History of Tourism (6hrs)

History of Tourism - Nature and features of Tourism - Tourism Structure: Nature - Characteristics and Mechanism of tourism industry - Causes of Tourism.

Unit 3: Motivation of Tourism (6hrs)

Travel Motivation - evolution of demand - Growth factor - Physical motivators - Real and Recreation motivation - Health motivators - ethnic & family motivators - Business motivation.

Unit 4: Economic Dimensions of Tourism (7hrs)

Economic dimensions of Tourism - Economic significance - Tourism income multiplier - Development of infrastructural development - Employment generation - multiplier - Tourism retailer - Travel agency operation - scope of work of travel agency - the Tour operation - Handling a client.

Unit 5: National Tourist Organisations (6hrs)

Tourist organizations - National Tourist Organizations, Role - Functions – Importance - Tourism Organizations: IATA, PATA, TAAI, WTTC.

[International Air Transport Association (*IATA*) Pacific-Asia Travel Association Travel Agents Association of India (TAAI) World Travel & Tourism Council (*WTTC*)]

References

1. Swain, S.K. & Mishra, J.M.(2012). Tourism Principles and Practices, Oxford University Press, New Delhi.
2. Bhatia A.K. (2002), International Tourism Management, Sterling Publishers, New Delhi.
3. D.S.Bhardwaj,O.P.Kandari, K.K.Karma (1998),Domestic Tourism in India, Indus Publishing Company, New Delhi.
4. Nilanjan Ray, Raj Kumar, Dilip Kumar Das (2017),Tourism Marketing: A strategic approach, Apple academic press.
5. Agam Mathur, O.P.Srivatava, Sahara (2017), Indian Culture & Heritage, Create Space Independence Publishing Platform.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1		3			
CO 2	1	2	3		5	6
CO 3		2	3	4		6
CO 4		2		4	5	6
CO5		2	3	4	5	6

Mean 4.2

ECO 221V **சுற்றுலா பொருளாதாரம்** **2 Hrs/2Cr.**

சுற்றுலாபொருளாதாரம்,சுற்றுலாவின் அடிப்படைகள் பற்றியதெளிவானபுரிதலைவழங்கும் ,மேலும் , இது பயணமற்றும் சுற்றுலாவின் தாக்கங்கள் மற்றும் உந்துதல்களையும் தெளிவுபடுத்துகிறது.

i. சுற்றுலாவின் வெவ்வேறுபரிமாணங்களைபுரிந்துகொள்ளுதல்
ii. சுற்றுலாஎவ்வாறுஉருவானதுஎன்பதைவிரிவாகக் கூறுதல்
iii. சுற்றுலாவின் வெவ்வேறுபயணஉந்துதல்களைதெளிவுபடுத்துதல்
iv. சுமூகபொருளாதாரசுற்றுலாவின் தாக்கங்களைமதிப்பிடுதல்
v. தேசியசுற்றுலாஅமைப்புகளின் செயல்திறனைஅறிந்துகொள்ளுதல்

கூறு 1: அறிமுகம் **(5 hrs)**

சுற்றுலா: கருத்துகள் - வரையறைகள் - சுற்றுலாப் பயணிகளின் வகைகள்: சுற்றுலா - பயணிஉல்லாசப் பயணிகள்: சுற்றுலாவின் வடிவங்கள்: உள்நாட்டுமற்றும் சர்வதேசசுற்றுலா.

கூறு 2: சுற்றுலாவரலாறு **(6hrs)**

சுற்றுலாவரலாறு - சுற்றுலாவின இயல்புமற்றும் அம்சங்கள் - சுற்றுலாஅமைப்பு: இயற்கை - சுற்றுலாத் துறையின் சிறப்பியல்புகள் மற்றும் நெறிமுறைகள் - சுற்றுலாவின் காரணங்கள்.

கூறு 3: சுற்றுலாஉந்துதல் **(6hrs)**

பயணஉந்துதல் - தேவையின் பரிணமாம் - வளர்ச்சிகாரணி - உடல் உந்துதல்கள் - உண்மையானமற்றும் பொழுதுபோக்குஉந்துதல் - சுகாதாரஊக்குவிப்பாளர்கள் - குடும்பம்றறும் இன ஊக்குவிப்பாளர்கள் - வணிகஉந்துதல்.

கூறு 4: சுற்றுலாவில் பொருளாதாரம் **(7hrs)**

சுற்றுலாவின் பொருளாதாரபரிமாணங்கள் - பொருளாதாரமுக்கியத்துவம் - சுற்றுலாவருமானபெருக்கி - உள்கட்டமைப்புவளர்ச்சியின் வளர்ச்சி - வேலைவாய்ப்புஉருவாக்கம் - பெருக்கி - சுற்றுலாசில்லறைவிற்பனையாளர்- பயணமுகவர் செயல்பாடு - பயணமுகமையின் பணியின் நோக்கம் - சுற்றுலாநடவடிக்கை - ஒருவாடிக்கையாளரைக் கையாளுதல்.

கூறு 5: தேசியசுற்றுலாநிறுவனங்கள் **(6hrs)**

சுற்றுலாநிறுவனங்கள் - தேசியசுற்றுலாநிறுவனங்கள்,பங்கு - செயல்பாடுகள் - முக்கியத்துவம் - சுற்றுலாநிறுவனங்கள் : IATA , TAAI,WTTC

[சர்வதேசவிமானபோக்குவரத்துசங்கம் (IATA)பசிபிக் - ஆசியாபயணசங்கம் இந்தியாவின் பயணமுகவர்கள் சங்கம் (TAAI)உலகசுற்றுலாமற்றும் சுற்றுலாகவுன்சில் (WTTC)]

SUGGESTED REFERENCE BOOKS

1. Swain, S.K. & Mishra, J.M.(2012). Tourism Principles & Practices, Oxford University Press, New Delhi.
2. Bhatia A.K. (2002), International Tourism Management, Sterling Publishers, New Delhi.
3. D.S.Bhardwaj, O.P.Kandari, K.K.Karma (1998), Domestic tourism in India, Indus Publishing Company, New Delhi.
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ECE 6

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1		3			
CO 2	1	2	3		5	6
CO 3		2	3	4		6
CO 4		2		4	5	6
CO5		2	3	4	5	6

Mean: 4.2

ECO 321V ECONOMICS OF INSURANCE 2 Hrs/2 Cr

This course is designed to give the need of insurance to protect from the unexpected events. It deals with the need of insurance in the day to day life of human being. Theaim of this course is to provide rudimentary knowledge about the importance and different types of insurance.

At the end of the course, student will have an idea about the importance and contribution of insurance segment to the nation and also this course shall give an opportunity to become an insurance agent/advisor.

i. Understand the need and significance of insurance
ii. Highlight the basic principles of insurance
iii. Provides a Birdseye view on types of insurance
iv. Focusing purposeful Insurance schemes
v. Discussing on far and against privatization and contribution of insurance segment to the National building.

Unit 1 Risk and Insurance (4 hrs)

Risk: Meaning – Concept – Causes of Risk – Classification of Risk – Methods of Treating Risk.Insurance: Meaning – Features – Functions – Evolution and Importance.

Unit 2: Contract and Principles of Insurance (6 hrs)

Meaning – Need for an insurance contract – Kind of insurance contract – Contract of indemnity conditions and Life Insurance contract – Fundamental principles of insurance.

Unit 3: Classification of Insurance and Life Insurance (7 hrs)

Classification of insurance: Personal, Personal accident Insurance – Student safety insurance – Property insurance and baggage insurance – Life insurance: Definition – Characteristics – Advantages.

Unit 4: Other forms of Insurance (6 hrs)

Property insurance and Marine insurance – Meaning and Definition- Importance – Premium calculation – Fire Insurance: Meaning- Importance – Procedure of taking policy – Rate fixation.

Unit 5: Insurance and Economic Development of India (7 hrs)

Arguments in favour and against privatization of life and general insurance – Insurance and Economic development of India

References

1. L.P.Gupta, (2017), India Insurance Guide,Handbook of Insurance Policies, Claims andLaw-Life and General Insurance.
2. Sharma R (2006), Insurance - Lakshmi Narain Agarwal, Agra.
3. Mishra, M.N.,(2004),Insurance Principles and Practices, S.chandand Company Limited, New Delhi.
4. Inderjctsingh, Rakesh Katyal, Sanjay Arora, (2003), Insurance Principles and Practices, Kalyani Publishers, Chennai.

Bloom's taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1					
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CO 5		2	3	4	5	6

Mean 3.7

ECO 321V **காப்பீட்டுப் பொருளாதாரம** **2 hrs/2cr**

இப்பாடத் திட்டமானது, எதிர்பாரா சூழ்நிலைகளில், காப்பீடு மூலம் எவ்வாறு நம்மை பாதுகாத்துக் கொள்வுத என்பது குறித்து வடிவமைக்கப்பட்டுள்ளது. அன்றாட வாழ்வில் பல்வேறு வகையான காப்பீடுகளின் அவசியத்தை உணர்த்துகின்றது. இப்பாடத்திட்டத்தில் பல்வேறு வகையான காப்பீட்டுத் திட்டங்களை அறிமுகப்படுத்தினாலும், குறிப்பாக ஆயுள் காப்பீட்டுத் திட்டத்தினை முன்னிருத்துகின்றது.

மேலும் இப்பாட்ட திட்ட முடிவின் போது, காப்பீடு பற்றிய புரிதலும், இந்திய பொருளாதார முன்னேற்றத்தில் காப்பீட்டுத் துறையின் பங்கினைபுரிந்து கொள்வதுடன், காப்பீட்டு நிறுவனங்களில், காப்பீட்டுத் திட்டமுகவர்/ஆலோசராக பணிபுரியும் வாய்ப்பினை பெற ஒரு அடித்தளமாக அமையும்.

i. காப்பீட்டின் தேவைமற்றும் முக்கியத்துவத்தைஉணர்த்துகின்றது.
ii. காப்பீட்டின் கொள்கைகளைஎடுத்துரைக்கின்றது.
iii. பல்வேறுவகையாககாப்பீட்டுத்திட்டங்களின் கழுகுப் பார்வையினைத் தருகின்றது.
iv. நாட்டின் முன்னேற்றத்தில் காப்பீட்டுநிறுவனங்களின் பங்கினைவிளக்குகின்றது.
v. இந்தியபொருளாதாரமுன்னேற்றத்தில் காப்பீட்டுநிறுவனங்களின் பங்கினை விவரிக்கின்றது.

கூறு1: இடர் மற்றும் காப்பீடு **(4 ாசள)**

இடர்:பொருள்இ கருத்துவிளக்கம்,காரணங்கள்,வகைகள் மற்றும் தீர்க்கும் முறைகள். காப்பீடு: பொருள்,இயல்புகள்,பணிகள்,முக்கியத்துவம் மற்றும் மதிப்பீடு.

கூறு2: ஒப்பந்தம் மற்றும் காப்பீட்டுக் கொள்கைகள் **(6 ாசள)**

ஒப்பந்தம்: பொருள்,காப்பீட்டுஒப்பந்தம், வகைகள்,அடிப்படைகொள்கைகள் (நன்னம்பிக்கை,காப்பீடுசெய் நோக்கம்,காரணம்,பற்றுரிமைமாற்றீடு,காப்பீட்டுத் தீர்வு

கூறு3:காப்பீட்டுவகைப்பாடுமற்றும் ஆயுள் காப்பீடு: **(7 ாசள)**

தனிநபர்,தனிநபர் விபத்துகாப்பீடு,மாணவர் காப்பீடு,சொத்துமற்றும் கட்டுமானகாப்பீடு. ஆயுள் காப்பீடு–பொருள்,இயல்புகள்,நன்மைகள்,கொள்கைகள்.

கூறு4:பிறவகைகாப்பீடுகள் **(6 ாசள)**

சொத்துமற்றும் கடல் காப்பீடுகள்: பொருள்,வரையறைமுக்கியத்துவம்,தவணைக் கணக்கீடு. தீ(விபத்து) காப்பீடு: பொருள் மற்றும் முக்கியத்துவம்,நடைமுறைகணக்கீடு.

கூறு5:காப்பீடுமற்றும் இந்தியப் பொருளாதாரமுன்னேற்றம் **(7 ாசள)**

தனியார்மயம் - ஆதரவுமற்றும் எதிரானவாதங்கள்,பொருளாதாரமுன்னேற்றத்தில் காப்பீட்டின் பங்கு.

References:

1. Dr.L.P.Gupta (2017)“India Insurance Guide”,Handbook of insurance policies, Claims and law-Life and General Insurance”.
2. Sharma R (2006) “Insurance” Lakshmi Narain Agarwal, Agra,.
3. Mishra.M.N“Insurance Principles and Practices”,(2004) S.Chand and Company Ltd, New Delhi.
4. Inderjct Singh, Rakesh katyal, Sanjay Arora (2003) “Insurance Principles and Practices” Kalyani Publishers, Chennai.

Bloom’s taxonomy	K1	K2	K3	K4	K5	K6
CO 1	1					
CO 2		2	3		5	
CO 3		2	3	4		6
CO 4		2	3	4	5	6
CO 5		2	3	4	5	6

Mean 3.7

UNDERGRADUATE DEPARTMENT OF COMMERCE

COURSE STRUCTURE – B.COM (AIDED& SF) 2019 -20 ONWARDS

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
1	Part-I	COM1251	TAM/TAS HIN/HIS FRE/FRS AzhuvalagaNadaimuraigal	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	COM1553	Financial Accounting- I	5	5	75
	Major	COM 1455	Business Communication	4	4	60
	Major	COM 1457	Principles of Marketing	4	4	60
	Supportive	COM 1459	Business Economics	5	4	60
	NME	COM 1261	Principles of Accounting	3	2	30
	LS	COM 1263	Principles of Insurance	3	2	30
TOTAL				**30**	**25**	**375**
2	Part-I	COM 1252	TAM/TAS HIN/HIS FRE/FRS SeyalarPanimurai	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	COM 1554	Financial Accounting – II	5	5	75
	Major	COM 1456	Banking Theory, Law & Practice	4	4	60
	Major	COM 1458	Auditing	4	4	60
	Supportive	COM 1460	Business Environment	5	4	60
	NME	COM 1262	Principles of Management	3	2	30
	LS	COM 1264	Creative Leadership	3	2	30
	Part V	XXX 0000	NSS/NCC/SLP/PED	---	1	30
TOTAL				**30**	**25 + 1**	**375 / 405**

COM 2

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
3	Part-I	COM 2251	TAM/TAS HIN/HIS FRE/FRS VanigaMelanmai	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	COM 2553	Corporate Accounting	5	5	75
	Major	COM 2655	Business Law	6	6	90
	Major	COM 2457	Supply Chain Management	4	4	60
	Major	COM 2459	Business Ethics	4	4	60
	Supportive	COM 2461/ **MAT XXX**	Information Technology / **Business Statistics**	5	4	60
TOTAL				**30**	**27**	**405**
4	Part-I	COM 2252	TAM/TAS HIN/HIS FRE/FRS MelanmaiThathuvangal	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	COM 2554	Higher Accounting	5	5	75
	Major	COM 2656	Corporate Law	6	6	90
	Major	COM 2458	Customer Relationship Management	4	4	60
	Major	**COM 2460**	Investment Management	4	4	60
	Supportive	COM2462/ **MAT XXX**	e-Commerce / **Business Mathematics**	5	4	60
	Part V	XXX 0000	NSS/NCC/SLP/PED	---	1	30
TOTAL				**30**	**27 + 1**	**405 / 435**
5	Major	COM 3651	Costing – I	6	6	90
	Major	COM 3653	Income Tax Law and Practice-I	6	6	90
	Major	COM 3555	Human Resource Management	5	5	75
	Major	COM 3657	Management Accounting	6	6	90
	VAL/HVS	VAL/HVSXXXX	Value Education/Human Value Development	4	2	30
	LS	COM 3259	Services Marketing	3	2	30
TOTAL				**30**	**27**	**405**

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
6	Major	COM 3652	Costing – II	6	6	90
	Major	COM3654	Income Tax Law and Practice-II	6	6	90
	Major	COM 3556	International Marketing	5	5	75
	Major	COM 3658	Financial Management	6	6	90
	EVS	COM 3200	Environmental Studies	4	2	30
	LS	COM 3260	Entrepreneurial Skill Development	3	2	30
TOTAL				**30**	**27**	**405**

SUPPORTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	COM 1459	Business Economics	5	4
2	COM 1460	Business Environment	5	4
3	COM2461/ **MAT XXXX**	Information Technology / **Business Statistics**	5	4
4	COM 2462/ **MAT XXXX**	e-Commerce / **Business Mathematics**	5	4

NON-MAJOR ELECTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	COM 1261	Principles of Accounting	3	2
2	COM 1262	Principles of Management	3	2

LIFE-SKILL COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	COM 1263	Principles of Insurance	3	2
2	COM 1264	Creative Leadership	3	2
5	COM 3259	Services Marketing	3	2
6	COM 3260	Entrepreneurial Skill Development	3	2

COM2251 வணிக மேலாண்மை **3 Hrs / 2 Cr**

நோக்கம்

வணிகத்தில் உள்ள பல்வேறு பிரிவுகளை பற்றி விளக்குவதே இப்பாடத்தின் நோக்கமாகும்

வணிக மேலாண்மையை பற்றி படிப்பதன் மூலம் மாணவர்கள் பின்வருவனவற்றை பற்றி தெரிந்துக்கொள்கின்றனர்

i. **வணிகத்தை பற்றியும் , வணிகத்தின் நோக்கங்கள் , குணாதிசியங்கள் மற்றும் அதன் பரிணாம வளர்ச்சி பற்றி அறிந்து கொள்ளுதல்**
ii. **வணிக அமைப்பின் பல்வேறு வடிவங்களான கூட்டு பங்கு நிருமங்கள் மற்றும் பன்னாட்டு நிருமங்கள் பற்றி தெரிந்து கொள்ளுதல்**
iii. **உற்பத்தி மேலாண்மை பற்றியும் அதில் உள்ள உற்பத்தி சார் செயல்முறைகளையும் அறிந்து கொள்ளுதல்**
iv. **நிதி மேலாண்மைபற்றியும் மேலும் ஒரு வணிகத்தில் நிதி திரட்டும் முறைகளையும் அறிந்து கொள்ளுதல்**
v. **பணியாளர்களை தேர்வு செய்யும் முறை பற்றியும் , அவர்களை மேலாண்மை செய்யும் நுட்பத்தை பற்றியும் அறிந்து கொள்ளுதல்**

myF 1

tpahghuj;jpd; jd;ikfs; - tiutpyf;fzk; - Nehf;fq;fs; - Fzhjprpaq;fs; - ghpzhktsh;r;rp - thzpgRw;Wr;#oy; - Ez;zpakw;Wk; Nghpay; Rw;Wr;#oy;.

(9 Hours)

myF 2

tzpfmikg;gpd; tbtq;fs; - $l;Lg;gq;FepWkk; - tiutpyf;fzk; - rpwg;gpay;Gfs; - Njhw;Wtpg;Gepiyfs; - Nkyhz;ik - nghJj;Jiwmikg;Gfs; - jd;ikfs; - gd;dhl;LepWkq;fs; - nghUs; - ed;ikfs; kw;Wk; jPikfs;.

(9 Hours)

myF 3

cw;gj;jpNkyhz;ik - njhopw;$lj;jpw;fhd ,lk; - cw;gj;jpjpl;lkply; kw;Wk; fl;Lg;ghL - NtiyKd;Ndw;wk; - mstPL - nghUl;fs; Nkyhz;ik - nghUshjhumsTfs;.**(9 Hours)**

myF 4

epjpNkyhz;ik - nghUshjhujpl;lk; - epjpKiwfs; - tzpfepWtdhPjpahdepjp - gj;jpure;ij.

(9 Hours)

myF 5

kdpjtsNkyhz;ik - gzpahsh; Njh;T - njhopy;JiwcwTfs; - cw;gj;jpjpwd; kw;Wk; njhopyhsh; eyd;;.

(9 Hours)

Text Book

1. uhjhV,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dhgg;sprH];,jpUty;ypf;Nfzp,nrd;id - 600 005.

Books for Reference

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014
5. https://www.msuniv.ac.in/Download/Pdf/0f80dc31780649d

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3	1					
CO4					5	
CO5				4		

Mean: 3

COM2553 CORPORATE ACCOUNTING 5 Hrs / 5 Cr

The objective of this course is to give a comprehensive understanding of all aspects relating to corporate accounting and to lay a theoretical foundation for the preparation and presentation of financial statements and to equip the students with the working knowledge of accounting practices in order in order to prepare for CA, CMA, and ACS.

At the end of the course, students will be able to

i. Interpret accounting knowledge on the issue and redemption of shares and debentures.
ii. Ascertain the profits prior to incorporation, underwriting of shares and Rights issue.
iii. Compile the items of final accounts of a company.
iv. Evaluate the account for amalgamation, absorption, internal and external reconstruction.
v. Integrate the techniques of liquidating the corporate entities in compliance with IFRS.

UNIT I

Company - Meaning– Issue of Shares- Types of Shares, Forfeiture and reissue of shares – Redemption of Debentures and Preference shares. **(15 Hours)**

UNIT II

Profits prior to Incorporation – Underwriting of Shares – Full Underwriting- Partial Underwriting – Firm Underwriting - rights issues – acquisition of Business by a Company. **(15 Hours)**

UNIT III

Final Accounts of Companies – Preparation and presentation of final accounts of companies. Treatment of Reserve and Surplus and Preliminary Expenses-bonus and dividend to shareholders – managerial remuneration- Valuation of goodwill and shares. **(15 Hours)**

UNIT IV

Amalgamation and Absorption– computation of purchase consideration – types of amalgamation – pooling of Interest method – purchase method – treatment of realization expenses. Alteration of Share capital and Internal Reconstruction. **(15 Hours)**

UNIT V

Liquidation – Liquidator's final statement of accounts – Accounting standards 1 - 29. International Financial Reporting system-concepts. **(15 Hours)**

Text Book

1. TS Reddy & Dr.AMurthy, Corporate Accounting, Margham Publications, Chennai, 2019

Books for Reference

1. M C Shukla, T S Grewal & S C Gupta, Advanced Accounting I, Sultan Chand & Sons., NewDelhi,2019
2. Mukerjee and Hanif, Advanced Accounting Vol I, Tata McGraw Hill Company Limited, New Delhi,2015
3. SP Iyengar, Advanced Accounting Vol I, S. Chand& Sons, New Delhi,2014
4. SKr. Paul, Advanced Accountancy Vol I, Revised edition, Central Publishing Company, Kolkatta, 2015

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2			**3**			
CO3				**4**		
CO4			**3**			
CO5					**5**	

Mean: 3.6

COM 2655 BUSINESS LAW 6 Hrs /6 Cr

This paper aims at providing a bird's eye view on various business laws which will facilitate the students in having an understanding of theoretical knowledge of laws governing business.

At the end of the course, students will be able to

i. Interpret the concepts of business law.
ii. Determine the basics of performance of contract.
iii. Examine the basic frame work of the law relating to Indemnity, Guarantee and Surety.
iv. Predict recent amendments, rules, and regulations related to settling industrial disputes with relevant case law.
v. Apply the Information Technology Act and Right to Information Act in business.

UNIT I

Mercantile law – Introduction – Contract- Definition- Kinds - Essential elements, Offer – Types – Essentials- Revocation, Acceptance- Essentials and legal rules- Revocation, Consideration – Essentials- "No consideration, no contract"- Exceptions. **(20 Hours)**

UNIT II

Capacity- Law regarding minor's agreement- Persons of unsound mind- Persons disqualified by law, Free consent – Coercion- Undue influence – Misrepresentation – Mistake- Fraud, Performance of contract-Modes of performance, Discharge of contracts- Kinds - Remedies for breach of contracts. **(20 Hours)**

UNIT III

Contract of Indemnity and Guarantee- Rights of Indemnity holder- Difference between Indemnity and Guarantee- Rights of Surety- Discharge of Surety, Bailment and Pledge- Kinds of bailment- Rights and duties of bailee and bailor- Rights and duties of Pawnee and Pawner. **(20 Hours)**

UNIT IV

Industrial Disputes Act- Settlement mechanisms- Types of disputes- Offences and penalties- Health, safety and welfare measures of workers under Factories Act. **(15 Hours)**

UNIT V

Information Technology Act, 2000- Definition- Digital signature and certificates- Duties of subscriber- Penalties and adjudication, Right to Information Act, 2005- Origin- Objectives, Features- Process of filling- Challenges. **(15 Hours)**

Text Book

1. N D Kapoor, Elements of Mercantile Law, Sultan Chand & Sons, New Delhi, 2017.

Books for Reference

1. Rajni Abbi, Bharat Bhushan, Rajiv Kapoor, Elements of Industrial Law, Sultan Chand & Sons, New Delhi, 2019.
2. S K Tuteja, Business Law for managers, Sultan Chand & Sons, New Delhi, 2010.
3. MC Kuchhal, Mercantile Law, Seventh Edition, Vikas Publishing House Pvt.Ltd., New Delhi, 2018.

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

COM 2457 SUPPLY CHAIN MANAGEMENT 4 Hrs / 4 Cr

This course aims to impart knowledge to students on supply chain management and its relevance to today's business decision making.

At the end of the course, students will be able to

i. Describe the components of supply chain management and supply chain network.
ii. Ascertain the importance of demand management in customer service
iii. Apply the knowledge and skills in the operation of inventory management,warehousing and transportation.
iv. Examine the role of information technology on supply chain management.
v. Evaluate the dimensions of performance measures and bench marking

UNIT I

Supply Chain Management – Meaning – Evolution – Importance- Nature and Scope, Logistics Management vs Supply Chain Management, Drivers of Supply Chain Management, Supply chain network design – Importance- Supply Chain Network Design Process- Design of Distribution Channels – Functions – Types- Considerations of Channels Design **(10 Hours)**

UNIT II

Demand Management- Relationship between customer service and demand management- Elements and measurement of customer service- Customer service standards- Customer Service Strategy-Demand management process- Problems in demand management- Methods of forecasting- Steps involved to demand forecasting- Role of forecasting in a supply chain **(10 Hours)**

UNIT III

Inventory Management- Types of inventory cost- Impact of demand pattern on inventory- Distribution Resource Planning, Warehousing- Functions of warehouse – Types- Site selection, Transportation in a supply chain- Carrier Selection-Transportation Management System- Transportation services- Third party logistics (3PL) and Fourth party logistics (4PL) – Just-in-Time Delivery **(15 Hours)**

UNIT IV

Purchasing and supply chain decision- Sourcing versus Purchasing-Insourcing and Outsourcing, Coordination in the supply chain – Bull-whip effect and supply chain- Role of information technology in a supply chain- Bar coding- Electronic Data Interchange-Radio Frequency Identification (RFID)- Satellite tracking- e-commerce- e-procurement- Enterprise Resource Planning Systems- Supply chain IT in practice **(15 Hours)**

UNIT V

Supply chain performance management- Supplier performance- Purchasing/ materials management performance- Performance measurement and evaluation system- SCOR Model- Balanced scorecard method, Bench marking – Benefits- Logistics process bench marking-Supply chain mapping- Supplier and distributor bench marking- Role of CSF in bench marking – Disruption in Supply Chain Management due to pandemic – Supply Chain strategies during natural disasters. **(10 Hours)**

Text book

1. Shridhara Bhat, Supply Chain Management, Himalaya Publishing House, New Delhi, 2012.

Books for Reference

1. Cecil B Bozarth, Robert B Handfield, Introduction to Operations and Supply Chain Management, Pearson Education, New Delhi, 2016.
2. Donal J Bowersox, David J Closs, M Bixby Cooper, Supply Chain Logistics Management, Tata McGraw Hill, New Delhi, 2019.
3. Richard B Chase, Ravi Shanker, F.Robert Jacobs, Operations and supply chain Management, McGraw Hill Publications, New Delhi, 2018.

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3			**3**			
CO4				**4**		
CO5					**5**	

Mean= 3.6

COM 2459 BUSINESS ETHICS 4 Hrs / 4 Cr

This paper is aimed at imparting social, moral and ethical values into young minds which will create better businessmen with ethos.

At the end of the course, students will be able to

i. Interpret the principles of Ethics in business.
ii. Examine knowledge about principles to be followed by the holders of Public life.
iii. Ascertain the uses and importance of ethics in marketing.
iv. Evaluate the ethics in various phases of human resource management.
v. Analyse the ethical issues of society with reference to air, water and land pollutions.

UNIT I

Ethics: Meaning – Definition – Sources – Need for business ethics – Importance of business ethics – Factors influencing business ethics. **(10 Hours)**

UNIT II

Principles: The "Seven Principles of Public Life" – selflessness, integrity, objectivity, accountability, openness, honesty and leadership. **(10 Hours)**

UNIT III

Ethics in Marketing: Marketing ethics and consumer rights – Reasons for unethical practices – Socially responsible advertising towards socially backward classes - women, child, differently challenged and disparities in social values– Portrayal of women in advertising. **(15 Hours)**

UNIT IV

Ethics in Human Resource Management: Wages empowerment – Discrimination of wages – Whistle blowing – Ethics at work place. **(15 Hours)**

UNIT V

Ethical issues in society: Air pollution – Water pollution – Land pollution – Noise Pollution – Cultural Pollution. **(10 Hours)**

Text Book

1. CSVMurthy, Business Ethics, Himalaya Publishing House, Mumbai, 2010

Books for Reference

1. Dr. AKGavai, Business Ethics, Himalaya Publishing House, Mumbai, 2016
2. RVBadi, NVBadi, Business Ethics, Vrinda Publications Ltd, Delhi,2012
3. Dr. KSundar, Business Ethics and Values, Vijay Nicole Imprints Pvt. Ltd. Chennai, 2019.
4. A C Fernando, K P Muralidheeran, E K Satheesh, Business Ethics, Third Edition, Pearson Publication, 2019

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3				**3**		
CO4					**4**	
CO5				**5**		

Mean: 3.6

COM 2461 INFORMATION TECHNOLOGY 5 Hrs / 4 Cr

This course equips the students to compete in the present world. It includes introduction to computers, the architecture-hardware and software, telecommunication networking and cyber laws.

At the end of the course, students will be able to

i. Describe the growth of latest computer devices and technologies
ii. Outline the computer languages, software and operating systems
iii. Prepare documents, spreadsheet and presentations using office productivity tools
iv. Integrate technical hardware and software including network, database and security components.
v. Evaluate Enterprise Resource Planning, Core banking System and Management Information System.

UNIT I

Evolution of computers - Classification of digital computer systems – Anatomy of a digital computer – Memory units – Auxiliary storage devices – Input devices – Output devices- Overview of latest devices – Technologies – Bluetooth, Wi-Fi, NFC, Touchpad, iPad, iPod, Laptop, Notebook, Multimedia mobiles, Smart Phone. **(15 Hours)**

UNIT II

Generation of computer languages – Programming Languages – Computer Software – Types of software – System software, Utility Software – Operating Systems – Components of OS – MSDOS, Windows, Linux, Ubuntu, Mac, IOS, Android. **(15 Hours)**

UNIT III

Office Automation –Office Productivity tools – MS Office – Working with Word Document, Spread Sheet – Preparation of Spread Sheets in Excel – Power Point Presentation – Creation of Slides. **(15 Hours)**

UNIT IV

Network Topology – Components – Telecommunication Networks - Data networks– Data Warehouses – LAN, WAN, Wireless, Private and Public networks – Internet architecture – Internet Securities. **(15 Hours)**

UNIT V

ERP, Core Banking System – MIS, Emerging concepts – Grid Computing, Cloud Computing, Cloud delivery model. E-commerce and M-commerce technologies - Cyber Law - Information Technology Act, 2000. **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference

1. V Rajaraman, Introduction to Information Technology, PHI Learning, Delhi, 2018
2. Richard Fox, Information Technology, Chapman and Hall, Florida, 2015
3. Andrew S Tanenbaum & Albert S Woodhull, Operating Systems Design and Implementation, Second Edition Prentice Hall India, New Delhi, 2014
4. Alexis Leon &Mathews Leon, Fundamentals of Information Technology, Second Edition Vikas Publishing, New Delhi, 2014

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4						**6**
CO5					**5**	

Mean: 3.8

COM 2252 **Nkyhz;ikj; jj;Jtq;fs;** **3 Hrs / 2 Cr**

Nehf;fk;

Nkyhz;ikj; jj;Jtq;fisgbg;gjd; *yk; khztHfs; Nkyhz;ikapd; nghUs;,Nkyhz;ikapd; Kf;fpaj;Jtk,;gzpfs;,Nfhl;ghLfs,; epiyfs; kw;Wk; Nkyhz;ikapd; ,ay;igAk; rpwg;Gj; jd;ikfisAk; mwpe;Jnfhs;sKbAk;.

Nkyhz;ikj; jj;Jtq;fisgbg;gjd; %yk; khztHfs; fPo;f;fz;ltw;iwnjhpe;Jnfhs;fpd;wdH.

i. Nkyhz;ikgw;wpAk; mjd; jd;ikfs; Kf;fpaj;Jtk; gw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; Nkyhz;ikapy; cs;sgzpfs; Nfhl;ghLfs; gw;wpAk; mwpe;Jnfhs;fpd;wdH.
ii. Jpl;lkpLjy; gw;wpAk; mtw;wpy; cs;stiffisgw;wpAk; NkYk; mjd; ed;ikjPikfisgw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; jpl;lkpLjypd; Kf;fpa $Wfs; gw;wpAk; mtw;wpd; ,ay;Gfs; gw;wpAk; mwpe;Jnfhs;fpd;wdH.
iii. xOq;fikj;jy; gw;wpAk; mjd; ,ay;Gfs; Nfhl;ghLfs; ed;ikfs; kw;Wk; mjpy; cs;sed;ikfs; Nfhl;ghLfs; kw;Wk; gbepiyfismwpe;Jnfhs;fpd;wdH.
iv. ,af;Fjy; kw;Wk; fl;Lg;gLj;Jjy; gw;wpAk; NkYk; mjpy; cs;sKf;fpa $Wfs; jj;Jtq;fs; eilKiwfs; ed;ikfs; kw;Wk; jPikfismwpe;Jnfhs;fpd;wdH.
v. nray; Cf;Ftpj;jy; gw;wpAk; NkYk; mjd; rpwg;gpay;Gfs; gw;wpAk; njhpe;Jnfhs;fpd;wdH. NkYk; jfty; eilKiwgw;wpAk; mjd; ed;ikfs; jPikfisgw;wpAk; jilfismfw;Wk; Kaw;rpfisAk; mwpe;Jnfhs;fpd;wdH.

myF1

Nkyhz;ikmwpKfk;Njhw;wk; - mwpKfk; - Nkyhz;iknghUs; - ,yf;fzk; - rpwg;Gj; jd;ikfs; - Kf;fpaj;Jtk; - epiyfs; - gzpfs; - Nfhl;ghLfs; - epHthfk; kw;Wk; Nkyhz;ikf;fhdNtWghLfs;

(9 Hours)

myF 2

jpl;lkpLjYk; KbntLj;jYk;jpl;;lkpLjy; - nghUs; - tiutpyf;fzk; - ,ay;G - ed;ikfs; kw;Wk; Kf;fpaj;Jtk; - FiwghLfs;- eilKiw/ gbepiyfs; - jpl;lj;jpd; nray; $Wfs; - jpl;lkpLjypd; tiffs; - KbntLj;jy; - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - tiffs;- eilKiw / gbepiyfs; - ed;ikfs; - FiwghLfs;

(9 Hours)

myF 3

xOq;fikj;jYk; mjpfhuxg;gilj;jYk;xOq;fikg;G - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - Nfhl;ghLfs; - ed;ikfs; - gbepiyfs;/ eilKiwxOq;fikg;gpd; tiffs; - KiwahdxOq;fikg;Gf;Fk; Kiwaw;wxOq;fikg;Gf;Fk; cs;sNtWghLfs; - mjpfhuxg;gilj;jy; - nghUs; - tiutpyf;fzk; - jd;ikfs;- eilKiwfs; / gbepiyfs;- Nfhl;ghLfs; - ed;ikfs;- FiwghLfs;. **(9 Hours)**

myF 4

,af;Fjy; -nghUs; - tiutpyf;fzk;- $Wfs; - jj;Jtq;fs; - jd;ikfs;- Kf;fpaj;Jtk; - ,af;Fjypd; topfs;. fl;Lg;gLj;Jjy;- nghUs; - tiutpyf;fzk; - rpwg;gpay;Gfs; - eilKiw- ed;ikfs;- fl;Lg;gLj;Jjypy; vOk; gpur;ridfs;. **(9 Hours)**

myF 5

nray; Cf;fkspj;jy; - nghUs; -tiutpyf;fzk; - rpwg;gpay;Gfs; - jfty; eilKiw - ed;ikfs;- tiffs; - jfty; njhlHgpd; jilfs; - jfty; njhlHgpd; jilfismfw;Wk; Kaw;rpfs; - nray; Cf;fkspj;jy; - nghUs; - rpwg;gpay;Gfs; - eilKiwfs; - Kf;fpaj;Jtk; - Nfhl;ghLfs;. **(9 Hours)**

TEXT BOOK

1. uhjhV,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dhgg;sprH];,jpUty;ypf;Nfzp,nrd;id- 600005.

REFERENCE BOOKS

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3	1					
CO4					5	
CO5				4		

Mean: 3

COM 2554 HIGHER ACCOUNTING 5 Hrs / 5 Cr

The objective of this course is to gain accounting knowledge in the various sectors like Insurance, Banking, Railways and Electricity. This is a one semester course deals with the preparation of final accounts of Insurance companies and banking companies double accounting system. Farm accounting, Hotel accounting. Few of the many Accounting standards in India are also dealt with.

At the end of the course, students will be able to

i. Predict an idea on banking company accounts with its procedures.
ii. Develop knowledge to prepare accounts of banking and insurance companies.
iii. Appraise the knowledge of preparing consolidated balance sheet after adjusting common transaction between the holding and subsidiary companies.
iv. Examine the accounting practices followed in Public Utility Concerns
v. Prepare Final accounts of Farms and Hotels and get enlightened with the various accounting standards.

UNIT I

Accounting of banking companies – Forms of Business in which Banking companies may engage – Final Accounts of Banking companies. **(15 Hours)**

UNIT II

Accounting of Insurance companies – Accounts of Life Insurance Business: Revenue Accounts and Balance sheet – Accounts of General Insurance Business: Revenue Accounts and Balance sheet **(15 Hours)**

UNIT III

Accounting of Holding companies – Definitions – Consolidated Balance Sheet – Elimination of Common transactions – Treatment of Fictitious Assets, Unrealized Profit, contingent liabilities, Dividend, debentures – Disposal or Additional acquisition of shares in Subsidiary company – Revaluation of Assets. **(15 Hours)**

UNIT IV

Double Account System –Meaning – Difference between Double Account System and Double Entry System – Accounts of Railways – Accounts of Electricity supply companies. **(15 Hours)**

UNIT V

Farm Accounting, Hotel Accounting, Government Accounting, Insolvency and Bankruptcy Code 2016. **(15 Hours)**

Text Book

1. Reddy T.S & Dr. Murthy A, Advanced Accountancy, Margham Publications, Chennai, 2016.

Books for Reference

1. Jain S.P & Narang K.L, Advanced Accountancy, Kalyani Publications, Bangalore, 2018.
2. Mukerjee and Hanif, Advanced Accounting Vol I, Tata McGraw Hill Company Limited, New Delhi,2015
3. S. P. Iyengar, Advanced Accounting Vol I, S. Chand& Sons, New Delhi,2014
4. S.Kr. Paul, Advanced Accountancy Vol I, Revised edition, Central Publishing Company, Kolkatta, 2015

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1						**6**
CO2						**6**
CO3					**5**	
CO4				**4**		
CO5			**3**			

Mean: 4.8

COM 2656 CORPORATE LAW 6 Hrs / 6 Cr

The objective of this course is to help the students to understand the basic laws related with company and to impart the knowledge of various provisions of the Companies Act.

At the end of the course, students will be able to

i. Apply the principles of corporate law in a rigorous and principled manner in a company.
ii. Understand the use of the memorandum of association and article of association in aCompany
iii. Prepare the prospectus of a company as per the legal requirements.
iv. Identify the appropriate modes of acquisition and terminations of membership in a company.
v. Understand the general objects, purposes and conduct of meetings in a company.

UNIT I

Company – Nature, scope, Meaning, Definition and characteristics of company – Formation and Incorporation - Kinds of companies - Merits and Demerits of Incorporation of company - Lifting the corporate veil. Solomon Vs Solomon & Co. **(15 Hours)**

UNIT II

Memorandum of Association - Meaning, Purpose, Contents., Alteration ofMOA, Doctrine of Ultra vires. Articles of Association - Meaning Purpose, Content. Alternation of AOA, Doctrine of Indoor Management, Doctrine of Constructive Notice. **(20 Hours)**

UNIT III

Introduction - Legal requirement of Prospectus- Misstatement in Prospectus - Liability for misstatement in Prospectus- Civil& Criminal Liabilities- Types of Prospectus-Abridged Prospectus, Deemed Prospectus, Shelf Prospectus, Red Herring Prospectus- Shares - Meaning, Types of Shares - Transfer of shares - Transmission of Shares- Comparison between transfer & Transmission Of shares- Share Capital, Meaning, Kinds, Alternation- Voting Rights – Debenture, meaning, types, redemption on debentures **(20 Hours)**

UNIT IV

Company Management – Structure of Management – Appointment, Retirement, Qualifications, Remuneration, Powers & Duties of Shareholders – Board of Directors – Managing Directors – Other Executives - Members - Modes of acquisition of membership in a company- Eligibility- Rights and Liabilities of Members -. Shareholder Vs Member- Modes of termination of Membership in a company- Register of members-- Dividend - Rules as to Payment of Dividend **(15 Hours)**

UNIT V

Meetings - general objects and purposes of meetings - kinds of company meetings – statutory meeting - Statutory Report – annual general meeting –Extraordinary General Meeting- Requisites of valid meeting– Winding up- Modes of Winding up-Grounds of Winding Up-Petition for Winding Up-Consequences of Winding Up order-Official Liquidator-Powers & Duties of Official Liquidator. **(20 Hours)**

Text Book

1. NDKapoor, Elements of Company Law, Sultan Chand & Sons, New Delhi, 2016

Books for Reference

1. SK Dr.Tuteja, Business Law for managers, Sultan Chand & Sons, New Delhi, 2006
2. GK Kapoor, Lectures on Business & Corporate Laws, Sultan Chand & Sons, New Delhi, 2005
3. M C Kuchhal, Mercantile Law, Vikas Publishing House Pvt.Ltd., New Delhi, 2004.
4. Praveen, Suggested Answers in Mercantile Law, Sultan Chand & Sons, New Delhi, 2005.

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

COM 2458 CUSTOMER RELATIONSHIP MANAGEMENT 4 Hrs / 4 Cr

This course aims to equip the students the importance of customer relationship management in running a successful business.

At the end of the course, students will be able to

i. Identify the concept of relationship marketing and its significance in the contemporary scenario.
ii. Classify the stages of customer life cycle.
iii. Analyse the elements of CRM process.
iv. Develop various CRM models in service industries.
v. Compile a database system for CRM solutions.

UNIT I

Customer relationship management –Introduction – Definition – Objectives – Importance – Benefits- Traditional Vs Relationship marketing- Strategies for building relationship. Customer loyalty – Process of brand choice- Types of customer loyalty- Loyalty continuum- Brand switching behaviour- Actions towards reaching loyal customers- Loyal customer ladder- Role of loyal customers **(15 Hours)**

UNIT II

Customer acquisition – Requisites- Process of acquisition- Customer Interaction Management- Customer retention – Need- Stages of retention in the customer life cycle- Role of satisfaction in retention process-Retention Cantered Organization - Recovery of lapsed customers – Defection- Reacquisition **(15 Hours)**

UNIT III

CRM Process – Benefits- Closed loop CRM process-Need to create- Process selection procedure- Elements of CRM Process- CRM process for marketing organization. Types of CRM. Customer life time value **(10 Hours)**

UNIT IV

CRM Implementation- Warnings of implementation- Framework of successful CRM Implementation steps. CRM in service industries – Banking – Insurance- Telecom, Hospitality – HealthCare- Airlines. Call centre management – Objectives- Features and functionalities- Computer Telephony Integration. **(10 Hours)**

UNIT V

Customer information database- Data mining- Data warehousing- Sales force automation. e-CRM- Characteristics- Importance - Basic requirements - Problems with e-CRM solutions- e-CRM tools- Introduction to CRM software packages. **(10 Hours)**

Text book

1. Peeru Mohamed H, Sagadevan A, Customer Relationship Management, Vikas Publishing House Pvt. Ltd, New Delhi, 2009.

Books for Reference

1. Alok Kumar Rai, Customer Relationship Management Concept&Cases, Prentice Hall of India Pvt. Ltd., New Delhi. 2011
2. Kumar, Werner Reinartz, Customer Relationship Management: Concept, Strategy and Tools, Springer, Berlin, Heidelberg, 2012
3. Sheth, Customer Relationship Management, McGraw Hill Publications, 2015

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2			**3**			
CO3				**4**		
CO4						**6**
CO5						**6**

Mean : 4

COM 2460 INVESTMENT MANAGEMENT 4 Hrs / 4 Cr

This paper envisions the fundamentals of investment, security markets and analysis for better investment planning.

At the end of the course, students will be able to

i. Explain the terminologies, objectives, principles and the process of investment.
ii. Differentiate various investment avenues and financial instruments.
iii. Evaluate the riskiness of a portfolio position and find the relationship between risk and return.
iv. Interpret the mechanics of trading in securities market.
v. Predict the statutory and legislative measures for the functioning of securities market and administrative bodies like SEBI.

UNIT I

Investment: Meaning- Definition – Nature- Need of Investment- Scope - Investment Environment - Speculation, Gambling - Investment Principles - Investment Process.**(10 Hours)**

UNIT II

Investment Avenues: Features of Equity Shares. Preference Shares: Features, Types. Bonds: Features, Types. Innovative Financial Instruments: Convertible Debentures and Warrants, Zero Coupon Bonds, Deep Discount Bond, Secured Premium Notes. Post Office Saving Schemes- LIC Policies- Mutual Funds. **(15 Hours)**

UNIT III

Return: Historical Vs. Expected Risk, Computation of Historical & Expected Return of Stock, Current Yield- Investment Risk- Systematic Risk: Market Risk, Interest Rate Risk, Purchasing Power Risk. Unsystematic Risk: Business Risk, Financial Risk. Credit rating: Functions, Benefits, Credit rating agencies: CRISIL, ICRA. **(15 Hours)**

UNIT IV

Securities Market: New Issue Market - Organisation Structure, Functions, Mechanics of Floating New Issue - Secondary Market: Definition, Functions, Mechanics of Security Trading in Stock Exchange - Stock Market Indices: NSE Index, BSE Index- Security Analysis: Basics of Fundamental and Technical Analysis. **(10 Hours)**

UNIT V

Listing of Securities: Scope, Objectives, Advantages and Disadvantages, Delisting-Security Dealings and Government: Securities Contracts (Regulation) Act, 1956 - Securities and Exchange Board of India (SEBI). **(10 Hours)**

Text Book

1. Preethi Singh, Investment management, Himalaya Publishing House, New Delhi, 2016.

Books for Reference

1. V K Bhalla, Fundamentals of Investment Management, S Chand Publishing, New Delhi, 2013.
2. Samuel Thomas, Security Analysis and Portfolio Management, PHI Learning Pvt. Ltd., New Delhi, 2014.
3. R P Rustagi, Investment Management, Sultan Chand &Sons, New Delhi, 2014.
4. V A Avadhani, Investment Management, Himalaya Publishing House, New Delhi, 2014.

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3					**5**	
CO4				**4**		
CO5			**3**			

Mean: 3.6

COM 2462 E-COMMERCE 5 Hrs / 4 Cr

This course makes the student familiar with the mechanism of conducting business transactions through electronic media, understand the methodology of online business dealings using e-commerce infrastructure.

At the end of the course, students will be able to

i. Describe the growth of e-commerce.
ii. Examine the various e-commerce models.
iii. Demonstrate the role of internet in e-commerce.
iv. Apply e-payment systems and web marketing.
v. Determine internet security, maintaining secure information, digital signatures and firewalls.

UNIT I

Introduction to E-Commerce- Features and functions of e-commerce- e-commerce practices viz. traditional practices- Scope and limitations of e-commerce- e-commerce security – Benefits- Impact of E-Commerce- State of e-commerce in India- Problems and opportunities in ecommerce in India- Legal issues- Future of e-commerce. **(15 Hours)**

UNIT II

Classification of E-Commerce- Framework of E-Commerce, E-Commerce Business Models - Business to Business, Business to Customer, Customer to Customer. EDI- Process - Components - Benefits. Service provider- E-distributor- Procurement and Just-in-Time delivery **(15 Hours)**

UNIT III

Internet and its role in e-commerce- Procedure of registering Internet domain, Establishing connectivity to Internet- Tools and services of Internet, Procedure of opening e-mail accounts on internet. **(15 Hours)**

UNIT IV

Transactions through Internet- Requirements of e-payment systems- Functioning of debit and credit cards- Pre and post payment services, Marketing on the web- Marketing strategies- Creating web presence – Advertising- Customer service and support- Web branding strategies- Web selling models- Online booking systems- Online booking procedure of railways, airlines, tourist and religious places, hotels and entertainment industry. **(15 Hours)**

UNIT V

Setting up Internet security- Maintaining secure information- Digital signature and their security measures – Authenticity – Privacy – Integrity- Non-repudiation- Encryption, Secret key cryptography- Public key cryptography, SET, SSL, Firewalls **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference:

1. Joseph P. T, E-Commerce: An Indian Perspective, Prentice Hall India, New Delhi, 2019.
2. Bharat Bhasker, Electronic Commerce: Framework, technologies and Applications, Tata McGraw Hill, New Delhi, 2008
3. Dave Chaffey, Digital Business and E- Commerce Management, Pearson Education Limited, Delhi, 2015
4. David Whiteley, E-Commerce: Strategy, Technologies and Applications, Tata McGraw Hill, New Delhi, 2017

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4						**6**
CO5			**3**			

Mean: 3.8

Value Added Courses

w.e.f. 2020 -2021

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	COM 121V	Digital Marketing	2	2
3	COM 221V	Forex Management	2	2
5	COM 321V	Mechanized Accounting - I	2	2

COM 121V DIGITALMARKETING 2Hrs/2Cr

This course enlightens students to gain an understanding how the digital economy works and develop the critical insights necessary to succeed in e-commerce and digital and social media marketing.

At the end of the course, students will be able to

i. Interpret the concept of Digital Marketing
ii. Determine the basics of E-Supply Chain Management
iii. Classify the Digital Marketing Strategies
iv. Apply the various E-Payment systems
v. Understand the E-Customer Relationship Management.

UNIT I

Digital Marketing: Introduction- Meaning – Definitions- Basics of Marketing- Comparison of Traditional and Digital Marketing - Benefits of Digital marketing - E-commerce Models-Latest Digital marketing trends– Digital marketing platforms- Digital Marketing strategy for websites- Career opportunities in digital marketing. **(6 Hours)**

UNIT II

Supply Chain Management: Goals of SCM - Functions of SCM - Benefits and Strategies of SCM - Components of Electronic SCM - Logistics and Reverse logistics - Implementation. **(6 Hours)**

UNIT III

Digital Marketing Strategies: Search Engine Optimisation (SEO) - Search Engine Marketing (SEM) - Social Media Marketing- Digital Applications - Email Marketing- Mobile Marketing- Electronic Display Advertising. **(6 Hours)**

UNIT IV

E-Payment Systems- Electronic Funds Transfer- Digital Token Based E-Payment Systems- Digital wallet-.Steps for Electronic Payment- Net Banking- Payment Security and Risks. **(6 Hours)**

UNIT V

Target Group Management: The Internet Audience and Consumer Behaviour - Getting to Know Your Customer - Delighting Your Customer - Engaging with Your Customer - Electronic Customer Relationship Management – Need - Architecture and Applications of E-CRM. **(6 Hours)**

REFERENCES BOOKS

1. Puneet Singh Bhatia, Fundamentals of Digital Marketing, Pearson, 2017
2. Philip Kotler, Marketing 4.0: Moving from Traditional to Digital, John Wiley & Sons, Inc., New Jersey, 2017
3. Debra Zahay, Digital Marketing Management: A Handbook for the Current (or Future) CEO, Business Expert Press, New York, 2015
4. Ian Dodson, The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns, John Wiley & Sons, Inc., New Jersey, 2016

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4			**3**			
CO5					**5**	

Mean:3.2

COM 221V FOREX MANAGEMENT 2 Hrs/2Cr

This value added course provides the students with an elaborate knowledge on the management ofForeign exchange. It also focuses on practical aspects Foreign exchange transactions and conquers the complexities of Forex management.

At the end of the Course, Students will be able to

i. Discuss the role of Reserve Bank of India in **Foreign Exchange**
ii. Explain the cause and effect of fluctuations in Forex
iii. Demonstrate the Forex Trading
iv. Calculate the Rupee Value
v. Identify appropriate e-payment system.

UNIT I

Foreign Exchange - Meaning – Concept – Evolution - Scope – Significance - Factors affecting Currency Value– Effect of Inflation on Foreign Exchange - Foreign Exchange Problems in India – Role of RBI in Forex. **(6 Hours)**

UINT II

Foreign Exchange Rates – Concept – Determinants- Types – Floating – Pegged Float – Fixed. Evolution of India's Exchange Rate System - Exchange Rate Management in India - International Monetary System - Gold Standards - Fluctuations in Foreign Exchange Rate - Causes - Effects. **(6 Hours)**

UNIT III

Forex Trading – Concept -Infrastructure and Networks - Direct and Indirect Quotas – Speculation - Types of Speculators - Computerized Trading Programme. **(6 Hours)**

UNITIV

Indian Forex Market - Foreign Exchange Administration - Setting up and Operating a Forex Dealership -Convertibility of Rupees on Current Account - Convertibility of Rupee on Capital Account. **(6 Hours)**

UNITV

Payment Options In Currency Exchange - Credit Card Deposits –Money Bookers-Pay Pal – e-wallets –WebMoney – UPI -Western Union – MoneyGram - VISA – MASTER CARD. **(6 Hours)**

REFERENCE BOOKS

1. Financial Treasury & Forex Management, N S Zad Anand V.Shah , Taxmann Publications, 2nd Edition 2018.
2. S.K Aggarwal and Abha Aggarwal, Financial Treasury and Forex Management, Reliance Publications,10th Edition 2019
3. Abhishek Mittal,Pooja, Financial, Treasury & Forex Management, Law House Publication, 2018
4. Jeevanandan, C, Foreign Exchange and Risk Management, Sultan Chand and Sons, New Delhi
5. Principles of Foreign Exchange, Chatterjee, Himalaya Publishing House, Bombay.

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3			**3**			
CO4		**2**				
CO5				**4**		

Mean: 3

COM 321V MECHANIZED ACCOUNTING – I 2 Hrs / 2 Cr

This course gives a clear insight into the Mechanized Accounting systems and techniques to equip the students capable of preparing accounts with the help of computer.

At the end of the course, students will be able to

i. Adhere the principles of accounting
ii. Identify the various Accounting Packages and the features of Tally.ERP9.
iii. Create Ledger and Accounting Vouchers.
iv. Prepare Inventory master.
v. Derive reports after summarization of accounts.

UNIT I

Introduction to Accounting – Types of Accounts – Golden Rules of Accounting – Accounting Principles – Manual Accounting vs. Mechanized Accounting – Scope and Limitations of Mechanized Accounting **(6 Hours)**

UNIT II

Introduction to Accounting Packages – Quick Books – Zoho Books – Khata Books – Fresh Books – Book Keeper – Wave and Tally.ERP.9 – Features of Tally.ERP9 – Creation of Company – Gateway of Tally – F11 Features and F12 Configuration. **(6 Hours)**

UNIT III

Creation of Accounts Master: Group – Ledger – Accounting Vouchers – New Voucher Type. **(6 Hours)**

UNIT IV

Creation of Inventory Master – Stock Groups – Stock Categories – Stock Items – Units of Measurement – Inventory Vouchers **(6 Hours)**

UNIT V

Preparing Accounting Reports – Trial Balance – Profit and Loss Accounts – Balance Sheet – Day Book – Stock Summary – Printing of Report. **(6 Hours)**

REFERENCE BOOKS

1. Asok K. Nadhani, Tally.ERP 9, 4th Edition, BPB Publications, 2018.
2. Dr.Namrata Agarwal, Comdex Tally.ERP 9,Dreamtech Publications.
3. Shraddha Singh and Mehra Tally V&S Publishers, 2014.
4. SoumyaRanjanBehera Learn Tally.ERP 9 with GST, 3rd Edition, ISBN: 9789380422596, 9380422598
5. https://youtu.be/lpz1VVQGXEc

COM 34

Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4				**4**		
CO5					**4**	

Mean : 3. 4

UNDERGRADUATE DEPARTMENT OF COMMERCE

B.COM (Computer Application) 2019 -20 ONWARDS

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
1	Part-I	CMC 1251	TAS/ HIS/ FRS/ AzhuvalagaNadaimuraigal	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CMC 1553	Financial Accounting- I	5	5	75
	Major	CMC 1455	Business Communication	4	4	60
	Major	CMC 1457	Principles of Marketing	4	4	60
	Supportive	CMC 1459	Business Economics	5	4	60
	NME	CMC 1261	Practical Banking	3	2	30
	LS	CMC 1263	Financial Markets	3	2	30
TOTAL				**30**	**25**	**375**
2	Part-I	CMC 1252	TAS/ HIS/ FRS/ SeyalarPanimurai	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CMC 1554	Financial Accounting – II	5	5	75
	Major	CMC 1456	Banking Theory, Law & Practice	4	4	60
	Major	CMC 1458	Auditing	4	4	60
	Supportive	CMC 1460	Business Environment	5	4	60
	Supportive	CMC 1440/BCA	Accounting for Managers	5	4	60
	NME	CMC 1262	Logistics Management	3	2	30
	LS	CMC 1264	E-tailing	3	2	30
	Part V	XXX 0000	NSS/SLP/PED	---	1	30
TOTAL				**35**	**29 + 1**	**435 / 465**
3	Part-I	CMC 2251	TAS/ HIS/ FRS/ Vaniga Melanmai	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CMC 2553	Corporate Accounting	5	5	75
	Major	CMC 2655	Business Law	6	6	90
	Major	CMC 2457	Visual Basic (T + L)	4	4	60
	Major	CMC 2459	Business Information Systems (T + L)	4	4	60
	Supportive	CMC 2461/ **MAS XXX**	Information Technology / **Business Statistics**	5	4	60
TOTAL				**30**	**27**	**405**

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
4	Part-I	CMC 2252	TAS/ HIS/ FRS/ MelanmaiThathuvangal	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CMC 2554	Management Accounting and Financial Control	5	5	75
	Major	CMC 2656	Corporate Law	6	6	90
	Major	CMC 2458	Programming in C++(T + L)	4	4	60
	Major	CMC 2460	Multimedia (T + L)	4	4	60
	Supportive	CMC 2462/ **MAS XXX**	e-Commerce / **Business Mathematics**	5	4	60
	Part V	XXX 0000	NSS/SLP/PED	---	1	30
TOTAL				**30**	**27 + 1**	**405 / 435**
5	Major	CMC 3651	Costing – I	6	6	90
	Major	CMC 3653	Income Tax Law and Practice - I	6	6	90
	Major	CMC 3555	RDBMS	5	5	75
	Major	CMC 3657	Software Engineering	6	6	90
	HVD	HVS XXXX	Human Value Development	4	2	30
	LS	CMC 3259	Event Management	3	2	30
TOTAL				**30**	**27**	**405**
6	Major	CMC 3652	Costing - II	6	6	90
	Major	CMC 3654	Income Tax Law and Practice - II	6	6	90
	Major	CMC 3556	Introduction to ERP	5	5	75
	Major	CMC 3658	**.** Net Programming (T + L)	6	6	90
	EVS	CMC 3200	Environmental Studies	4	2	30
	LS	CMC 3260	Export Promotion	3	2	30
TOTAL				**30**	**27**	**405**

SUPPORTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1.	CMC 1459	Business Economics	5	4
2.	CMC 1460	Business Environment	5	4
3.	CMC 1440/BCA	Accounting for Managers	5	4
4.	CMC 2461/ **MAS XXX**	Information Technology / **Business Statistics**	5	4
5.	CMC 2462/ **MAS XXX**	e-Commerce / **Business Mathematics**	5	4

NON-MAJOR ELECTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	CMC 1261	Practical Banking	3	2
2	CMC 1262	Logistics Management	3	2

LIFE-SKILL COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	CMC 1263	Financial Markets	3	2
2	CMC 1264	E-tailing	3	2
3	CMC 3259	Event Management	3	2
4	CMC 3260	Export Promotion	3	2

CMC2251 வணிக மேலாண்மை **3 Hrs / 2 Cr**

நோக்கம்

வணிகத்தில் உள்ள பல்வேறு பிரிவுகளை பற்றி விளக்குவதே இப்பாடத்தின் நோக்கமாகும்

வணிக மேலாண்மையை பற்றி படிப்பதன் மூலம் மாணவர்கள் பின்வருவனவற்றை பற்றி தெரிந்துக்கொள்கின்றனர்

i. **வணிகத்தை பற்றியும் , வணிகத்தின் நோக்கங்கள் , குணாதிசியங்கள் மற்றும் அதன் பரிணாம வளர்ச்சி பற்றி அறிந்து கொள்ளுதல்**
ii. **வணிக அமைப்பின் பல்வேறு வடிவங்களான கூட்டு பங்கு நிருமங்கள் மற்றும் பன்னாட்டு நிருமங்கள் பற்றி தெரிந்து கொள்ளுதல்**
iii. **உற்பத்தி மேலாண்மை பற்றியும் அதில் உள்ள உற்பத்தி சார் செயல்முறைகளையும் அறிந்து கொள்ளுதல்**
iv. **நிதி மேலாண்மைபற்றியும் மேலும் ஒரு வணிகத்தில் நிதி திரட்டும் முறைகளையும் அறிந்து கொள்ளுதல்**
v. **பணியாளர்களை தேர்வு செய்யும் முறை பற்றியும் , அவர்களை மேலாண்மை செய்யும் நுட்பத்தை பற்றியும் அறிந்து கொள்ளுதல்**

அலகு 1

வியாபாரத்தின் தன்மைகள் - வரைவிலக்கணம் - நோக்கங்கள் - குணாதிசியங்கள் - பரிணாமவளர்ச்சி - வாணிபசுற்றுச்சூழல் - நுண்ணியமற்றும் பேரியல் சுற்றுச்சூழல்.

(9 Hours)

அலகு 2

வணிகஅமைப்பின் வடிவங்கள் - கூட்டுப்பங்குநிறுமம் - வரைவிலக்கணம் - சிறப்பியல்புகள் - தோற்றுவிப்புநிலைகள் - மேலாண்மை - பொதுத்துறைஅமைப்புகள் - தன்மைகள் - பன்னாட்டுநிறுமங்கள் - பொருள் - நன்மைகள் மற்றும் தீமைகள். **(9 Hours)**

அலகு 3

உற்பத்திமேலாண்மை - தொழிற்கூடத்திற்கான இடம் - உற்பத்திதிட்டமிடல் மற்றும் கட்டுப்பாடு - வேலைமுன்னேற்றம் - அளவீடு - பொருட்கள் மேலாண்மை - பொருளாதாரஅளவுகள்.

(9 Hours)

அலகு 4

நிதிமேலாண்மை - பொருளாதாரதிட்டம் - நிதிமுறைகள் - வணிகநிறுவனரீதியானநிதி - பத்திரசந்தை. **(9 Hours)**

அலகு 5

மனிதவளமேலாண்மை - பணியாளர் தேர்வு - தொழில்துறைஉறவுகள் - உற்பத்திதிறன் மற்றும் தொழிலாளர் நலன். **(9 Hours)**

TEXT BOOK

1. uhjhV,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dhgg;sprH];,jpUty;ypf;Nfzp,nrd;id - 600 005.

Books for Reference

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014
5. https://www.msuniv.ac.in/Download/Pdf/0f80dc31780649d

Bloom's Taxonomy	**K1**:	**K2**:	**K3**:	**K4**:	**K5**:	**K6**:
CO1		**2**				
CO2			**3**			
CO3	**1**					
CO4					**5**	
CO5				**4**		

Mean: 3

CMC2553 CORPORATE ACCOUNTING 5 Hrs / 5 Cr

The objective of this course is to give a comprehensive understanding of all aspects relating to corporate accounting and to lay a theoretical foundation for the preparation and presentation of financial statements and to equip the students with the working knowledge of accounting practices in order in order to prepare for CA, CMA, and ACS.

At the end of the course, students will be able to

i. Interpret accounting knowledge on the issue and redemption of shares and debentures.
ii. Ascertain the profits prior to incorporation, underwriting of shares and Rights issue.
iii. Compile the items of final accounts of a company.
iv. Evaluate the account for amalgamation, absorption, internal and external reconstruction.
v. Integrate the techniques of liquidating the corporate entities in compliance with IFRS.

UNIT I

Company - Meaning– Issue of shares – Types of shares, Forfeiture and reissue of shares – Redemption ofDebentures and Preference shares. **(15 Hours)**

UNIT II

Profits prior to Incorporation – Underwriting of Shares – Full Underwriting- Partial Underwriting – Firm Underwriting - rights issues – acquisition of Business by a Company. **(15 Hours)**

UNIT III

Final Accounts of Companies – Preparation and presentation of final accounts of companies. Treatment of Reserve and Surplus and Preliminary Expenses-bonus and dividend to shareholders – managerial remuneration- Valuation of goodwill and shares. **(15 Hours)**

UNIT IV

Amalgamation and Absorption– computation of purchase consideration – types of amalgamation – pooling of Interest method – purchase method – treatment of realization expenses. Alteration of Share capital and Internal Reconstruction. **(15 Hours)**

UNIT V

Liquidation – Liquidator's final statement of accounts – Accounting standards 1 - 29. International Financial Reporting system-concepts. **(15 Hours)**

Text Book:

1. TS Reddy & Dr.AMurthy, Corporate Accounting, Margham Publications, Chennai, 2019

Books for Reference:

1. M C Shukla , T S Grewal & S C Gupta, Advanced Accounting I, Sultan Chand & Sons., NewDelhi,2019
2. Mukerjee and Hanif, Advanced Accounting Vol I, Tata McGraw Hill Company Limited, New Delhi,2015
3. SP Iyengar, Advanced Accounting Vol I, S. Chand& Sons, New Delhi,2014
4. S.Kr. Paul, Advanced Accountancy Vol I, Revised edition, Central Publishing Company, Kolkatta, 2015

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2			**3**			
CO3				**4**		
CO4			**3**			
CO5					**5**	

Mean: 3.6

CMC2655 BUSINESS LAW 6 Hrs / 6 Cr

This paper aims at providing a bird's eye view on various business laws which will facilitate the students in having an understanding of theoretical knowledge of laws governing business.

At the end of the course, students will be able to

i. Interpret the concepts of business law.
ii. Determine the basics of performance of contract.
iii. Examine the basic frame work of the law relating to Indemnity, Guarantee and Surety.
iv. Predict recent amendments, rules, and regulations related to settling industrial disputes with relevant case law.
v. Apply the Information Technology Act and Right to Information Act in business.

UNIT I

Mercantile law – Introduction – Contract – Definition- Kinds - Essential elements, Offer- Types – Essentials- Revocation, Acceptance- Essentials and legal rules- Revocation, Consideration – Essentials- "No consideration, no contract"- Exceptions. **(20 Hours)**

UNIT II

Capacity- Law regarding minor's agreement- Persons of unsound mind- Persons disqualified by law, Free consent- Coercion- Undue influence- Misrepresentation- Mistake- Fraud, Performance of contract-Modes of performance, Discharge of contracts- Kinds - Remedies for breach of contracts. **(20 Hours)**

UNIT III

Contract of Indemnity and Guarantee- Rights of Indemnity holder- Difference between Indemnity and Guarantee- Rights of Surety- Discharge of Surety, Bailment and Pledge- Kinds of bailment- Rights and duties of bailee and bailor- Rights and duties of Pawnee and Pawner. **(20 Hours)**

UNIT IV

Industrial Disputes Act- Settlement mechanisms- Types of disputes- Offences and penalties- Health, safety and welfare measures of workers under Factories Act. **(15 Hours)**

UNIT V

Information Technology Act, 2000 – Definition- Digital signature and certificates- Duties of subscriber- Penalties and adjudication, Right to Information Act, 2005 – Origin- Objectives, Features- Process of filling- Challenges. **(15 Hours)**

Text Book

1. N D Kapoor, Elements of Mercantile Law, Sultan Chand & Sons, New Delhi, 2017.

Books for Reference

1. Rajni Abbi, Bharat Bhushan, Rajiv Kapoor, Elements of Industrial Law, Sultan Chand & Sons, New Delhi, 2019.
2. Tuteja S.K, Business Law for managers, Sultan Chand & Sons, New Delhi, 2010.
3. Kuchhal M. C, Mercantile Law, Seventh Edition, Vikas Publishing House Pvt.Ltd., New Delhi, 2018.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

CMC2457 VISUAL BASIC 4 Hrs / 4 Cr

The main aim of the course is to introduce the students, the basic of visual programming using Visual Basic. The course deals with GUI concepts, various Controls, Menus, Dialog boxes and creating of active X Controls in Visual Basic. This course will enhance students to exploreApps relating to marketing, gaming and others.

At the end of the course, students will be able to

i. Illustrate visual basic anatomy and philosophy of VB.
ii. Apply operators, constants and arrays in VB
iii. Compile of event-driven program execution flow control in visual basic programming, understand loops to do repetition.
iv. Devise intrinsic controls for form design
v. Develop application using menus and popup menus, understanding of database access and manage databases.

UNIT I

Introduction to Visual Basic- Features of Visual Basic- The Visual Basic Philosophy- The integrated development environment- The anatomy of Form- Project Types **(10 Hours)**

UNIT II

Dealing with Data – Operators – Variables- Declaring Variables- Types of Variables- Data types- Constant Arrays- Declining Arrays- Specifying Arrays- Multi dimensional Arrays- Dynamic Arrays- Array of arrays **(10 Hours)**

UNIT III

Writing Code – Collections – Procedures – Subroutines – Functions- Calling Procedures- Creating Classes & Object- I/O statements- Control Flow statements- If Oops concept- Then- if- then-else- Nested Control Statements- Select- Case- Loop Statements- Do-Loop- For- Next- While- Wend- Exit Statement **(10 Hours)**

UNIT IV

Creating an application using controls: What is on the toolbar -Textbox Control -Picture Box - Image Box -Label Box -Frame -List Box -Option Button -Combo Box Command Button- Check Box -Drive, Directory, File List Controls - Line & Shape Control -Scroll Box - Data – Timer **(15 Hours)**

UNIT V

Multiple Document Interface & Menus: Why MDI Forms -Features of an MDI forms - Loading MDI forms & child forms -Creating a simple MDI forms -Accessing MDI forms - Creating menus -Pop-up menus - Data Access Controls: JET database Engine -ADODC - DAO Data Control -ODBC Data Source Administrator –Data Report **(15 Hours)**

Text Book

1. Mohammed Azam, Programming with Visual Basic 6.0, Second Edition, Vikas Publication House Pvt Ltd, New Delhi, 2014

Book for Reference

1. Steven Holzner, Visual Basic .NET Black Book, Willey India Pvt., Ltd., New Delhi, 2010
2. Liew VoonKiong, Visual Basic Made Easy, Tata McGraw Hill, New Delhi, 2013
3. Gary Cornell, Visual Basic 6.0., Mc Graw Hill Publishing Co., Ltd., New Delhi, 2017.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3					**5**	
CO4						**6**
CO5						**6**

Mean: 4.4

CMC 2459 BUSINESS INFORMATIONSYSTEMS (T + L) (4 Hrs / 4 Cr)

The objective of the course is to make students understand the principles of information technology used in Business and the software required for BIS and appraise the features of Word Processing, Spread sheet and Presentation software. This course will help the students to define business models, to contrast and compare how internet and other information technologies support business processes.

At the end of the course, students will be able to

i. Summarize the importance of information technology in business
ii. Classify the computer hardware and software components
iii. Establish information system in an office
iv. Apply the data manipulation tools and to handle risks in automated environment
v. Understand roles of information technology in business.

UNIT I

Data and Information – Collection of Data – Types of Data -Numbers, Text, Image, Audio, Video - Data Storage – Primary and Secondary Central Processing Unit - Computer Networks – Output Devices. World Wide Web –HTTP – HTTPS – Email - Social uses of World wide Web **(10 Hours)**

UNIT II

Computer Software – types of software operating system – Programming Languages – Data Classification -Data Organization - organizing a database - Structure of a database – DBMS – Tables – Records and Fields. Processing of Numerical Data – Textual - Multimedia Data with examples - Internet Applications **(10 Hours)**

UNIT III

Systems Investigation - General aspects – Planning the Systems Investigation – User's Information Requirements – Usage and Flow of Data – Current Activities – User Department Staffing – Current System Costs – Entity sets – Fact Finding Methods, Systems Design - Design Philosophy – Code Number Systems – Output Subsystem – Logical File Subsystem – Input Subsystem – System Architecture – Security and Audit – Computer Job Scheduling – Costs and Savings of New System – System Documentation

(15 Hours)

UNIT IV

System Implementation - D.P. Staff – System Testing – Database Creation – Changeover Procedure – System presentation – System Appraisal and Maintenance – Data Processing Resources, Information System Security and Control – Threat of Project Failure – Threat of Accidents and Malfunctions – Threat of Computer Crime – Factors that Increase the Risks - Methods for Minimizing Risks **(15 Hours)**

UNIT V

Need for Computers in Business - Management structure and design of an information systems - System life cycle - Electronic Commerce – B-to-C, B-to-B and C-to-C – Architecture - Payment schemes - Electronic Clearing system - Payment in E-commerce – EDI **(10 Hours)**

Text Book

1. Business Information Systems, Paul Beynon Davies,Macmillan Publications, 3rd Edition, 2019
2. Management Information System an Insight, Hitesh Gupta, International Book House Pvt Ltd., 2011.

Books for Reference

1. Rahul De, MIS: Managing Information Systems in Business, Government and Society 2018
2. Suman Mann, Seema Shokeen, Pooja Singh, Information Systems Management, 2020
3. Sybex, MS Office 2000 - Complete, Bpb Publications
4. Sudalaimuthu& Hariharan," Information Technology for Managers", HPH 2011
5. D.Monley& CS Parker, Cengage/Thomson, "Understanding Computers Today & Tomorrow" 2014.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3					**5**	
CO4						**6**
CO5						**6**

Mean: 4.4

CMC 2461 INFORMATION TECHNOLOGY 5 Hrs / 4 Cr

This course equips the students to compete in the present world. It includes introduction to computers, the architecture-hardware and software, telecommunication networking and cyber laws. That creates a exposure for students about trends in IT and equip themselves about the operations in the business world.

At the end of the course, students will be able to

i. Describe the growth of latest computer devices and technologies
ii. Outline the computer languages, software and operating systems
iii. Prepare documents, spreadsheet and presentations using office productivity tools
iv. Integrate technical hardware and software including network, database and security components.
v. Evaluate Enterprise Resource Planning, Core banking System and Management Information System.

UNIT I

Evolution of computers - Classification of digital computer systems – Anatomy of a digital computer – Memory units – Auxiliary storage devices – Input devices – Output devices- Overview of latest devices – Technologies – Bluetooth, Wi-Fi, NFC, Touchpad, iPad, iPod, Laptop, Notebook, Multimedia mobiles, Smart Phone. **(15 Hours)**

UNIT II

Generation of computer languages – Programming Languages – Computer Software – Types of software – System software, Utility Software – Operating Systems – Components of OS – MSDOS, Windows, Linux, Ubuntu, Mac, IOS, Android. **(15 Hours)**

UNIT III

Office Automation –Office Productivity tools – MS Office – Working with Word Document, Spread Sheet – Preparation of Spread Sheets in Excel – Power Point Presentation – Creation of Slides. **(15 Hours)**

UNIT IV

Network Topology – Components – Telecommunication Networks - Data networks– Data Warehouses – LAN, WAN, Wireless, Private and Public networks – Internet architecture – Internet Securities. **(15 Hours)**

UNIT V

ERP, Core Banking System – MIS, Emerging concepts – Grid Computing, Cloud Computing, Cloud delivery model. E-commerce and M-commerce technologies - Cyber Law - Information Technology Act, 2000. **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference

1. Rajaraman V, Introduction to Information Technology, PHI Learning, Delhi, 2018
2. Richard Fox, Information Technology, Chapman and Hall, Florida, 2015
3. Andrew S Tanenbaum & Albert S Woodhull, Operating Systems Design and Implementation, Second Edition Prentice Hall India, New Delhi, 2014
4. Alexis Leon &Mathews Leon, Fundamentals of Information Technology, Second Edition Vikas Publishing, New Delhi, 2014

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4						**6**
CO5					**5**	

Mean: 3.8

CMC 2252 **Nkyhz;ikj; jj;Jtq;fs;** **3 Hrs / 2 Cr**

Nehf;fk;

Nkyhz;ikj; jj;Jtq;fisgbg;gjd; *yk; khztHfs; Nkyhz;ikapd; nghUs;,Nkyhz;ikapd; Kf;fpaj;Jtk,;gzpfs;,Nfhl;ghLfs,; epiyfs; kw;Wk; Nkyhz;ikapd; ,ay;igAk; rpwg;Gj; jd;ikfisAk; mwpe;Jnfhs;sKbAk;.

Nkyhz;ikj; jj;Jtq;fisgbg;gjd; %yk; khztHfs; fPo;f;fz;ltw;iwnjhpe;Jnfhs;fpd;wdH.

i. Nkyhz;ikgw;wpAk; mjd; jd;ikfs; Kf;fpaj;Jtk; gw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; Nkyhz;ikapy; cs;sgzpfs; Nfhl;ghLfs; gw;wpAk; mwpe;Jnfhs;fpd;wdH.
ii. Jpl;lkpLjy; gw;wpAk; mtw;wpy; cs;stiffisgw;wpAk; NkYk; mjd; ed;ikjPikfisgw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; jpl;lkpLjypd; Kf;fpa $Wfs; gw;wpAk; mtw;wpd; ,ay;Gfs; gw;wpAk; mwpe;Jnfhs;fpd;wdH.
iii. xOq;fikj;jy; gw;wpAk; mjd; ,ay;Gfs; Nfhl;ghLfs; ed;ikfs; kw;Wk; mjpy; cs;sed;ikfs; Nfhl;ghLfs; kw;Wk; gbepiyfismwpe;Jnfhs;fpd;wdH.
iv. ,af;Fjy; kw;Wk; fl;Lg;gLj;Jjy; gw;wpAk; NkYk; mjpy; cs;sKf;fpa $Wfs; jj;Jtq;fs; eilKiwfs; ed;ikfs; kw;Wk; jPikfismwpe;Jnfhs;fpd;wdH.
v. nray; Cf;Ftpj;jy; gw;wpAk; NkYk; mjd; rpwg;gpay;Gfs; gw;wpAk; njhpe;Jnfhs;fpd;wdH. NkYk; jfty; eilKiwgw;wpAk; mjd; ed;ikfs; jPikfisgw;wpAk; jilfismfw;Wk; Kaw;rpfisAk; mwpe;Jnfhs;fpd;wdH.

myF 1

Nkyhz;ikmwpKfk; - Njhw;wk; - Nkyhz;iknghUs; - ,yf;fzk; - rpwg;Gj; jd;ikfs; - Kf;fpaj;Jtk; - epiyfs; - gzpfs; - Nfhl;ghLfs; - epHthfk; kw;Wk; Nkyhz;ikf;fhdNtWghLfs;

(9 Hours)

myF 2

jpl;;lkpLjy; - nghUs; - tiutpyf;fzk; - ,ay;G - ed;ikfs; kw;Wk; Kf;fpaj;Jtk; - FiwghLfs;- eilKiw/ gbepiyfs; - jpl;lj;jpd; nray; $Wfs; - jpl;lkpLjypd; tiffs; - KbntLj;jy; - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - tiffs;- eilKiw / gbepiyfs; - ed;ikfs; - FiwghLfs;

(9 Hours)

myF 3

xOq;fikg;G - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - Nfhl;ghLfs; - ed;ikfs; - gbepiyfs;/ eilKiwxOq;fikg;gpd; tiffs; - KiwahdxOq;fikg;Gf;Fk; Kiwaw;wxOq;fikg;Gf;Fk; cs;sNtWghLfs; - mjpfhuxg;gilj;jy; - nghUs; - tiutpyf;fzk; - jd;ikfs;- eilKiwfs; / gbepiyfs;- Nfhl;ghLfs; - ed;ikfs;- FiwghLfs;. **(9 Hours)**

myF 4

,af;Fjy; -nghUs; - tiutpyf;fzk;- $Wfs; - jj;Jtq;fs; - jd;ikfs;- Kf;fpaj;Jtk; - ,af;Fjypd; topfs;. fl;Lg;gLj;Jjy;- nghUs; - tiutpyf;fzk; - rpwg;gpay;Gfs; - eilKiw- ed;ikfs;- fl;Lg;gLj;Jjypy; vOk; gpur;ridfs;. **(9 Hours)**

myF 5

nray; Cf;fkspj;jy; - nghUs; -tiutpyf;fzk; - rpwg;gpay;Gfs; - jfty; eilKiw - ed;ikfs;- tiffs; - jfty; njhlHgpd; jilfs; - jfty; njhlHgpd; jilfismfw;Wk; Kaw;rpfs; - nray; Cf;fkspj;jy; - nghUs; - rpwg;gpay;Gfs; - eilKiwfs; - Kf;fpaj;Jtk; - Nfhl;ghLfs;. **(9 Hours)**

TEXT BOOK

1. uhjhV,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dhgg;sprH];,jpUty;ypf;Nfzp,nrd;id- 600 005.

Books for Reference

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3	1					
CO4					5	
CO5				4		

Mean: 3

CMC2554 MANAGEMENT ACCOUNTING AND FINANCIAL CONTROL 5Hrs/5Cr

To enable the students to acquire knowledge of the Management Accounting Principles and Practices and familiarize them with the techniques of taking various financial decisions.

At the end of the course, students will be able to

i. Identify basics of management accounting and the statements Prepared.
ii. Interpret the results of the accounting statements with the help of management accounting tools.
iii. Recognize the right meaning of fund and know the importance of funds in a business.
iv. Calculate the amount of working capital needed in a company in accordance with the nature of business.
v. Determine the optimum capital structure that a company should have.

UNIT I

Introduction: Evolution, Meaning, Objectives and Scope – Tools and Techniques of Management Accounting – Relationship of Cost Accounting, Financial Accounting, Management Accounting and Financial Management – Role of Management Accountant in Decision Making. Analysis and Interpretation of Financial Statements – Nature, Attributes, Objectives, Importance, Limitations – Comparative and Common-size statements. **(8 Hours)**

UNIT II

– Ratio Analysis: Meaning – Uses, Classification, Advantages, Limitations – Problems on Ratio Analysis (Simple problems only). **(17 Hours)**

UNIT III

Cash Flow Statement – Fund Flow Statement – Difference between Cash Flow and Fund Flow Statement – Management Reporting – Problems on Cash Flow Statement (only). **(17 Hours)**

UNIT IV

Capital structure - Factors determining capital structure - theories of capital structure – Net Income approach, Net Operating Income approach, Traditional approach and Modigliani and Miller approach - application of theoretical concepts **(16 Hours)**

UNIT V

Dividend Policies – Meaning – Types of dividend - Relevance and irrelevance approaches – Walter's Model, Gordon's model and MM Hypothesis. **(17 Hours)**

Text Book

1. S.N.Maheswari,Management Accounting and Financial Control, Sultan Chand & sons, New Delhi,2015

Books for Reference

1. Dr. A. Murthy, Financial Management,Margham Publications, Chennai, 2016
2. Prof.T.S.Reddy and Dr.Y.Hariprasad Reddy , Management accounting , Margham Publications, Chennai, 2018.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2				**4**		
CO3					**5**	
CO4				**4**		
CO5						**6**

Mean: 4.2

CMC 2656 CORPORATE LAW 6 Hrs / 6 Cr

The objective of this course is to help the students to understand the basic laws related with company and to impart the knowledge of various provisions of the Companies Act.

At the end of the course, students will be able to

i. Apply the principles of corporate law in a rigorous and principled manner in a company.
ii. Understand the use of the memorandum of association and article of association in a Company
iii. Prepare the prospectus of a company as per the legal requirements.
iv. Identify the appropriate modes of acquisition and terminations of membership in a company.
v. Understand the general objects, purposes and conduct of meetings in a company.

UNIT I

Company – Nature, scope, Meaning, Definition and characteristics of company – Formation and Incorporation - Kinds of companies - Merits and Demerits of Incorporation of company - Lifting the corporate veil. Solomon Vs Solomon & Co. **(15 Hours)**

UNIT II

Memorandum of Association - Meaning, Purpose, Contents., Alteration ofMOA, Doctrine of Ultra vires. Articles of Association - Meaning Purpose, Content. Alternation of AOA, Doctrine of Indoor Management, Doctrine of Constructive Notice. **(20 Hours)**

UNIT III

Introduction - Legal requirement of Prospectus- - Misstatement in Prospectus - Liability for misstatement in Prospectus- Civil& Criminal Liabilities- Types of Prospectus-Abridged Prospectus, Deemed Prospectus, Shelf Prospectus, Red Herring Prospectus- Shares - Meaning, Types of Shares - Transfer of shares - Transmission of Shares- Comparison between transfer & Transmission Of shares- Share Capital, Meaning, Kinds, Alternation, - Voting Rights – Debenture, meaning, types, redemption on debentures **(20 Hours)**

UNIT IV

Company Management – Structure of Management – Appointment, Retirement, Qualifications, Remuneration, Powers & Duties of Shareholders – Board of Directors – Managing Directors – Other Executives - Members - Modes of acquisition of membership in a company- Eligibility- Rights and Liabilities of Members -. Shareholder Vs Member- Modes of termination of Membership in a company- Register of members-- Dividend - Rules as to Payment of Dividend **(15 Hours)**

UNIT V

Meetings - general objects and purposes of meetings -kinds of company meetings – statutory meeting - Statutory Report – annual general meeting –Extraordinary General Meeting-Requisites of valid meeting – Winding up- Modes of Winding up-Grounds of Winding Up-Petition for Winding Up-Consequences of Winding Up order-Official Liquidator-Powers & Duties of Official Liquidator. **(20 Hours)**

Text Book

1. NDKapoor, Elements of Company Law, Sultan Chand & Sons, New Delhi, 2016

Books for Reference

1. Dr.SK Tuteja, Business Law for managers, Sultan Chand & Sons, New Delhi, 2006
2. GK Kapoor, Lectures on Business & Corporate Laws, Sultan Chand & Sons, New Delhi, 2005
3. M C Kuchhal, Mercantile Law, Vikas Publishing House Pvt.Ltd., New Delhi, 2004.
4. Praveen, Suggested Answers in Mercantile Law, Sultan Chand & Sons, New Delhi, 2005.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

CMC 2458 PROGRAMMING IN C++ (T + L) 4Hrs / 4 Cr

This course aims to equip students with good understanding about the concept of object-oriented programming using C++, and enable them to write and read basic C++ code. The course serves as a platform to gain knowledge related to commercial applications.

At the end of the course, students will be able to

i. Become familiar with the features of the language C++.
ii. Compare the usage of Pointers, Arrays and structures and write programs using them.
iii. Create programs using functions, macros and namespace
iv. Appraise files, special functions and memory management
v. Build applications using Operator overloading and class hierarchy.

UNIT I

Introduction: Introduction to Flowchart – Algorithms – Introduction to C language, what is C++? Why C? and C++, Exception Handling, Object Oriented Programming, Standard Template Library, Types and declarations – Types – Booleans - Integer Types - Floating-Point Types, Sizes, Void, Enumerations, Declarations **(15 Hours)**

UNIT II

Pointers, Arrays and Structures: Pointers – Arrays - Pointers into Arrays – Constants – References–Pointers To void – Structures, Expressions and Statements: A Deck Calculator, Operator Summary, Statement Summary, Comments and Indentation **(10 Hours)**

UNIT III

Functions: Function Declarations, Argument Passing, Value Return, Overloaded Function Names, Default Arguments, Pointer to Function, Macros, Namespaces and Exceptions: Namespaces–Exceptions **(10 Hours)**

UNIT IV

Source Files and Programs: Separate Compilation, Linkage, Using Header Files, Programs, Classes - Access Control, Constructors, Member functions, Static members, Destructors, Memory allocation, Member initialization **(10 Hours)**

UNIT V

Operator overloading: Introduction, Operator Functions, A Complete Number Type, Conversion Operators, Friends, Large Objects, Essential Operators, Subscripting, Functions Calls, Dereferencing, Increment and Decrement, A String Class, Derived class, Abstract Classes, Design of Class Hierarchies, Class Hierarchies and Abstract Classes **(15 Hours)**

Text Book

1. Herbert Schildt, The Complete Reference C ++, McGraw Hill Publication, New Delhi, 2017

Books for Reference

1. Walter Savitch, Kenrick Mock, Problem Solving with C++, Pearson Education, Chennai, 2017
2. Bjarne Stroustrup, The C++Programming Language, Revised Edition, Pearson Education India, Chennai, 2012
3. Scott Meyers, Effective Modern C++: 42 Specific Ways to Improve Your Use of C++11 and C++14, O'Reilly Publications, 2014.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5						**6**

Mean = 3.2

CMC 2460 MULTIMEDIA (T + L) 4 Hrs / 4 Cr

The aim of the course is to explore how Multimedia components are represented handled effectively by various technologies and also to implements the Multimedia concepts through flash, MX and director Shock wave studio. As a result, students will be able to understand how animated videos are created by marketing agencies and others.

At the end of the course, students will be able to

i. Infer with various technical aspects of multimedia systems and its elements.
ii. Describe various file formats for audio, video and text media.
iii. Apply the tools and perform creative editing on Photoshop and flash platforms.
iv. Create rich forms in flex environment.
v. Develop databases and HTML in Adobe AIR.

UNIT I

Introduction to multimedia Content and copy rights-resources for multimedia developers - types of products-evaluation computer architecture standards- operative system and software multimedia computers architecture. An element of text- text data files - using text in multimedia applications hypertext – graphics- element o graphics- images and colour graphics files and applications formats-obtaining images for multimedia use- using graphics in multimedia applications **(15 Hours)**

UNIT II

Digital audio Characteristics of sound and digital audio systems-MIDI audio file formats using audio in multimedia applications. **(10 Hours)**

UNIT III

Introduction to photoshop- Working with photoshop-processing in image using photoshop techniques. Animation: Introduction- How flash works- flash tool box- creating objects drawing characters for cartooning editing objects-colours and text-symbols and instances, bitmaps.

(15 Hours)

UNIT IV

In Flex: Setting up the environment-using Design mode and sources mode- adding interactivity- using date binding- layout-creating Rich forms. **(10 Hours)**

UNIT V

Adobe air: Introduction- applications, windows, menus- File system integration using local databases HTML in AIR. **(10 Hours)**

Text Book

1. Bhattacharya Siddhartha and Paramartha Dutta, Multimedia Programming: A Practical Approach, Vikas Publishing, 2016

Books for Reference:

1. Mark S. Drew, Fundamentals of Multimedia, Second Edition, Springer, 2014
2. ITL Education Solution Limited, Computer Graphics and Multimedia, Xpress Learning Publications, 2012
3. VK Jain, Introduction to Multimedia and Its Applications, Khanna Publishers, 2015
4. D Evangeline, Computer Graphics and Multimedia, PHI Learning, 2014

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4						**6**
CO5					**5**	

Mean: 3.8

CMC 2462 E-COMMERCE 5 Hrs / 4 Cr

This course makes the student familiar with the mechanism of conducting business transactions through electronic media, understand the methodology of online business dealings using e-commerce infrastructure.

At the end of the course, students will be able to

i. Describe the growth of e-commerce.
ii. Examine the various e-commerce models.
iii. Demonstrate the role of internet in e-commerce.
iv. Apply e-payment systems and web marketing.
v. Determine internet security, maintaining secure information, digital signatures and firewalls.

UNIT I

Introduction to E-Commerce- Features and functions of e-commerce- e-commerce practices viz. traditional practices- Scope and limitations of e-commerce- e-commerce security- Benefits- Impact of E-Commerce- State of e-commerce in India- Problems and opportunities in ecommerce in India- Legal issues- Future of e-commerce. **(15 Hours)**

UNIT II

Classification of E-Commerce- Framework of e-Commerce, e-Commerce Business Models - Business to Business, Business to Customer, Customer to Customer. EDI-Process - Components - Benefits. Service provider- e-distributor- Procurement and Just-in-Time delivery **(15 Hours)**

UNIT III

Internet and its role in e-commerce- Procedure of registering Internet domain, Establishing connectivity to Internet- Tools and services of Internet, Procedure of opening e-mail accounts on internet. **(15 Hours)**

UNIT IV

Transactions through Internet- Requirements of e-payment systems- Functioning of debit and credit cards- Pre and post payment services, Marketing on the web- Marketing strategies- Creating web presence- Advertising- Customer service and support- Web branding strategies- Web selling models- Online booking systems- Online booking procedure of railways, airlines, tourist and religious places, hotels and entertainment industry **(15 Hours)**

UNIT V

Setting up Internet security- Maintaining secure information- Digital signature and their security measures- Authenticity- Privacy- Integrity- Non-repudiation- Encryption, Secret key cryptography- Public key cryptography, SET, SSL, Firewalls **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference:

1. P T Joseph, E-Commerce: An Indian Perspective, Prentice Hall India, New Delhi, 2019.
2. Bharat Bhasker, Electronic Commerce: Framework, technologies and Applications, Tata McGraw Hill, New Delhi, 2008
3. Dave Chaffey, Digital Business and E- Commerce Management, Pearson Education Limited, Delhi, 2015
4. David Whiteley, E-Commerce: Strategy, Technologies and Applications, Tata McGraw Hill, New Delhi, 2017

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4						**6**
CO5			**3**			

Mean: 3.8

UNDERGRADUATE DEPARTMENT OF COMMERCE
B.COM (INFORMATION TECHNOLOGY) 2019 -20 ONWARDS

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
1	Part-I	CIT 1251	TAS/ HIS/ FRS/ Azhuvalaga Nadaimuraigal	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CIT 1553	Financial Accounting- I	5	5	75
	Major	CIT 1455	Business Communication	4	4	60
	Major	CIT 1457	Principles of Marketing	4	4	60
	Supportive	CIT 1459	Business Economics	5	4	60
	NME	CIT 1261	Office Practices	3	2	30
	LS	CIT 1263	Consumerism	3	2	30
TOTAL				**30**	**25**	**375**
2	Part-I	CIT 1252	TAS/ HIS/ FRS/ Seyalar Panimurai	3	2	30
	Part-II	ENS XXXX	ENGLISH	3	2	30
	Major	CIT 1554	Financial Accounting – II	5	5	75
	Major	CIT 1456	Banking Theory, Law & Practice	4	4	90
	Major	CIT 1458	Auditing	4	4	60
	Supportive	CIT 1460	Business Environment	5	4	60
	NME	CIT 1262	Principles of investment	3	2	30
	LS	CIT 1264	Business Organisation	3	2	30
	Part V	XXX 0000	NSS/SLP/PED	---	1	30
TOTAL				**30**	**25 + 1**	**375 / 405**
3	Part-I	CIT 2251	TAS/ HIS/ FRS/ Vaniga Melanmai	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	CIT 2553	Corporate Accounting	5	5	75
	Major	CIT 2655	Business Law	6	6	90
	Major	CIT 2457	Visual Basic (T+L)	4	4	60
	Major	CIT 2459	Desk Top Publishing (T +L)	4	4	60
	Supportive	CIT 2461/ **MASXXXX**	Information Technology / **Business Statistics**	5	4	60
TOTAL				**30**	**27**	**405**

CIT 2

Semester	Course	Subject Code	Subject Title	Hours	Credit	Marks
4	Part-I	CIT 2252	TAS/ HIS/ FRS/ Melanmai Thathuvangal	3	2	30
	Part-II	ENG XXXX	ENGLISH	3	2	30
	Major	CIT 2554	Management Accounting and Financial Control	5	5	75
	Major	CIT 2656	Corporate Law	6	6	90
	Major	CIT 2458	Programming in C++ (T+L)	4	4	60
	Major	CIT 2460	Web designing (T+L)	4	4	60
	Supportive	CIT 2462/ **MAS XXXX**	e-Commerce / **Business Mathematics**	5	4	60
	Part V	XXX 0000	NSS/SLP/PED	---	1	30
TOTAL				**30**	**27 + 1**	**405 / 435**
5	Major	CIT 3651	Costing – I	6	6	90
	Major	CIT 3653	Income Tax Law and Practice-I	6	6	90
	Major	CIT 3555	RDBMS	5	5	75
	Major	CIT 3657	Computer Graphics and Animation (T+L)	6	6	90
	HVS	HVS XXXX	Human Value Development	4	2	30
	LS	CIT 3259	Tourism and Hospitality Management	3	2	30
TOTAL				**30**	**27**	**405**
6	Major	CIT 3652	Costing – II	6	6	90
	Major	CIT 3654	Income Tax Law and Practice-II	6	6	90
	Major	CIT 3556	Introduction to ERP	5	5	75
	Major	CIT 3658	Creative Editing Tools (T+L)	6	6	90
	EVS	CIT 3200	Environmental Studies	4	2	30
	LS	CIT 3260	Mass Media and Communications	3	2	30
TOTAL				**30**	**27**	**405**

T+L - Theory and Lab

SUPPORTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	CIT 1459	Business Economics	5	4
2	CIT 1460	Business Environment	5	4
3	CIT 2461/ MAS XXX	Information Technology / Business Statistics	5	4
4	CIT 2462/ MAS XXX	e-Commerce / Business Mathematics	5	4

NON-MAJOR ELECTIVE COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	CIT 1261	Office Practices	3	2
2	CIT 1262	Principles of Investment	3	2

LIFE-SKILL COURSES

SEMESTER	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
1	CIT 1263	Consumerism	3	2
2	CIT 1264	Business Organisation	3	2
3	CIT 3259	Tourism and Hospitality Management	3	2
4	CIT 3260	Mass Media and Communications	3	2

CIT 2251 வணிக மேலாண்மை **3 Hrs / 2 Cr**

நோக்கம்

வணிகத்தில் உள்ள பல்வேறு பிரிவுகளை பற்றி விளக்குவதே இப்பாடத்தின் நோக்கமாகும்

வணிக மேலாண்மையை பற்றி படிப்பதன் மூலம் மாணவர்கள் பின்வருவனவற்றை பற்றி தெரிந்துக்கொள்கின்றனர்

i. வணிகத்தை பற்றியும் , வணிகத்தின் நோக்கங்கள் , குணாதிசியங்கள் மற்றும் அதன் பரிணாம வளர்ச்சி பற்றி அறிந்து கொள்ளுதல்
ii. வணிக அமைப்பின் பல்வேறு வடிவங்களான கூட்டு பங்கு நிருமங்கள் மற்றும் பன்னாட்டு நிருமங்கள் பற்றி தெரிந்து கொள்ளுதல்
iii. உற்பத்தி மேலாண்மை பற்றியும் அதில் உள்ள உற்பத்தி சார் செயல்முறைகளையும் அறிந்து கொள்ளுதல்
iv. நிதி மேலாண்மைபற்றியும் மேலும் ஒரு வணிகத்தில் நிதி திரட்டும் முறைகளையும் அறிந்து கொள்ளுதல்
v. பணியாளர்களை தேர்வு செய்யும் முறை பற்றியும் , அவர்களை மேலாண்மை செய்யும் நுட்பத்தை பற்றியும் அறிந்து கொள்ளுதல்

myF 1

tpahghuj;jpd; jd;ikfs; - tiutpyf;fzk; - Nehf;fq;fs; - Fzhjprpaq;fs; - ghpzhktsh;r;rp - thzpgRw;Wr;#oy; - Ez;zpakw;Wk; Nghpay; Rw;Wr;#oy;.

(9 Hours)

myF 2

tzpfmikg;gpd; tbtq;fs; - $l;Lg;gq;FepWkk; - tiutpyf;fzk; - rpwg;gpay;Gfs; - Njhw;Wtpg;Gepiyfs; - Nkyhz;ik - nghJj;Jiwmikg;Gfs; - jd;ikfs; - gd;dhl;LepWkq;fs; - nghUs; - ed;ikfs; kw;Wk; jPikfs;.

(9 Hours)

myF 3

cw;gj;jpNkyhz;ik - njhopw;$lj;jpw;fhd ,lk; - cw;gj;jpjpl;lkply; kw;Wk; fl;Lg;ghL - NtiyKd;Ndw;wk; - mstPL - nghUl;fs; Nkyhz;ik - nghUshjhumsTfs;. **(9 Hours)**

myF 4

epjpNkyhz;ik - nghUshjhujpl;lk; - epjpKiwfs; - tzpfepWtdhPjpahdepjp - gj;jpure;ij.

(9 Hours)

myF 5

kdpjtsNkyhz;ik - gzpahsh; Njh;T - njhopy;JiwcwTfs; - cw;gj;jpjpwd; kw;Wk; njhopyhsh; eyd;;.

(9 Hours)

Text Book

1. uhjh V,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dh gg;sprH];, jpUty;ypf;Nfzp, nrd;id - 600 005.

Books for reference

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014
5. https://www.msuniv.ac.in/Download/Pdf/0f80dc31780649d

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3	**1**					
CO4					**5**	
CO5				**4**		

Mean: 3

CIT 2553 CORPORATE ACCOUNTING 5 Hrs / 5 Cr

The objective of this course is to give a comprehensive understanding of all aspects relating to corporate accounting and to lay a theoretical foundation for the preparation and presentation of financial statements and to equip the students with the working knowledge of accounting practices in order in order to prepare for CA, CMA, and ACS.

At the end of the course, students will be able to

i. Interpret accounting knowledge on the issue and redemption of shares and debentures.
ii. Ascertain the profits prior to incorporation, underwriting of shares and Rights issue.
iii. Compile the items of final accounts of a company.
iv. Evaluate the account for amalgamation, absorption, internal and external reconstruction.
v. Integrate the techniques of liquidating the corporate entities in compliance with IFRS.

UNIT I

Company – Meaning– Issues- Types, Forfeiture and reissue of shares – Redemption ofDebentures and Preference shares. **(15 Hours)**

UNIT II

Profits prior to Incorporation – Underwriting of Shares – Full Underwriting- Partial Underwriting – Firm Underwriting - rights issues – acquisition of Business by a Company. **(15 Hours)**

UNIT III

Final Accounts of Companies – Preparation and presentation of final accounts of companies. Treatment of Reserve and Surplus and Preliminary Expenses-bonus and dividend to shareholders – managerial remuneration- Valuation of goodwill and shares. **(15 Hours)**

UNIT IV

Amalgamation and Absorption– computation of purchase consideration – types of amalgamation – pooling of Interest method – purchase method – treatment of realization expenses. Alteration of Share capital and Internal Reconstruction. **(15 Hours)**

UNIT V

Liquidation – Liquidator's final statement of accounts – Accounting standards 1 - 29. International Financial Reporting system-concepts. **(15 Hours)**

Text Book:

1. TS Reddy & Dr.AMurthy, Corporate Accounting, Margham Publications, Chennai, 2019

Books for Reference:

1. M C Shukla, T S Grewal & S C Gupta, Advanced Accounting I, Sultan Chand &

Sons., NewDelhi,2019
2. Mukerjee and Hanif, Advanced Accounting Vol I, Tata McGraw Hill Company Limited, New Delhi,2015
3. S P Iyengar, Advanced Accounting Vol I, S. Chand& Sons, New Delhi,2014
4. S.Kr. Paul, Advanced Accountancy Vol I, Revised edition, Central Publishing Company, Kolkatta, 2015

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2			**3**			
CO3				**4**		
CO4			**3**			
CO5					**5**	

Mean: 3.6

CIT 2655 BUSINESS LAW 6 Hrs / 6 Cr

This paper aims at providing a bird's eye view on various business laws which will facilitate the students in having an understanding of theoretical knowledge of laws governing business.

At the end of the course, students will be able to

i. Interpret the concepts of business law.
ii. Determine the basics of performance of contract.
iii. Examine the basic frame work of the law relating to Indemnity, Guarantee and Surety.
iv. Predict recent amendments, rules, and regulations related to settling industrial disputes with relevant case law.
v. Apply the Information Technology Act and Right to Information Act in business.

UNIT I

Mercantile law- Introduction- Contract- Definition – Kinds- Essential elements, Offer- Types- Essentials- Revocation, Acceptance- Essentials and legal rules- Revocation, Consideration – Essentials- "No consideration, no contract"- Exceptions. **(20 Hours)**

UNIT II

Capacity- Law regarding minor's agreement- Persons of unsound mind- Persons disqualified by law, Freeconsent- Coercion- Undue influence- Misrepresentation- Mistake- Fraud, Performance of contract-Modes of performance, Discharge of contracts- Kinds - Remedies for breach of contracts. **(20 Hours)**

UNIT III

Contract of Indemnity and Guarantee- Rights of Indemnity holder- Difference between Indemnity and Guarantee- Rights of Surety- Discharge of Surety, Bailment and Pledge- Kinds of bailment- Rights and duties of bailee and bailor- Rights and duties of Pawnee and Pawner. **(20 Hours)**

UNIT IV

Industrial Disputes Act- Settlement mechanisms- Types of disputes- Offences and penalties- Health, safety and welfare measures of workers under Factories Act. **(15 Hours)**

UNIT V

Information Technology Act, 2000 – Definition- Digital signature and certificates- Duties of subscriber- Penalties and adjudication, Right to Information Act, 2005 – Origin- Objectives, Features- Process of filling- Challenges. **(15 Hours)**

Text Book

1. Kapoor N. D, Elements of Mercantile Law, Sultan Chand & Sons, New Delhi, 2017.

Books for Reference

1. Rajni Abbi, Bharat Bhushan, Rajiv Kapoor, Elements of Industrial Law, Sultan Chand & Sons, New Delhi, 2019.
2. Tuteja S.K, Business Law for managers, Sultan Chand & Sons, New Delhi, 2010.
3. Kuchhal M. C, Mercantile Law, Seventh Edition, Vikas Publishing House Pvt.Ltd., New Delhi, 2018.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

CIT 2457 VISUAL BASIC 4 Hrs / 4 Cr

The main aim of the course is to introduce the students, the basic of visual programming using Visual Basic. The course deals with GUI concepts, various Controls, Menus, Dialog boxes and creating of active X Controls in Visual Basic, which will facilitate students to understand concepts prevailing in corporates.

At the end of the course, students will be able to

i. Illustrate visual basic anatomy and philosophy of VB.
ii. Apply operators, constants and arrays in VB
iii. Compile of event-driven program execution flow control in visual basic programming, understand loops to do repetition.
iv. Devise intrinsic controls for form design
v. Develop application using menus and popup menus, understanding of database access and manage databases.

UNIT I

Introduction to Visual Basic- Features of Visual Basic- The Visual Basic Philosophy- The integrated development environment- The anatomy of Form- Project Types **(10 Hours)**

UNIT II

Dealing with Data- Operators- Variables- Declaring Variables- Types of Variables- Data types- Constant Arrays- Declining Arrays- Specifying Arrays- Multi dimensional Arrays- Dynamic Arrays- Array of arrays **(10 Hours)**

UNIT III

Writing Code- Collections- Procedures- Subroutines- Functions- Calling Procedures- Creating Classes & Object- I/O statements- Control Flow statements- If Oops concept- Then- if- then- else- Nested Control Statements- Select- Case- Loop Statements- Do-Loop- For – Next- While- Wend- Exit Statement **(10 Hours)**

UNIT IV

Creating an application using controls: What is on the toolbar -Textbox Control -Picture Box - Image Box -Label Box -Frame -List Box -Option Button -Combo Box Command Button- Check Box -Drive, Directory, File List Controls - Line & Shape Control -Scroll Box - Data –Timer **(15 Hours)**

UNIT V

Multiple Document Interface & Menus: Why MDI Forms -Features of an MDI forms - Loading MDI forms & child forms -Creating a simple MDI forms -Accessing MDI forms - Creating menus -Pop-up menus - Data Access Controls: JET database Engine -ADODC - DAO Data Control -ODBC Data Source Administrator –Data Report **(15 Hours)**

Text Book

1. Mohammed Azam, Programming with Visual Basic 6.0, Second Edition, Vikas Publication House Pvt Ltd, New Delhi, 2014

Books for Reference

1. Steven Holzner, Visual Basic .NET Black Book, Willey India Pvt., Ltd., New Delhi, 2010
2. Liew Voon Kiong, Visual Basic Made Easy, Tata McGraw Hill, New Delhi, 2013
3. Gary Cornell, Visual Basic 6.0., Mc Graw Hill Publishing Co., Ltd., New Delhi, 2017.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3					**5**	
CO4						**6**
CO5						**6**

Mean: 4.4

CIT 2459 DESK TOP PUBLISHING 4 Hrs / 4 Cr

This course is framed to impart basic knowledge on software relating to business and commerce with the rudiments of MS Word, MS Excel, MS PowerPoint.

At the end of the course, students will be able to

i. Identify desktop publishing terminology and concepts
ii. Manipulate text and graphics to implement in desktop publishing
iii. Appraise word processing features of MS Word
iv. Apply the features of MS Excel to manipulate data
v. create presentations animations using MS Power point

UNIT I

Understanding Technology- Desktop publishing Definition, Basic hardware components needed for desktop publishing and input/output devices, Basic software needed for desktop publishing. Design Principles- Effective use of colour, Colour tables, Fonts Types, clip art and other graphics in publications. **(15 Hours)**

UNIT II

Digital Imaging- Graphic file formats, Digital image from sources (such as scanner, digital cameras, Internet, etc), Factors that affect quality imaging. Conversion of various graphic file formats. Printing the Documents- Printer/publication for desired output. Uses of basic colour models (e.g., RGB, CMYK, etc.), preprint colour requirements. **(15 Hours)**

UNIT III

MS-Word- Basics of Word Processing, Understanding Button bars & Workspace, Creating Documents, Simple & Advance Tables, Bulleted & Numbered List, Column Style Documents. Using Graphics with Text, Features for Long Documents, Mail Merge & Macros, Shortcuts to Work Efficiently, Printing Documents **(10 Hours)**

UNIT IV

MS-Excel- Worksheet Basics, Simple & Advance Tables, Simple Calculation Formulas & Functions, Advance Formulas & Functions, Using Graphs, Pivot Tables & Charts, Consolidating Reports. **(10 Hours)**

UNIT V

MS-PowerPoint- Presentation Basics, Understanding Button Bars & Workspace, Creating Presentations, Using Animation & Transition Effects, Advance Animation Techniques, Using Hyperlinks, Using Multimedia Contents: Sounds – Videos - Flash, Creating Photo Albums **(10 Hours)**

Text Book:

1. 1.Vikas Gupta, DTP Course Kit, Dreamtech Press, New Delhi, 2016.

Books for References:

1. Joy L Starks, Microsoft publisher 2013, Cengage Learning, United States, 2014.
2. Kalpesh Patel, D.T.P (Desktop Publishing) Hand Book, Computer World Publication, Gujarat, 2012
3. Dorothy House, Microsoft Word, Excel and PowerPoint, Outskirts Press, Colorado,2015.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3					**5**	
CO4			**3**			
CO5						**6**

Mean= 3.4

CIT 2461 INFORMATION TECHNOLOGY 5 Hrs / 4 Cr

This course equips the students to compete in the present world. It includes introduction to computers, the architecture-hardware and software, telecommunication networking and cyber laws. It will be a breakthrough course for the current business world.

At the end of the course, students will be able to

i. Describe the growth of latest computer devices and technologies
ii. Outline the computer languages, software and operating systems
iii. Prepare documents, spreadsheet and presentations using office productivity tools
iv. Integrate technical hardware and software including network, database and security components.
v. Evaluate Enterprise Resource Planning, Core banking System and Management Information System.

UNIT I

Evolution of computers - Classification of digital computer systems – Anatomy of a digital computer – Memory units – Auxiliary storage devices – Input devices – Output devices- Overview of latest devices – Technologies – Bluetooth, Wi-Fi, NFC, Touchpad, iPad, iPod, Laptop, Notebook, Multimedia mobiles, Smart Phone. **(15 Hours)**

UNIT II

Generation of computer languages – Programming Languages – Computer Software – Types of software – System software, Utility Software – Operating Systems – Components of OS – MSDOS, Windows, Linux, Ubuntu, Mac, IOS, Android. **(15 Hours)**

UNIT III

Office Automation –Office Productivity tools – MS Office – Working with Word Document, Spread Sheet – Preparation of Spread Sheets in Excel – Power Point Presentation – Creation of Slides. **(15 Hours)**

UNIT IV

Network Topology – Components – Telecommunication Networks - Data networks– Data Warehouses – LAN, WAN, Wireless, Private and Public networks – Internet architecture – Internet Securities. **(15 Hours)**

UNIT V

ERP, Core Banking System – MIS, Emerging concepts – Grid Computing, Cloud Computing, Cloud delivery model. E-commerce and M-commerce technologies - Cyber Law - Information Technology Act, 2000. **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference

1. Rajaraman V, Introduction to Information Technology, PHI Learning, Delhi, 2018
2. Richard Fox, Information Technology, Chapman and Hall, Florida, 2015
3. Andrew S Tanenbaum & Albert S Woodhull, Operating Systems Design and Implementation, Second Edition Prentice Hall India, New Delhi, 2014
4. Alexis Leon &Mathews Leon, Fundamentals of Information Technology, Second Edition Vikas Publishing, New Delhi, 2014

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

CIT 2252 **Nkyhz;ikj; jj;Jtq;fs;** **3 Hrs / 2 Cr**

Nehf;fk; :

Nkyhz;ikj; jj;Jtq;fis gbg;gjd; *yk; khztHfs; Nkyhz;ikapd; nghUs;, Nkyhz;ikapd; Kf;fpaj;Jtk,; gzpfs;, Nfhl;ghLfs,; epiyfs; kw;Wk; Nkyhz;ikapd; ,ay;igAk; rpwg;Gj; jd;ikfisAk; mwpe;J nfhs;s KbAk;.

Nkyhz;ikj; jj;Jtq;fis gbg;gjd; %yk; khztHfs; fPo;f;fz;ltw;iw njhpe;J nfhs;fpd;wdH.

i. Nkyhz;ik gw;wpAk; mjd; jd;ikfs; Kf;fpaj;Jtk; gw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; Nkyhz;ikapy; cs;s gzpfs; Nfhl;ghLfs; gw;wpAk; mwpe;J nfhs;fpd;wdH.
ii. Jpl;lkpLjy; gw;wpAk; mtw;wpy; cs;s tiffis gw;wpAk; NkYk; mjd; ed;ik jPikfis gw;wpAk; fw;Wf; nfhs;fpd;wdH. NkYk; jpl;lkpLjypd; Kf;fpa $Wfs; gw;wpAk; mtw;wpd; ,ay;Gfs; gw;wpAk; mwpe;J nfhs;fpd;wdH.
iii. xOq;fikj;jy; gw;wpAk; mjd; ,ay;Gfs; Nfhl;ghLfs; ed;ikfs; kw;Wk; mjpy; cs;s ed;ikfs; Nfhl;ghLfs; kw;Wk; gbepiyfis mwpe;J nfhs;fpd;wdH.
iv. ,af;Fjy; kw;Wk; fl;Lg;gLj;Jjy; gw;wpAk; NkYk; mjpy; cs;s Kf;fpa $Wfs; jj;Jtq;fs; eilKiwfs; ed;ikfs; kw;Wk; jPikfis mwpe;J nfhs;fpd;wdH.
v. nray; Cf;Ftpj;jy; gw;wpAk; NkYk; mjd; rpwg;gpay;Gfs; gw;wpAk; njhpe;J nfhs;fpd;wdH. NkYk; jfty; eilKiw gw;wpAk; mjd; ed;ikfs; jPikfis gw;wpAk; jilfis mfw;Wk; Kaw;rpfisAk; mwpe;J nfhs;fpd;wdH.

myF 1

Nkyhz;ik - mwpKfk; - Njhw;wk;; - Nkyhz;ik nghUs; - ,yf;fzk; - rpwg;Gj; jd;ikfs; - Kf;fpaj;Jtk; - epiyfs; - gzpfs; - Nfhl;ghLfs; - epHthfk; kw;Wk; Nkyhz;ikf;fhd NtWghLfs;.

(9 Hours)

myF 2

jpl;;lkpLjy; - nghUs; - tiutpyf;fzk; - ,ay;G - ed;ikfs; kw;Wk; Kf;fpaj;Jtk; - FiwghLfs;- eilKiw/ gbepiyfs; - jpl;lj;jpd; nray; $Wfs; - jpl;lkpLjypd; tiffs; - KbntLj;jy; - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - tiffs;- eilKiw / gbepiyfs; - ed;ikfs; - FiwghLfs;.

(9 Hours)

myF 3

xOq;fikg;G - nghUs; - tiutpyf;fzk; - ,ay;Gfs; - Nfhl;ghLfs; - ed;ikfs; - gbepiyfs;/ eilKiw xOq;fikg;gpd; tiffs; - Kiwahd xOq;fikg;Gf;Fk; Kiwaw;w xOq;fikg;Gf;Fk; cs;s NtWghLfs; - mjpfhu xg;gilj;jy; - nghUs; - tiutpyf;fzk; - jd;ikfs;- eilKiwfs; / gbepiyfs;- Nfhl;ghLfs; - ed;ikfs;- FiwghLfs;. **(9 Hours)**

myF 4

,af;Fjy; -nghUs; - tiutpyf;fzk;- $Wfs; - jj;Jtq;fs; - jd;ikfs;- Kf;fpaj;Jtk; - ,af;Fjypd; topfs;. fl;Lg;gLj;Jjy;- nghUs; - tiutpyf;fzk; - rpwg;gpay;Gfs; - eilKiw- ed;ikfs;- fl;Lg;gLj;Jjypy; vOk; gpur;ridfs;.

(9 Hours)

myF 5

nray; Cf;fkspj;jy; - nghUs; -tiutpyf;fzk; - rpwg;gpay;Gfs; - jfty; eilKiw - ed;ikfs;- tiffs; - jfty; njhlHgpd; jilfs; - jfty; njhlHgpd; jilfis mfw;Wk; Kaw;rpfs; - nray; Cf;fkspj;jy; - nghUs; - rpwg;gpay;Gfs; - eilKiwfs; - Kf;fpaj;Jtk; - Nfhl;ghLfs;. **(9 Hours)**

TEXT BOOK

1. uhjh V,Nkyhz;ikj; jj;Jtq;fs;,gpurd;dh gg;sprH];, jpUty;ypf;Nfzp , nrd;id - 600 005.

Books for Reference

1. Lal and Prasad, Principles of Management, S. Chand Publishers, New Delhi, 2015
2. Prasad L M, Principles of Management, S. Chand Publishers, New Delhi, 2016
3. Mamoria C B, Personnel Management, Kitab Mahal, Kolkatta, 2012
4. Gupta C B, Human Resource Management, Sultan Chand, New Delhi, 2014

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3	**1**					
CO4					**5**	
CO5				**4**		

Mean : 3

CIT 2554 MANAGEMENT ACCOUNTING AND FINANCIAL CONTROL 5Hrs/5Cr

To enable the students to acquire knowledge of the Management Accounting Principles and Practices and familiarize them with the techniques of taking various financial decisions.

At the end of the course, students will be able to

i. Identify basics of management accounting and the statements Prepared.
ii. Interpret the results of the accounting statements with the help of management accounting tools.
iii. Recognize the right meaning of fund and know the importance of funds in a business.
iv. Calculate the amount of working capital needed in a company in accordance with the nature of business.
v. Determine the optimum capital structure that a company should have.

UNIT I

Introduction: Evolution, Meaning, Objectives and Scope – Tools and Techniques of Management Accounting – Relationship of Cost Accounting, Financial Accounting, Management Accounting and Financial Management – Role of Management Accountant in Decision Making. Analysis and Interpretation of Financial Statements – Nature, Attributes, Objectives, Importance, Limitations – Comparative and Common-size statements. **(8 Hours)**

UNIT II

– Ratio Analysis: Meaning – Uses, Classification, Advantages, Limitations – Problems on Ratio Analysis (Simple problems only). **(17 Hours)**

UNIT III

Cash Flow Statement – Fund Flow Statement – Difference between Cash Flow and Fund Flow Statement – Management Reporting – Problems on Cash Flow Statement (only). **(17 Hours)**

UNIT IV

Capital structure - Factors determining capital structure - theories of capital structure – Net Income approach, Net Operating Income approach, Traditional approach and Modigliani and Miller approach - application of theoretical concepts **(16 Hours)**

UNIT V

Dividend Policies – Meaning – Types of dividend - Relevance and irrelevance approaches – Walter's Model, Gordon's model and MM Hypothesis. **(17 Hours)**

Text Book

1. S.N.Maheswari,Management Accounting and Financial Control, Sultan Chand & sons, New Delhi,2015

Books for Reference

1. Dr. A. Murthy, Financial Management, Margham Publications, Chennai, 2016
2. Prof.T.S.Reddy and Dr.Y.Hariprasad Reddy , Management accounting , Margham Publications, Chennai, 2018.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3					**5**	
CO4				**4**		
CO5						**6**

Mean: 4.2

CIT 2656 CORPORATE LAW 6 Hrs / 6 Cr

The objective of this course is to help the students to understand the basic laws related with company and to impart the knowledge of various provisions of the Companies Act.

At the end of the course, students will be able to

i. Apply the principles of corporate law in a rigorous and principled manner in a company.
ii. Understand the use of the memorandum of association and article of association in a Company
iii. Prepare the prospectus of a company as per the legal requirements.
iv. Identify the appropriate modes of acquisition and terminations of membership in a company.
v. Understand the general objects, purposes and conduct of meetings in a company.

UNIT I

Company – Nature, scope, Meaning, Definition and characteristics of company – Formation and Incorporation - Kinds of companies - Merits and Demerits of Incorporation of company - Lifting the corporate veil. Salomon Vs Salomon & Co. **(15 Hours)**

UNIT II

Memorandum of Association - Meaning, Purpose, Contents., Alteration ofMOA, Doctrine of Ultra vires. Articles of Association - Meaning Purpose, Content. Alternation of AOA, Doctrine of Indoor Management, Doctrine of Constructive Notice. **(20 Hours)**

UNIT III

Introduction - Legal requirement of Prospectus- Misstatement in Prospectus - Liability for misstatement in Prospectus- Civil& Criminal Liabilities- Types of Prospectus-Abridged Prospectus, Deemed Prospectus, Shelf Prospectus, Red Herring Prospectus- Shares - Meaning, Types of Shares - Transfer of shares - Transmission of Shares- Comparison between transfer & Transmission Of shares- Share Capital, Meaning, Kinds, Alternation, - Voting Rights – Debenture, meaning, types, redemption on debentures **(20 Hours)**

UNIT IV

Company Management – Structure of Management – Appointment, Retirement, Qualifications, Remuneration, Powers & Duties of Shareholders – Board of Directors – Managing Directors – Other Executives - Members - Modes of acquisition of membership in a company- Eligibility- Rights and Liabilities of Members -. Shareholder Vs Member- Modes of termination of Membership in a company- Register of members-- Dividend - Rules as to Payment of Dividend **(15 Hours)**

UNIT V

Meetings - general objects and purposes of meetings -kinds of company meetings – statutory meeting - Statutory Report – annual general meeting –Extraordinary General Meeting-Requisites of valid meeting – Winding up- Modes of Winding up-Grounds of Winding Up-Petition for Winding Up-Consequences of Winding Up order-Official Liquidator-Powers & Duties of Official Liquidator. **(20 Hours)**

Text Book

1. NDKapoor, Elements of Company Law, Sultan Chand & Sons, New Delhi, 2016

Books for Reference

1. Dr.SK Tuteja, Business Law for managers, Sultan Chand & Sons, New Delhi, 2006
2. GK Kapoor, Lectures on Business & Corporate Laws, Sultan Chand & Sons, New Delhi, 2005
3. M C Kuchhal, Mercantile Law, Vikas Publishing House Pvt.Ltd., New Delhi, 2004.
4. Praveen, Suggested Answers in Mercantile Law, Sultan Chand & Sons, New Delhi, 2005.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4			**3**			
CO5				**4**		

Mean: 3.4

CIT 2458 PROGRAMMING IN C++ (T+L) 4 Hrs / 4 Cr

This course aims to equip students with good understanding about the concept of object-oriented programming using C++, and enable them to write and read basic C++ code. The course serves as a platform to gain knowledge related to commercial applications.

At the end of the course, students will be able to

i. Become familiar with the features of the language c++.
ii. Compare the usage of Pointers, Arrays and structures and write programs using them.
iii. Create programs using functions, macros and namespace
iv. Appraise files, special functions and memory management
v. Build applications using Operator overloading and class hierarchy.

UNIT I

Introduction: Introduction to Flowchart – Algorithms – Introduction to C language, what is C++? Why C? and C++, Exception Handling, Object Oriented Programming, Standard Template Library, Types and declarations – Types – Booleans - Integer Types – Floating-Point Types, Sizes, Void, Enumerations, Declarations **(15 Hours)**

UNIT II

Pointers, Arrays and Structures: Pointers – Arrays - Pointers into Arrays – Constants – References–Pointers To void – Structures, Expressions and Statements: A Deck Calculator, Operator Summary, Statement Summary, Comments and Indentation **(10 Hours)**

UNIT III

Functions: Function Declarations, Argument Passing, Value Return, Overloaded Function Names, Default Arguments, Pointer to Function, Macros, Namespaces and Exceptions: Namespaces–Exceptions **(10 Hours)**

UNIT IV

Source Files and Programs: Separate Compilation, Linkage, Using Header Files, Programs, Classes - Access Control, Constructors, Member functions, Static members, Destructors, Memory allocation, Member initialization **(10 Hours)**

UNIT V

Operator overloading: Introduction, Operator Functions, A Complete Number Type, Conversion Operators, Friends, Large Objects, Essential Operators, Subscripting, Functions Calls, Dereferencing, Increment and Decrement, A String Class, Derived class, Abstract Classes, Design of Class Hierarchies, Class Hierarchies and Abstract Classes **(15 Hours)**

Text Book

1. Herbert Schildt, The Complete Reference C ++, McGraw Hill Publication, New Delhi, 2017

Books for Reference

1. Walter Savitch, Kenrick Mock, Problem Solving with C++, Pearson Education, Chennai, 2017
2. Bjarne Stroustrup, The C++Programming Language, Revised Edition, Pearson Education India, Chennai, 2012
3. Scott Meyers, Effective Modern C++: 42 Specific Ways to Improve Your Use of C++11 and C++14, O'Reilly Publications, 2014.

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5						**6**

Mean= 3.2

CIT 2460 WEB DESIGNING (T+L) 4 Hrs / 4 Cr

This course facilitates the students to understand the fundamentals of web designing and to conceptualise creative ideas for building websites.

At the end of the course, students will be able to

i. Become familiar with the basics of Internet and web server
ii. Understand the features of HTML and create a web page
iii. Use text formatting, include tables, images to a html page
iv. Construct web pages with division/layers, frames.
v. Design web pages with forms, hyperlinks and using style sheet

UNIT I

Basics of Internet- Web Server, Web sites- Web browsers Elements of website- Operations on web pages, History of the Internet- Connecting to the Internet- Internet Service Providers- DNS Servers- Connection Types- Various Devices used for Internet Connectivity- Data Security and Fire walls - Down loading and sending mails – Static and dynamic web pages.

(10 Hours)

UNIT II

Hyper Text- HTML Document features- Documents structuring tags in HTML- Lining your way around the Web- Publishing hour HTML document- Understanding the HTML document life cycle- Site design and Navigation- Planning and Designing Your Web Pages, Web Publishing- Basic HTML Concepts -HTML: Structured Language -Overview of HTML - Web Browser -WWW -Web Server - HTML -HEAD -TITLE -BODY -Paragraphs -Lists

(15 Hours)

UNIT III

Formatted and Unformatted Text -Extended Quotations -Address -Horizontal Rules - Hyperlink -Font (Size, Colour) -Image (Add, Alignments) -Table -Cell Spacing / Cell Padding -Frame Set-Form Designing Web Pages: Working with text -Inserting Images - Web Graphic Format GIF, JPEG, PNG -Inline Images -Background images **(10 Hours)**

UNIT IV

Banner Ads -Rollover Images -Establishing Web Links -Understanding URLs -Adding an E-Mail Link -Navigating with Anchors Working with Divs and Layers -Placing tags - Creating Layers -Modifying a Layer- Creating Lists -Unordered Lists -Ordered Lists - Definition Lists -Nested Lists, Tables, Frames and Framesets: HTML Table Fundamentals

(15 Hours)

UNIT V

Creating forms, lists and Menus - Activating forms with buttons - Using Hidden fields and File fields - Frames and Framesets Basics -Creating a Framesets and Frames -Adding more frames -Modifying a frame -Targeting Frame Contents, CSS cascading Style sheets- Using the style Attribute- Creating Classes and IDs- Generating Inline- Internal and External Style Sheets. **(10 Hours)**

Text Book

1. Raj Kamal, Internet and Web Technologies, Mc-Graw Hill Education, New Delhi, 2017

Books for Reference

1. Randy Connolly, Ricardo Hoar, Fundamentals of Web Development, Pearson, Chennai, 2016
2. Thomas A Powell, HTML: The Complete Reference, McGraw-Hill Osborne Media, California, 2000
3. Monica D' Souza & Jude D' Souza, Web Publishing, Tata McGraw-Hill Publishing, 2001

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3			**3**	**4**		
CO4						
CO5						**6**

Mean: 3

CIT 2462 E-COMMERCE 5 Hrs / 4 Cr

This course makes the student familiar with the mechanism of conducting business transactions through electronic media, understand the methodology of online business dealings using e-commerce infrastructure.

At the end of the course, students will be able to

i. Describe the growth of e-commerce.
ii. Examine the various e-commerce models.
iii. Demonstrate the role of internet in e-commerce.
iv. Apply e-payment systems and web marketing.
v. Determine internet security, maintaining secure information, digital signatures and firewalls.

UNIT I

Introduction to E-Commerce- Features and functions of e-commerce- e-commerce practices viz. traditional practices- Scope and limitations of e-commerce- e-commerce security- Benefits- Impact of e-Commerce- State of e-commerce in India- Problems and opportunities in ecommerce in India- Legal issues- Future of e-commerce. **(15 Hours)**

UNIT II

Classification of E-Commerce- Framework of e-Commerce, e-Commerce Business Models - Business to Business, Business to Customer, Customer to Customer. EDI-Process - Components - Benefits. Service provider- e-distributor- Procurement and Just-in-Time delivery **(15 Hours)**

UNIT III

Internet and its role in e-commerce- Procedure of registering Internet domain, Establishing connectivity to Internet- Tools and services of Internet, Procedure of opening e-mail accounts on internet. **(15 Hours)**

UNIT IV

Transactions through Internet- Requirements of e-payment systems- Functioning of debit and credit cards- Pre and post payment services, Marketing on the web- Marketing strategies- Creating web presence- Advertising- Customer service and support- Web branding strategies- Web selling models- Online booking systems- Online booking procedure of railways, airlines, tourist and religious places, hotels and entertainment industry **(15 Hours)**

UNIT V

Setting up Internet security- Maintaining secure information- Digital signature and their security measures- Authenticity- Privacy- Integrity- Non-repudiation- Encryption, Secret key cryptography- Public key cryptography, SET, SSL, Firewalls **(15 Hours)**

Text Book

1. Justin Manohar J, Dr. Antony Mary Vinothini C & Beulah R, Study Module on Information Technology and E-Commerce, Department of Commerce, The American College, 2020

Books for Reference:

1. Joseph P. T, E-Commerce: An Indian Perspective, Prentice Hall India, New Delhi, 2019.
2. Bharat Bhasker, Electronic Commerce: Framework, technologies and Applications, Tata McGraw Hill, New Delhi, 2008
3. Dave Chaffey, Digital Business and E- Commerce Management, Pearson Education Limited, Delhi, 2015
4. David Whiteley, E-Commerce: Strategy, Technologies and Applications, Tata McGraw Hill, New Delhi, 2017

Bloom's Taxonomy						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3				**4**		
CO4						**6**
CO5			**3**			

Mean: 3.8

DEPARTMENT OF RELIGION, PHILOSOPHY AND SOCIOLOGY

Value Added Courses

w.e.f. 2020-2021

Semester	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDIT
3	RPS 221V	Gender Sensitisation	2	2
5	RPS 321V	Critical Thinking for Decision Making	2	2

RPS 221V **GENDER SENSITISATION** **2 Hrs/2 Cr**

Gender sensitisation plays an important role in the development and growth of the society. Sensitising students to issues related to gender and equality will provide them with the skills to develop and integrate a gendered perspective in work and life. The Course is offered for second year undergraduate RPS students.

This course aims at developing an understanding about gender issues and their adverse effects on women, men and transgender. It aims at sensitising students about integrating gender sensitive practices in their personal and professional life.

On completion of the course, students should be able
To understand Gender and the basic differences between Sex and Gender
To identify Gender Norms and gender Stereotypes
To analyse Gender Discrimination practices, prevalent in society
To critically evaluate Gender based Violence and Gender Justice
To apply Gender sensitivity in their daily life

Unit I: Understanding Gender - Differences between Sex and Gender -Patriarchy(6)

Unit II: Gender Norms - Gender Socialisation-Gender Stereotypes in Media(6)

Unit III: Gender Discrimination -Gender Equality -Gender Equity (6)

Unit IV: Gender Bias - Gender based Violence - Gender Justice (6)

Unit V: Gender Sensitivity –Gender Balance -Gender Mainstreaming (6)

Methodology of teaching-learning

One hour of teaching a gender related concept and one hour of interaction or discussion on implication of the same in society

References

1. Chanana, Karuna. (1988). Socialization, Women and Education: Explorations in GenderIdentity, New Delhi: Orient Longman.
2. Dube, Leela. (1997). Women and Kinship: Comparative Perspectives on Gender inSouth and South-East Asia. Tokyo: United Nations University Press.
3. Bhasin, Kamla.,(2000). ‘Gender Basics, Understanding Gender’, Delhi: Women Unlimited
4. S. Jackson and S. Scott (eds.) (2002) Gender: A Sociological Reader,London: Routledge

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		2				
CO2		2				
CO3				4		
CO4					5	
C05			3			

Mean = 3.2

RPS 321V CRITICAL THINKING FOR DECISION MAKING 2 hr/ 2cr

Critical thinking is an important prerequisite for an effective learning in any given discipline. It fine tunes the mind to argue and focus on arriving distinct conclusion and decision making.

This course aims at increasing the student's skills in critical thinking. Further, this course helps the students to analyze and assess the arguments that he encounters in everyday life and equip them to formulate and present cogent arguments of their own.

On completion of the course, students should be able

CO 1: To describe the aspects of critical thinking
CO 2: To recognize and to reconstruct arguments
CO 3: To execute valid arguments
CO 4: To distinguish emotive and real content in the advertisements
CO 5: To evaluate effective management of news broadcasting

UNIT I: Introduction to Critical Thinking Through Arguments (6)

Aspects of Critical Thinking- verbal evidence that supports assertion-Arguments-Recognizing and Reconstructing Arguments- Deductive and Inductive Reasoning-Good and bad reasoning.

UNIT II: Deductive and Inductive Arguments (6)

Deductive validity and Deductive Invalidity-Syllogisms- Conditional Arguments-Statistical Induction- Reasoning by analogy-Arguments based on samples- Deductive and Inductive Fallacies.

UNIT III: Causal Arguments (6)

Mill's method of establishing causal claims-Rules of Agreement, Rules of Difference, Rules of Agreement and Difference- controlled Experiments.

UNIT IV: Critical Thinking and Advertising (6)

Promise Advertisements and Identification Advertisements-Critical views on Advertisements- Ads and fallacious reasoning- ads and its play on weakness, emotions, prejudice, fears, patriotism and loyalty.

UNIT V: Critical Thinking and Management of News (6)

The media and the power of money, News gathering methods, Misdirection and lack of Proportion, News Reporting : Theory and Practice- Devices used to slant the news- The Social media as a rescue-Recent developments.

Books for Reference:

1. ”Introduction to Logic and Critical Thinking”, Merrilee H. Salmon, Harcourt Brace Jovanovich Publishers, New York, 1989
2. “Logic and Contemporary Rhetoric”, Howard Kahane and Nancy Cavender, Thompson Wadsworth Publishers, USA, 2006

	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		1				
CO2	2					
CO3			3			
CO4				4		
C05					5	

Mean = 3

DEPARTMENT OF PHYSICAL EDUCATION

w.e.f. 2020-2021

Sem	Part		Course Code	Title	Hr/ Wk	Cr.	Marks
I	Part I		TAS/FRS/HIS		3	2	30
	Part II		ENS 1201	Conversational Skills	3	2	30
	Part III Major	Core	BPE 1421	Foundation of Physical Education & Sports	4	4	60
			BPE 1523	Application of Sports Training Modalities	5	5	75
		Supportive	BPE 1425	Practical – I – Track & Field Marking	5	4	60
			BPE 1427	Practical – II – Gymnastics	4	4	60
	Part IV	Non-Maj. Elect.	BPE 1201	NME – Diet and Food Awareness	3	2	30
		Life Skill I	BPE 1203	LS 1 – Remedial Yoga	3	2	30
	Part V	*Extension*	PED 1212	PED	-	-	-
				Total	**30**	**25**	**375**
II	Part I		TAS/FRS/HIS		3	2	30
	Part II		ENS 1202	Reading & Writing Skills	3	2	30
	Part III Major	Core	BPE 1422	Theories of Sports & Games – 1	4	4	60
			BPE 1424	Practical III – Track and Field – 1	4	4	60
			BPE 1528	Theory – Human Anatomy	5	5	75
		Supportive	BPE 1420	Practical IV – Game of Specialization - 1	5	4	60
	Part IV	Non-Maj. Elect.	BPE 1202	NME – Recreation and Leisure Time Management through Sports	3	2	30
		Life Skill II	BPE 1204	LS 2 – Fitness in Sports	3	2	30
	Part V	Extension	PED 1212	PED	2	1	30
				Total	**30+2**	**25+1**	**375+ 30**
III	Part I		TAS/FRS/HIS		3	2	30
	Part II		ENS 2201	Study Skills	3	2	
	Part III Major	Core	BPE 2521	Health Education, Safety Education, & First Aid	5	5	75
			BPE 2523	Theory – Track & Field	5	5	75
			BPE 2525	Theories of Yoga	5	5	75
			BPE 2427	Practical V –Track & Field - 2	4	4	60
		Supportive	BPE 2429	Practical VI - Yoga	5	4	60
	Part V	Extension	PED 2212	PED	-	-	-
			Total		**30**	**27**	**405**

Sem.	Part		Course Code	Title	Hr/ Wk	Cr.	Marks
IV	Part I		TAS/FRS/HIS		3	2	30
	Part II		ENS2202	Career Skills	3	2	30
		Core	BPE 2522	Theory – Sports Injuries	5	5	75
			BPE 2424	Theory – Methods in Physical Education	4	4	60
			BPE 2526	Theories of Sports & Games – 2	5	5	75
			BPE 2428	Practical VII – Massage Physiotherapy and Therapeutic Exercises	5	4	60
		Supportive	BPE 2530	Practical VIII – Game of Specialization – 2	5	5	75
	Part V	Extension	PED 2212	PED	2	1	30
				Total	**30+2**	**27+1**	**405+30**
V	Part III Major	Core	BPE 3521	Theory – Test, Measurement & Evaluation and Computer Applications in Physical Education	5	5	75
			BPE 3623	Theory – Exercise Physiology	6	6	90
			BPE 3625	Practical IX – Test and Measurement	6	6	90
		Innovative	BPE 3627	Practical X – Track & Field – 3	6	6	90
	Part IV	Life Skill Course	BPE 3229	Theory – Indigenous Martial Arts	3	2	30
	Part IV	EVS	BPE 3209	Environmental Factors & Sports Performance	4	2	30
				Total	**30**	**27**	**405**
VI	Part III Major	Core	BPE 3522	Theory – Psychology and Sociology of Physical Education & Sports	5	5	75
			BPE 3624	Theory – Fundamentals of Kinesiology & Biomechanics	6	6	90
			BPE 3626	Practical XI – Track & Field – 4	6	6	90
		Innovative	BPE 3628	Practical XII – Game of Specialization –3	6	6	90
	Part IV	Life Skill Courses	BPE 3230	Infrastructure in Sports & Games	3	2	30
		HVS	HVS	Human Values	4	2	30
				Total	**30**	**27**	**405**
				Grand Total for semesters I-VI	**180+4**	**158+2**	**2370+60**

Programme specific outcomes (PSOs) for B.Sc., Physical Education

On completion of the programme graduates will be able to

1. Understand the Physical, Mental, Moral, Social and spiritual values to shape themselves up as a physically strong intellectually informed personality.
2. Apply the knowledge of this science to evaluate the health status of an individual at normal and emergency situations to develop safety measures to be implemented as a strategy for first aid according to the need.
3. Use the experience gained in the study as equivalent to that in any other science course that they would be able to sit for competitive exams and pursue carrier as administrators and professionals.
4. Plan and organize the competitions intramural and extramural in order to look for raw talents at grass root level and train their wards into sports personalities of national and international level.
5. Analyze the human movement by way of applying kinesiology and biomechanics and visualize the importance of movement education to recognize and deal with unpredictable and hidden deformities to recommend for corrections or for medical interventions.
6. Use the knowledge of test and measurements as valuable tools to build infrastructure facilities and amenities as gym and fitness centre to motivate the rural and deprived to develop their sport talents
7. Analyze facts of Yogic principles and concept of yoga practice to impart values and spiritual ethics to men and women in the community that they may be relieved of their emotional stress and relationship constrains.
8. Advocate sports psychology and sociology a special endeavor highlighting its merits and demerits to the pupil and public cordiality and friendship that can be fostered among individual and groups to provide good citizenship value
9. To hire the sports scientific training modalities and experiment creating and sharing resources to install shared public amenities
10. To ensure that with their presence as physical education teacher, organizer and guide with social and ethical values that they can act as change agents and create strong human resource for this nation.

Mapping of Course Outcomes (COs) With Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
BPE 1421	✓	✓	✓					✓	✓	✓
BPE 1523		✓	✓	✓		✓			✓	✓
BPE 1425		✓	✓	✓	✓	✓		✓	✓	✓
BPE 1427	✓	✓	✓	✓	✓	✓		✓	✓	✓
BPE 1201	✓	✓		✓				✓	✓	✓
BPE 1203	✓	✓	✓	✓	✓		✓	✓	✓	✓
BPE 1422	✓	✓	✓	✓	✓	✓		✓	✓	✓
BPE 1424	✓	✓	✓	✓	✓	✓		✓	✓	✓
BPE 1528	✓	✓	✓		✓			✓	✓	✓
BPE 1420		✓	✓	✓		✓			✓	✓
BPE 1202	✓	✓	✓	✓		✓			✓	✓
BPE 1204	✓	✓		✓		✓			✓	✓

SEMESTER I

BPE 1421 Foundation of Physical Education and Sports 4Hr/4Cr

The course aims at

1. Utilize wholesome development of the human nature is right absorbed along with the scientific principle enveloped in the subject matter.
2. Apprehend most of the sports and youth welfare programmes imbedded in the field is explored to the students in an effective manner.
3. Utilize the value of Olympic movement, N.S.S, N.C.C as a whole and comprehend the nature of Arjuna, Dronacharya and Rajiv Gandhi Khel Ratna awards.

At the end of the course, the students will be able to:

i. To imbibe the nature of good citizenship among the public with this knowledge.
ii. Inter personal relationship can be enriched among the young ones in the school through the sciences and scientific principles.
iii. National program of Physical Education and the awards and scholarship shall be introduced to the public
iv. Endorsement of Olympic motto to the rural folk
v. Make others understand the relationship among N.C.C., N.S.S, youth festival and youth hostels etc.

THEORY

Unit 1 - Introduction

Meaning and nature of Physical Education and Sports – Aims and objectives of Physical Education and Sports – Physical Development – Mental Development – Social Development – Moral Development – Emotional Development – Spiritual Development – Development of Neuro-Muscular Co-ordination – Development of good citizenship – Worthy use of Leisure

[

Unit 2 – Physical Education as Science

Scientific basis of Physical Education and Sports – contribution of allied sciences – Anatomy Physiology –Kinesiology – Sports Psychology –Sociology – Bio-mechanics – Anthropometry

Unit 3 – Organization in Physical Education

National Programmesof Physical Education and Sports – Sports Authority of India – National coaching schemes –Sports talent search scholarship –Women sports festival – National awards (Arjuna Award – Dronacharya Award – Rajiv Gandhi Khel Ratna Award – Lift time Achievement award)

Unit 4 – Olympic Movement

Olympic movement –Motto (Citius – Faster, Altius – Higher, Fortius – Stronger) – Olympic Flag & Ring (Blue – Europe, Black – Africa, Red – America, Yellow – Asia and Green – Australia) – Olympic Oath – itsimpact on Physical Education and Sports – the contribution of Olympic movement towards international understanding

Unit 5 – Youth Activities in India

Youth Welfare Programme –N.C.C – N.S.S – Youth hostels –SGFI – RDS – BDS – Sports Development Authority of Tamilnadu

Textbook

1. Charles,B.A.,1988, **Foundation of Physical Education**, The C.V. Mosby company, St.Louis.

References

1. Kamlesh,M.L.,1997. **Foundations of Physical Education**. Metropolitan Book pvt. Ltd. New Delhi.
2. John,H.L.,1969,**A brief history of Physical Education**. The Ronald press company, New York.
3. Kamlesh,M.L.,1988,**Physical Education facts and Foundations**.Choushan Printing press. New Delhi.
4. Thiru. Narayanan,C., and Hariharasarma. S., 1985, **An Analytical history of Physical Education**,The South India press, Karaikudi.
5. Willgoose,C.,1984,**Curriculum Physical Education**, Prentice-Hall, New Jersey.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3						6
CO4		2, 2				
CO5					5	

Mean: 4

BPE 1523 Applications of Sports Training Modalities 5Hr/5Cr

Course Objective
The course aims at

1. Basics of sports training and its characteristics handling brought to the reach of the students.
2. All the basic principles of sports training were utilized in the preparations of young sports man.
3. Fitness factors or components were totally incorporated into the athletes performance development
4. Modern training programmes facilities and contributions shot listed through the syllabus.
5. Workout schedule, periodisation, types of cycles decorated through the subject matter.

Course Outcome
At the endof the course, students will be able to:

i. Explain the basics of training and produce casual results in the professional competition.
ii. Give examples of the principles of training and solve the problem.
iii. Differentiate the fitness factors can be scientifically rescheduled in their work place.
iv. Compare the training programme can be effectively incorporated in their training schedule.
v. Evaluate the training plans and cycles which will be very effective due to their technical empowerment.

Unit 1 – Introduction

Meaning and Definition (Performance Enhancing) – Aims (Goal Setting) – Tasks (Enriching Performance) and Characteristics of Sports Training – Importance of warm-up and Limbering down

Unit 2 – Training Programme

Meaning of Training load – Components of training load (Intensity – Density – Frequency –Volume – Load – Rest and Recovery) – Training – Detraining – Retraining – Training Graph – Plateau & Peak Performance – Load (Constant Resistance – Progressive Resistance – Variable Resistance) – Important features of Training Load – Types of Training Load – Training and Adaption

Unit 3 – Physical Components (Strength and Endurance) in Training

Meaning of Strength – forms of Strength – factor determining strength – methods to development of strength
Meaning of Endurance – Forms of Endurance – Factor determining Endurance – Methods to development of Endurance

Unit 4 – Physical Components (Speed, Agility & Coordination) in Training

Speed (Running Speed – stride length, Frequency – Moving Speed (Agility) – Displacement, Disposition) – Flexibility (Active – Ballistic) – Coordination (Balance & poise)

Unit 5 – Training Schedule

Training Plan – Types of Cycles (Micro – Meso – Macro) –Training workout schedule – Training in high altitude and sea level

Textbook

1. Singh, Hardhayal, 1984, **Sports Training General Theory and Methods**, NIS Patiala,

References

1. Tudor O. Bumpa, 1999, **Periodization Training for Sports,** ISBN: 978-1-4504-6943-2.
2. Williams,J.LL1977, **Athletic Training and Physical Fitness**. Allyn and Bacon Inc.Sydney.
3. Dick Frank.,1982, **Sports Training Principles**,Times Mirror Mosby publishing.
4. Mathew,L.P.1993, **Fundamental Sports Training**, Publication Prentice Hall

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2	3			
CO3				4		
CO4					5	
CO5					5	6

Mean: 5.4

BPE 1425 Practical – I – Track and Field Markings 5Hr/4Cr

Course Objective
The course aims at

Enables students to be familiar with the procedure of Track Events marking

Course Outcome
At the end of the course, students will be able to:

i. Classify and compare the planning and construction of standard track marking.
ii. Apply Stagger distance marking for half and full stagger for the convenience of conducting track and field events
iii. Plan to construction the long jump and triple jump pits and apply the rules.
iv. Recommend to prepare and construct shot put sector.
v. Assess the discus and hammer throw circle and sector and prepare the cage.

Markings:

Track Marking:

Planning and construction of a Standard Track Marking of the starting lines – calculation of Staggers – Calculation – Diagonal excess distance – curved start – split start – 4 x100 M relay marking - 4 x 400M relay marking

Jump Events:

Long Jump – Triple Jump

Throw Events:

Shot Put – Javelin – Discus – Hammer Throw

Textbook

1. Lamine.D., Athletic Federation of India "Competition Rules Hand Book:, New Delhi,2010.

References

1. Bosen,K., "Athletics", NIS Publication, Patiala,1996.
2. Sharma.N.P.,"Fundamentals of Track and Field", Khel Sahitya Kendra, New Delhi,2005.
3. Vijayalakshmi. V., "Principles of Athletic Training" Khel Sahitya Kendra, New Delhi,2004.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			6
CO2			3			
CO3			3			6
CO4			3			
CO5			3		5	

Mean: 6.4

BPE 1427 Practical – II Gymnastics 4Hr/4Cr

Course Objective
The course aims at

- To enable the students to involve in Gymnastic activities for developing multiple skills
- To get rid of slight injuries from falling and sliding due to Gymnastics practices

Course Outcome
At the end of the course, students will be able to:

i. Examine the importance of Gymnastics
ii. Explain the qualities of Gymnastics by practicing all exercises to solve the problem.
iii. Knowledge of Gymnastics exercise prepares them to get rid of severe accidents, judge associate.
iv. Plan gymnastics exercise to get success and discriminate.
v. Diagnose the best quality through gymnastics exposure.

Floor Exercises

- Forward Roll
- Backward Roll
- Leg Split Forward Roll
- Leg Split Backward Roll
- Jump and Roll

Textbook

1. Claës J. Enebuske, 2018 **The Gymnastic Progression,** Franklin Classic Trade Press, ISBN: 9780344456442

References

1. William Albin Stecher, 2018 **Theory and Practice of Educational Gymnastics for Boys”**, Franklin Classic Trade Press, ISBN: 9780343981280

Mapping Course Outcome with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1				4		
CO2		2	3			
CO3			3		5	
CO4				4		6
CO5				4		

Mean: 6.2

BPE 1201 NME – Diet and Food Awareness 3Hr/2Cr

Course Objectives
The course aims at
Enable students to

1. Evaluate the qualities of Diet and Food
2. Understand the worthiness of Nutrition as Medicine
3. To get rid of Mental and Physical ailments through Balanced Diet

Course Outcome
At the end of the course, students will be able to:

i. Name the main process to deal with growth and development may enable their effective understanding of importance of food.
ii. Knowledge of Diet and balance diet will help them to alter diet for everyone obese, youth & young aged and sick and criticize.
iii. Make them understand the classifications of nutrients and requirement of nutrients for aged and sports persons
iv. Evaluate the measurements of nutrients, calories;joule will help them prescribe food for everyone. BMI, basal metabolic index will provide the required level of diet.
v. Effective energy expenditure and diet choice to provide them a tool to plan a food chart for the needed person.

Unit 1 - Introduction
Meaning of food – Classification of Food (Vegetarian & Non vegetarian)

Unit 2 – Diet Programme
Meaning of Diet – Classification of Diet (Seasonal – Regional) – Control Diet (Fasting) – Balanced Diet – Athletics Diet

Unit 3 –Awareness of Food & Diet
Awareness of food & diet – Avoid Jung food – Obesity – Food poison

Unit 4 – Meal Plan
Calorie values – Pre competition meal plan – On competition meal plan – Transition meal plan

Unit 5 – Components of Food & Diet
Water – Minerals – Dehydration – Calcium – Phosphorous

Textbook

1. V. Satyanarayana, 2019,"**Sports Nutrition and Weight Management"** Sports Publication, ISBN: 9788178798998

References

1. Clark Nancy, 2018,"**Sports Nutrition Guidebook**" Human Kinetics Publishers, ISBN: 9780736074155
2. Wolfe J.Kevin, 1999, "**Fat Free Junk Food**" Random House USA Inc, ISBN: 9780517887264

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2			5	
CO3			3			
CO4					5	
CO5				4		6

Mean: 5.6

BPE 1203 **Remedial Asana** **3Hr/2Cr**

Course Objectives

The course aims at

Enable students to

1. Realized the value of the pranayama procedure
2. Important features of asanas and kriyas will be well nourished
3. Mode of relaxation cane be understood in the modern world.

Course Outcome

At the end of the course, students will be able to:

i. Enhance cardiovascular respiratory functions cite through practices and explain.
ii. Better Digestion system and to avoid the digestive problem through predictions.
iii. Relate to improved Nervous functioning mental aptitude developed through this diagnose.
iv. All the chakkaras functions are better knows for balance lift style - distinguish
v. Better able to understand stress management through relaxation technique and apply in the suitable situation – evaluate the level.

Unit 1 – Pranayama for Cardio vascular Respiratory system

1. Puraka – Inhalation 2. Kumbhaka– Retention of breath 3. Rechaka- Exhalation

Unit 2 – Asanas for Digestive System

1. Paschimottanasana 2. Vajarasana 3. Halasana

Unit 3 – Asana for Nervous system

1. Kapalabathi 2. Padmasana 3. Sarvanganasana

Unit 4 - Asana for Endocrine and Exocrine Glands

1. Sirasana 2. Bhujangasana 3. Chakarasana

Unit 5 - Asana for Relaxation

1. Shanthiasana

Textbook

1. B.K.S.Iyankar, **Light on Yoga** Harper Collins Publications,Delhi,2002

References

1. Swami Kuvalayananda, **Asanas**, Kaivalyadhama, Lonavala,Pune,1991.
2. Mariayyah.P, Asanas, Sports Publishers, Raja Street, Coimbatore-1,1995.
3. Mariyyah.P, Suriyanamaskar Jaya PublishingHouse,Erode,1997
4. Chandrasekaran.K, Sound Health Through Yoga, Prem Kalyan Publications,Sedapatti, Madurai,1999.
5. JeyaveeraPandian.V. Yoga and Sports, UVN-Publications-Sivakasi,Tamilnadu 2009

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2			3			
CO3			3	4		
CO4			3	4	5	
CO5						

Mean: 5

BPE 1422 Theories of Sports andGames – 1 4Hr/4Cr
(Football – Hockey – Badminton – Tennis)

Course Objectives

The course aims at

Enable students to

1. Trace the history and working federations.
2. Develop the fundamental skills and techniques.
3. Acquire the physiological training, warming-up and motor qualities.
4. Become familiar with the rules and regulations and their interpretations.

Course Outcome

At the end of the course, students will be able to:

i. Prepare the unique history of each game namely Football, Hockey, Badminton and Tennis.
ii. Establish the rules and interpretation of the game and officiating to become a professional.
iii. Apply the fundamental skills and its techniques in Football, Hockey in order to prepare the match.
iv. Criticize the rules while learning the fundamentals in Badminton.
v. Plane the technical learning and judge the outcome of performance.

THEORY

The following games are included in the syllabus of the course.

- Football – Hockey - Badminton – Tennis andthe general format for covering the aspect for each of the above game is given below.

Unit 1 –History and Layout of Games

1. History of games and working federations.
2. Play fields a) Layout and maintenance of play field. b) Equipment and their specification.

Unit 2 – Officiating

a) Rules and their interpretation. b) Method of officiating.

Unit 3 – Game Skills inFootball and Hockey

Elements of Game Skill

a) Pass and passing techniques, passing techniques, passing drills
b) Trapping-receiving and ball control techniques.
c) Dribbling and running with the ball-dribbling drills.
d) Types of kicks:
1. Low drive. 2. Lifted kicks.3. Half volleys. 4. Punt kicks and Volleys.
e) Kicking and shooting practices, heading techniques, heading drills.
f) Goal keeping techniques, goal keeping drills.

HOCKEY

Fundamentals of techniques and basic skills:
a) Grip. b) Hitting. c) Stopping. d) Dribbling. e) Push. f) Scoop.
g) Hitting on the wrong foot h) Dodging and tackling i) Reverse hit j) Flick.

Set Plays
Corners, penalty corners, Hit-in, Push-in, penalty stroke

Unit 4– Game Skills inBadminton (Fundamental skills)

Holding the racket

i. Forehand grip ii. Backhand grip.

Holding the shuttle

i. Mid grip ii. Base grip iii. Top grip

Foot work for various strokes

i. Forehand strokesii. Backhand strokes. iii. Overhead stroke iv. Round and Head stroke

Basic shots

i. Smash ii. Lob, toss or clear. iii. Netshot iv. Drive.

Singles service

i. High Lob service ii. Low serviceiii. Medium service

Doubles service

i. Low or long service ii. Drive or shuttling service iii. High flick service (High and Low)

Unit 5 – Game Skills in Tennis

Fundamentals of techniques and Basic Skills:

1. Forehand-grip, ready position, foot work, back-swing point of impact, Follow through
2. Back hand – as above.
3. Service – grip, stance, back swing, point of impact follow through.
4. Volleys – grip, ready position.
5. Lobs – offensive, defensive.6. Smash.7. Drop shot.

Variations in

i) Ground strokes ii) Service iii) Volleys iv) Lobs

Textbook

1. Goel.R.G,1975, Encyclopediaof Sports And Games,Vikaas publishing house ,Pvt., Ltd., Delhi.

References

1. F.I.F.A.,1986,Referee's charge and players guide to Laws of Association Football, Pan Books Ltd., Caraya place, London.
2. Hayleft, J. and Evelians,1989,The Illustrated Encyclopedia of World Tennis,Exter Books, New York.
3. Jones,C.M.1973,Improving Your Tennis, Faber and Faber Publications, London.
4. Singh,G.1978, Olympic Hockey on Astroturf, Services Publishing House, Delhi.
5. Ashok kalra, A.P., 1993, Badminton, Surjeet Printing Press, Jalandher – 8.
6. Baddy, S., 1982, Badminton In Action, Cox and Woman Ltd., London.
7. Ballok, R., 1988, Teaching Badminton, Surjeet Publication, Delhi.
8. Bob Swope., 2011, ***"Youth Filed Hockey Drills, Strategies, Plays & Games Handbook"***, St. Louis

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2					5	
CO3				4		
CO4						6
CO5						6

Mean: 4.6

BPE 1424 Practical – III Track and Field Events – 1 4Hr/4Cr

Course Objectives
The course aims at
To enable the students to

1. Make them learn the mode of practice and techniques in sports & learn various skills in track and field.
2. Be familiar with rules and regulations, and learn the method of officiating track and field events.

Course Outcome
At the end of the course, students will be able to:

i. Explain the warm up and conditioning procedures and determine to prescribe exercises.
ii. Prepare the sprinting technique for the competition status and judge the effect of it.
iii. Analyze the importance of techniques and corrections in coaching.
iv. The scientific principle in throw techniques was intensely judged.
v. Prepare athletic training and reorganize the schedule to be evaluated.

Unit 1 –Sprints

a. Number of Sprint Events.
b. Skills in running sprint event – High knee action – Leg Beat – Leg kick – Arm action for sprint.
c. Technique – Bunch starting 3 types – Bullet start, Medium start & Elongated start.
d. Fixing the block – Measurement – Athletes on the block – fixing the rear and front leg.
e. Finishing technique – Photo finish, Run through & Torque twist

Unit 2 – Middle Distance Running

a. Method of starting b. Form of running c. Technique of running at the end of the events.

Unit 3 – Long Jump

a. Stages of jumping technique – typesb. Runway and take offc. Flying Phase d. Landing.

Unit 4 - Shot-put – two types of shot techniques and the styles

a. O'Berion style b. Disco put
Stages of throw: Holding, Initial Stance, Glide, Rotation, Release and follow through and reverse

Unit 5 – warming up and conditioning exercises

A part of the practical period shall be devoted to warming up and conditioning exercises for the concerned events shall be introduced.

Textbook

1. Goel, R.C., 1992. Encyclopedia of Sports and Games, Trange paper, Delhi.

References

1. Pintumodak., 1996, Gymnastics a scientific approach.
2. Runthala Publishers & Printers, Near Nehru place 11, Pilani (Raj).
3. A.A.F.I., 1994, Competitive Rules Hand Book, Ashok Printers, Kanpur.
4. Federation International De Gymnastics, 1993, Code of Points, Switzerland.
5. Gambetta, V., 1981, Track and Field Coaching Manual, Leisure Press Champaign, Illidis.
6. Thirunarayan, C., and Hariharan, S., 1970, Track and Field the South Indian Press, Karaikudi.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3			3			
CO4					5	
CO5						6

Mean: 4

BPE 1528 Theory –Human Anatomy 5Hr/5Cr

Course Objectives
The course aims at
Enable students to

1. Facilitate the students with the knowledge of Human Anatomy.
2. Understand the structure and functional characteristics which help them to design the programme.

Course Outcome
At the end of the course, students will be able to:

i. Understand the scientific bases of Human physique through cell, Bone and joints to observe the difference.
ii. Draw the nomenclature of the cardiovascular system and its functional capacities and drawbacks with a diagram.
iii. Identify various types of muscles and its purposes-based on Anatomy and Physiology.
iv. Evaluate the importance of nervous system and Endocrine system.
v. Express the position of axial and appendicular skeleton and structure and function of kidney and skin.

Unit 1 – Introduction

Introduction – Structure of Cell - Cell Wall – Nucleous – Chromatin threads – Mitochonria – Cytoplasm – Centrosomes – Endoplasmic recticulam – Lysosomes – Centresomes Cell division – Mitosis - Meosis - Interphase - Prophase – Metaphase – Anaphase – Telophase.

Bone – Classification of Bone – Long Bone – Short Bone – Flat Bone – Irregular Bone – Seemoid Bone. Joints – Define – Classification of Joints – Fibrous Joints – Cartilagious Joints – Synovial Joints.

Unit 2 – Body Systems (Respiratory & Circulatory) in Humans

Respiratory System: Structure and Function of lungs – Mechanism of Respiration. Circulatory System: Structure and functions of Heart – Cardiac output & cycle - Blood – Blood pressure – Blood group – Blood clotting.

Unit 3 - Muscular Systems in Humans

Muscular System: Voluntary muscle - Involuntary muscle – Cardiac Muscle Digestive System: Structure and Functions of Stomach – Small Intestine – Large Intestine.

Unit 4 – Nervous System

Nervous System: Structure and Functions of Brain – Cerebellum – Cerebrum – Medulla oblongata –Spinal cord – Reflex Action. Endocrine Glands – Its types – Functions of Pituitary, Thyroid, Adrenal, Pancreas and gonads.

Unit 5 – Skeleton Systems in Humans

Skeleton System:Axial Skeleton - Skull – Vertebral Column – Sternum - Ribs and Xiphoid - Appendicle Skeleton – Upper Extremities - Lower Extremities. Excretory System: Structure and Function of Skin – Kidney.

Textbook

1. Essentials of Human Anatomy & Physiology Laboratory Manual by Elaine NicponMarieb (Jan 20, 2008)

References

2. Human Anatomy & Physiology with MasteringA&P™ (8th Edition) by Elaine N. Marieb and Katja N. Hoehn (Jul 2, 2010)
3. Human Anatomy & Physiology Lab Manual, Fetal Pig Version (10th Edition) by Elaine N. Marieb and Susan J. Mitchell (Feb 8, 2010)
4. Human Anatomy & Physiology Laboratory Manual with MasteringA&P®, Main Version, Update (9th Edition) by Elaine N. Marieb and Susan J. Mitchell (Jul 10, 2011)

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2			3			
CO3			3			
CO4					5	
CO5						6

Mean: 4

BPE 1420 Practical – IV Game of Specialisation – 1 5Hr/4Cr

Course Objectives

The course aims at

To enable the students to

1. Be familiar with rules and regulations and application.
2. Learn the method of officiating in the game of specialization.
3. Learn the strategy and tactics in the game concerned.

Course Outcome

At the end of the course, students will be able to:

i. Label the unique history of each game namely Football, Hockey, Badminton and Tennis.

ii. Describe the rules and interpretation of the game and officiating to become a professional

iii. Plan to practice the fundamental skills and its techniques in Football, Hockey in order to assess the match

iv. Evaluate the rules while learning the fundamentals in Badminton.

v. Integrate the minute aspects of the basic skill for better execution of the game Tennis and predict the results.

GAME OF SPECIALISATION

The students can choose any one of the following games- fundamental skills and playing ability.

1. Football 2. Hockey 3.Badminton

Textbook

1. Goel.R.S., 1975,Encyclopaedia of sports and games, Vikas Publication House pvt.,Ltd., New Delhi.

References

1. F.I.F.A. Referee's charch and players guide to law of Association, 1986, Football pan Books ltd., Caraya Place, London.
2. Gian, S, 1976, Olympic Hockey on Astrotes and services publishing House, Delhi.
3. Hayleft,J.,and Evelians,1989,The Illustrated Encyclopaedia of World Tennis , ExterBooks, New York.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1				4		
CO2			3			
CO3				4		
CO4					5	
CO5						6

Mean: 4.4

BPE 1202 NME – Recreation and Leisure Time Management through Sports 3Hr/2Cr

Course Objectives
The course aims at
Enable students to

1. Refresh the mind and physique.
2. Avoid the stress.
3. Utilizing the leisure tie productively.

Course Outcome
At the end of the course, students will be able to:

i. Recreation provided mental relaxation and Physical freshness explain.
ii. Recreation is avoiding the stress and getting the enthusiasm in physic and peace in mind distinguish.
iii. Determine the different types of relaxation.
iv. Recreation is a means and methods ascertain better mental and physical wellness.
v. Recreation is a suitable plan to relax the physique and mind.

Unit 1 - Introduction
Meaning and definition – Aims and objectives of recreation

Unit 2 – Recreation Types
Types of recreation (Physical – Mental – Social group)

Unit 3 – Recreation for Different Age Category
Recreation for children (Seesaw – Sliding – Swing) – Recreation for Adult (Cultural activities – Racing – Martial arts) – Recreation for Senior (Elders) (Walking – Cycling – Swimming – Drama – Listening Music – Reading) etc

Unit 4 – Recreation Build for Mind Relaxation
Benefits of recreation (Stress – Enjoying life – building fellowship – relives mental strain and physical pain) – mind refreshing

Unit 5 – Recreation Games for Different Age Category
Recreation games (Torching Ball, Musical chair, Lucky corner, Tunnel ball (Passing under the knee) – cat and mouse – Lock and key

Textbook

1. Lía Rodriguez de la Vega, 2018,**Handbook of Leisure, Physical Activity, Sports, Recreation and Quality of Life.**Digitally watermarked, DRM-free,ISBN 978-3-319-75529-8

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2				4		
CO3				4		
CO4					5	
CO5						6

Mean: 4.2

BPE 1204 Life Skill 2 – Fitness in Sports 3Hr/2Cr

Course Objectives

The course aims at

Enable students to

1. Understand the essentials of lifelong wellness.
2. Overcome fitness barriers and involve in physical movement pursuits

On completion of the course, students will be able to:

i. Fitness is being associated with freedom from disease and wellness that also include positive components (Wellness) that is associated with the quality of life and positive wellbeing judges.
ii. Illustrate the bodily movement that is physical activity produced by the contraction of skeleton muscles and that substantially increases energy expenditure.
iii. Exercise is leisure time physical activity conducted with means of developing physical fitness, critically.
iv. Physical activity is healthy lifestyle judge expand the most importance for promoting physical fitness, health and Wellness.
v. A Fit person is in a position to work efficiently to put up better performance as compared to a person who is unfit judge.
vi. Physical fitness increases body resistance, compare with examples.

Unit 1 – Introduction

Meaning – Definition – Concept of fitness – Warm up – Limbering down exercises

Unit 2 – Physical Fitness Concepts

Meaning – Definition – Concept of Physical Fitness – General fitness – Specific fitness

Unit 3 – Physical Conditions

Importance of Physical Fitness – General condition& General exercises (Stretching)

Unit 4 – Fitness Types

Type of Fitness (Mental –Social – Spiritual)

Unit 5 – Factor Determining Fitness

Physiologicalfactor influencing Fitness – Psychological factor influencing Fitness

Textbook

1. Hoeger Werner W.K. and Hoeger Sharon A. **Fitness and Wellness**, Englewood: Morton publishing Company, 1990.

References

1. Hazedine, **Fitness for Sports**, Ramsburg: The CrowoodRess Ltd., 1985.
2. James and Leona Hart. **100% Fitness**, New Delhi: Goodwill Publishing House, 1983.
3. **Wellness-Concepts and applications** – David J. Anspaugh, Michael H. Hamrick and Frank D. Rosato II edition Masby publishing house – Chicago.1991.
4. **International Encyclopedia of sports and games**- Ashok Kumar, Mittal Publications, New Delhi 110059 Vol. I to IV.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1					5	
CO2		2				
CO3					5	
CO4					5	
CO5					5	

Mean: 4.4

Value Added Courses

Sem	Course Code	Course name	Hours	Credits
1.	BPE 121V	Studies on Morphology	2	2
2.	BPE 122V	Sports Management	2	2
3.	BPE 221V	Exercise Therapy and Massage	2	2
4.	BPE 222V	Organization and Administration in Physical Education	2	2
5.	BPE 321V	Physical Fitness Training	2	2
6.	BPE 322V	Human Anatomy & First Aid (Practical)	2	2

Mapping of Course Outcomes (COs) With Programme Specific Outcomes (PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
BPE 121V	✓	✓	✓	✓	✓					
BPE 122V		✓	✓	✓	✓	✓				

BPE 121V STUDY ON MORPHOLOGY 2Hr/2Cr

COURSE OBJECTIVE

- Measure the morphology and compare the merits.
- Evaluate the morphological disorders and apply corrective exercises.

COURSE OUTCOME

At the end of the course, the students will be able to:

i. By understanding about morphology, they can guide people or pupil to get rid of unnecessary medical expenditure.
ii. Explain the words to easily evaluate the defects in morphologically and follow preventive measure.
iii. Classify the morphological defects and prepare alternate methods to rectify
iv. Follow suitable exercises and administer in a right situation and ascertain quick benefits
v. Judge the causes and defects through diagnosis or experiments.

UNIT 1

Meaning of Morphology – its types – Aesthetic, Athletic, Pykinic – Skeletal, muscular and functional nervous.

UNIT 2

Study about Human Physical Ailments – Scoliosis – Lordosis – Lumbarasis - Kyphosis

UNIT 3

Sheldon and Krishmer Classification - Endomorph - Mesomorph - Ectomorph

UNIT 4

Selecting corrective exercise, therapeutic exercises – Knock knee, hyper extension, lumbar displacement

UNIT 5

Reasons for improper or defective morphology

References:

Joel A. Nevis and John T. Stonham 1999, "Learning Morphology: What Makes a Good Textbook",Published By: Linguistic Society of America, Vol. 75, No. 4

Jenny Audring and Francesca Masini, 2018**, "**Theory and Theories in Morphology",Print Publication

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	2					
CO2		2				
CO3			3			
CO4				4, 4		
CO5					5	

Mean: 4

BPE 122V SPORTS MANAGEMENT 2Hr/2Cr

COURSE OBJECTIVE

- Learn and execute Management skills
- Build the qualities of Management, right plan, organize and conduct the events with management procedure

COURSE OUTCOME

At the end of the course, the students will be able to:

i. Describe the real meaning and nature of management to vitalize the conduct of event.
ii. Different type of management skills will prepare the person to take bold decisions.
iii. Discriminate the merits and demerits to find out proper solution for better outcomes.
iv. Different levels of sports management shall be evaluated.
v. Compile the contribution of management in Physical Education

UNIT 1

Meaning of Management in Sports – planning, organization and conducting Events

UNIT 2

Classification of Management – Equipment, ground and personal management

UNIT 3

Purpose of Sports Management – successful conduct of the event (Merits and demerits analysis) – Long term and short term – Prepare Sports Budget

UNIT 4

Classification of sports management officials in schools, colleges, distinct and state institutes

UNIT 5

Effective contribution of management to Physical Education Profession – Eve Management (Public, School, Colleges and others)

References:

Russell Hoye , Aaron C.T. Smith , Matthew Nicholson , Bob Stewart2018 "**Sport Management: Principles and Applications**" (Sport Management Series) Paperback – Unabridged.

Danny O'Brien, Milena M. Parent, Lesley Ferkins, Lisa Gowthorp**2019 "Strategic Management in Sport"**

Frank Supovitz 2014 "The Sports Event Management and Marketing" Playbook: 72 (The Wiley Event Management Series) Hardcover – Illustrated,

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	2					
CO2		2				
CO3			4, 3			
CO4				5		
CO5					6	

Mean: 4.4

BPE 221V EXERCISE THERAPY AND MASSAGE 2Hr/2Cr

Course Objective

- To enhance Physical and Psychological wellbeing.
- To utilize the techniques for better health.
- To prepare the athlete for ensuring the competition.
- To get rid of ailments through natural perspective.

At the end of the course, the students will be able to:

i. Plan to get better chances in the public as Professional.
ii. Gain natural benefits of therapy and introduce to the general folk.
iii. Compile to start a Therapeutic Centre.
iv. Appraise others to realize the values by improving life expectancy
v. Evaluate others (Public) rest, sleep and recovery (relaxation)

UNIT 1

Meaning of Exercise Therapy – Main goals of Treatment through exercise – Types of Therapy – General rules of exercise

UNIT 2

Classification of Therapeutic exercise (Techniques, Effects & Benefits)– Assisted Exercise (Techniques, Effects & Benefits) – Resisted Exercises (Techniques, Effects & Benefits)

UNIT 3

Reflex Movement – Types (Arc reflex – Righting Reflex – Postural Reflex) – Effect and Benefits of Reflex Movement – Passive Movement (Classification – Effects & Benefits)

UNIT 4

Massage – Meaning – Aims & Objectives – Guidelines for Massage - Types of Massage (Stream – Water – Oil – General) – Techniques (Stroking – Pressure Therapy – Kneading – Taping – Vibration)

UNIT 5

Principles of Massage – Effects of Massage on Skin - Effects of Massage on Circulation of Blood – Effects of Massage on Nervous System – Effects of Massage on Muscles

References

Margaret Hollis 1987 “Massage for Therapists” Elisabeth JonesVol. 75, No. 4
Carolyn Kisner 2017 “Therapeutic Exercise Foundations and Techniques” W. Ross MacDonald School Resource Services Library

Mapping Course Outcome with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1						6
CO2			3			
CO3						6

CO4					5	
CO5		2				

Mean: 4.4

SEMESTER V

BPE 321V PHYSICAL FITNESS TRAINING 2Hr/2Cr

Course Objective

- To understand the importance of physical fitness training.
- To utilize the modes of physical fitness training.
- To develop the physical components through applying the suitable fitness training.
- To well equip with different application of training.

At the end of the course, the students will be able to:

i. Integrate the Gymnasium facilities for health and happiness.
ii. Compare the fitness progress and training.
iii. Suit as a personal trainer for very important personalities.
iv. Understand the importance of fitness to avoid ailments
v. Describe the fitness training methods and evaluate the qualities improve through Physical Fitness training

Unit – 1

Training – Meaning of physical fitness training – Need and important of physical fitness training.

Unit – 2

Improvement of physical fitness or components through training – Components endurance, strength

(Power), speed, flexibility, agility, co- ordination, balance, poise

Unit – 3

Types of fitness training, health related fitness, performance related fitness training.

Unit – 4

Aerobic training – Long distance, running, cycling, swimming, weight training

Anaerobic training – Weight training.

Unit – 5

Advantage and disadvantage of fitness training - Scientific base of fitness training - Better ventilation & circulation, reaction and movement improvement.

REFERENCE:

2. Hoeger Werner W.K. and Hoeger Sharon A. **Fitness and Wellness**, Englewood:Morton publishing Company, 1990.

3. Hazedine, **Fitness for Sports**, Ramsburg: The Crowood Ress Ltd., 1985.

4. James and Leona Hart. **100% Fitness**, New Delhi: Goodwill Publishing House, 1983.

5. **Wellness-Concepts and applications** – David J. Anspaugh, Michael H. Hamrick and Frank D. Rosato II edition Masby publishing house – Chicago.1991.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1						6
CO2					5	
CO3		2				
CO4		2				
CO5					5	

Mean: 4.0

UNDERGRADUATE DEPARTMENT OF COMPUTER SCIENCE
Batch 2020-2021 onwards

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
1	I	TAS/FRS/HIN XXXX	Language	3	2	30
1	II	ENS XXXX	English – I	3	2	30
1	III C	COS 1581	Programming in C	5	5	75
1	III C	COS 1483	Problem Solving Using C Programming Lab	4	4	60
1	III C	COS 1485	System Software	4	4	60
1	III S	COS 1497	Digital Principles and Computer Organization	5	4	60
1	IV E	COS 1291	PC Hardware and Troubleshooting	3	2	30
1	IV LS	COS 1283	Image Designing(TL)	3(2+1)	2	30
			Total	**30**	**25**	**375**
2	I	TAS/FRS/HIN XXXX	Language	3	2	30
2	II	ENS XXXX	English – II	3	2	30
2	III C	COS 1582	Object Oriented Programming using C++	5	5	75
2	III C	COS 1484	C++ Programming Lab	4	4	60
2	III C	COS 1486	Computer Graphics	4(2+2)	4	60
2	III S	MAS XXXX	Discrete Mathematics	5	4	60
2	**IV E**	**COS 1202**	**Introduction to Website Development**	3	2	30
2	IV LS	COS 1284	Animation Technology(TL)	3(2+1)	2	30
2	V		PED/NSS/SLP		1	15
			Total	**30**	**26**	**390**
3	I	TAS/FRS/HIN XXXX	Language	3	2	30
3	II	ENS XXXX	English – III	3	2	30
3	III C	COS 2581	Java Programming	5	5	75
3	III C	COS 2483	Java Programming Lab	4	4	60
3	III C	COS 2585	Operating Systems	5	5	75
3	III C	COS 2587	Data Structures using C++	5(3+2)	5	75
3	III S	MAS XXXX	Graph Theory and its Applications	5	4	60
			Total	**30**	**27**	**405**

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
4	I	TAS/FRS/HIN XXXX	Language	3	2	30
4	II	ENS XXX	English – IV	3	2	30
4	III C	COS 2582	Relational Database Management Systems	5	5	75
4	III C	COS 2484	Oracle Lab	4	4	60
4	III C	COS 2586	Computer Networks	5	5	75
4	III C	COS 2588	Microprocessors and Micro Controllers	5	5	75
4	III S	COS 2498	Cloud Computing	5	4	60
4	V		PED/NSS/SLP		1	15
			Total	**30**	**28**	**420**
5	III C	COS 3681	Web Programming(TL)	6(3+3)	6	90
5	III C	COS 3685	Software Engineering	6	6	90
5	III C	COS 3587	Enterprise Resource Planning	5	5	75
5	IV VE	VAL	Value Education	4	2	30
5	IV LS	COS 3285	Audio / Video Editing(TL)	3(2+1)	2	30
5	III C	COS 3691	Python Programming (TL)	6(3+3)	6	90
			Total	**30**	**27**	**405**
6	III C	COS 3682	.NET Programming(TL)	6(3+3)	6	90
6	III C	COS 3684	Project Development Lab(TL)	6(2+4)	6	90
6	III C	COS 3686	Mobile Technologies(TL)	6(3+3)	6	90
6	III C	COS 3588	Business Intelligence and Data Analytics	5	5	75
6	IV EVS	COS 3200	Environmental Studies	4	2	30
6	IV LS	COS 3286	Network Security	3	2	30
			Total	**30**	**27**	**405**
Grand Total (Semester I – VI)				**180**	**160**	**2400**

Value Added Courses

w.e.f. 2020-2021

Sem	Course No.	Course Title	Hours	Credits	Marks
1	COS 121V	Digital Communication Skills	2	2	30
3	COS 221V	Exploring Microsoft Excel(TL)	2	2	30
5	COS 321V	Emerging Technologies In Computer Science	2	2	30
		Total	**6**	**6**	**90**

COS 1202 INTRODUCTION TO WEBSITE DEVELOPMENT 3Hrs/2Cr

The objective of the course is to enable the student to understand the principles of creating an effective webpage and gain knowledge on design and maintenance of website. It also aims at developing skills on how to create and maintain quality web pages.

At the end of the course the student will be able to

i. Recall the various HTML Components.
ii. Create web elements like buttons, banners & Bars and of course complete UI designs.
iii. Apply critical thinking and problem solving skills required to successfully design and implement a web site.
iv. Develop Simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs.
v. Construct a website that conforms to the current web standards and includes e-commerce and web marketing

UNIT I - WEB DESIGN PRINCIPLES 10Hrs

Basic principles involved in developing a web site - Designing navigation bar - Page design - Home Page Layout - Design Concept- Basics in Web Design- World Wide Web - Create a web site - Web Standards

UNIT II – HTML 9Hrs

Introduction to HTML - HTML Documents - Basic structure of an HTML document - Creating an HTML document - Mark up Tags – Heading - Paragraphs - HTML Tags - Elements of HTML - Working with Text

UNIT III - FORM CONTROL 8Hrs

Working with Lists - Tables and Frames - Working with Hyperlinks - Images and Multimedia - Working with Forms and controls - Creating web pages using form controls

UNIT IV – CSS 9Hrs

Introduction to Cascading Style Sheets - Creating Style Sheet - CSS Properties - CSS Styling (Background, Text Format, Controlling Fonts) - Working with block elements and objects

UNIT V - WORKING WITH LISTS AND TABLES 9Hrs

Lists - Tables - CSS Id and Class - Box Model: Border properties - Padding Properties - Margin properties - CSS Color - Creating page Layout and Site Designs.

Text Book:

1. Steve Suehring, Janet Valade, “PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies”, John Wiley and Sons, Inc, 1st edition, 2013
2. Thomas Powell ,“HTML & CSS: The Complete Reference”, Fifth Edition,2010

COS 4

References:

1. https://www.w3schools.com/html/default.asp
2. https://www.tutorialspoint.com/web_development_tutorials.htm
3. https://www.tutorialrepublic.com/css-tutorial/
4. https://cssreference.io/

	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2						**6**
CO3			**3**			
CO4						**6**
CO5						**6**

Mean: 4.4

COS 121V DIGITAL COMMUNICATION SKILLS 2Hrs/2Cr

This course aims at gaining knowledge in the development of information and communication technologies, the required knowledge and skills in view of achieving general digital literacy in student. This course also focuses to equip the student with advanced digital media skills, technical abilities to take on the communication industry challenges.

On successful completion of the course, the student will be able to:

i. Outline the importance and identify the types of communication employed in personal and professional environment
ii. Evaluate the possibilities and problems associated with the use of technology
iii. Implement computer-based technology in communicating and acquiring information
iv. Choose employment opportunities in the field of digital media and communication landscape.
v. Produce work that contributes knowledge and expresses creativity with competent and effective communication skills in media across written, oral, visual, and interactive forms.

UNIT - ESSENTIALS OF COMMUNICATION I6Hrs

Digital Communication - Modern technologies in digital Communication – Need for Effective Communication - Tools for digital communication: Video Tapes- Video Conferencing- Blogging - Instant Messaging (IM) - Messages through Mobile Phones - CALL (Computer Assisted Language Learning) - Educational Satellites - Internet - Pod casting. Wearable Technology -Virtual Reality.

UNIT II - FUNDAMENTALS OF DIGITAL TECHNOLOGY 8 Hrs

Generations of Modern Computers – Classification of Digital Computer Systems – Introduction to Computer Software – Software Development – General Software Features and Trends – Computer in Business and Industry – Computers at Home – Computers in Education and Training – Computers in Entertainment – Science – Medicine and Engineering.

UNIT III - INTRODUCTION TO COMMUNICATION SYSTEM 6 Hrs

Internet & World Wide Web – How Internet Works – Getting connected – Internet Addressing -Web Browsers and Web Browsing – Searching the Web – Communicating Using E-Mail– Websites and WebPages – Computer Security – Computer Viruses – Bombs and Worms - Virus Protection.

UNIT IV - DIGITAL TRENDS 4 Hrs

Social Networking and My Privacy – Pros and Cons in Social media - Cyber bullying – Electronic Publishing –Newsgroups – Mailing Lists and Discussion Forums – Chat – Internet Telephony (VoIP)

COS 6

UNIT V - BARRIERS TO DIGITAL COMMUNICATION 6 Hrs

Physical barriers - Emotional barriers - Identity barriers - Semantic barriers - Accessibility barriers - Attention barriers - Credibility barrier - Overcoming barriers in digital communication.

Textbooks:

1. Nisha Clement,"Essentials of Communication and Education Technology", Jaypee Brothers Medical Publishers, May 2019.
2. Elizabeth Kuhnke, "Communication Essentials for Dummies", Wiley Publishing Australia Pty. Ltd. (P), 2018.
3. Alexis, Leon & Mathews, Leon, "Internet for Everyone", Vikas Publishing, 15thed, 2012.

References:

1. Alexis, Leon & Mathews, Leon, "Fundamentals of Information Technology", Vikas Publishing. (2nd ed.), 2009.
2. https://www.simplilearn.com/introduction-to-digital-transformation-tutorial
3. https://www.govloop.com/community/blog/7-barriers-digital-communication/

	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2					**5**	
CO3			**3**			
CO4					**5**	
CO5			**3**			**6**

Mean: 3.8

COS 221V EXPLORING MICROSOFT EXCEL 2Hrs/ 2Cr

The objective of this course is to enable the student to gain knowledge in the basic features of Microsoft Excel and spreadsheet concepts to design and create accurate professional worksheets for the use in business, industry and academic environments.

At the end of the course the student will be able to

i. Examine spreadsheet concepts and explore the Microsoft Office Excel environment.
ii. Identify the different components of the Excel worksheet.
iii. Use critical thinking skills to design and create spreadsheets.
iv. Construct formulas to manipulate numeric data in an Excel Worksheet.
v. Use advanced techniques for report visualizations.

Unit I - GETTING STARTED WITH MICROSOFT OFFICE EXCEL 5Hrs

Navigate the Excel User Interface - Excel Commands - Create and Save a Basic Workbook - Cell Data - Entering and Editing Worksheet Data: Insert, Delete, and Adjust Cells, Columns, and Rows - Search for and Replace Data – Import and Export data.

Unit II - FORMATTING WORKSHEETS 5Hrs

Text Formats - Number Formats - Currency Format - Formatting Dates Cell Contents - Styles and Themes - Basic Conditional Formatting - Create and Use Templates

UNIT III - MANAGING WORKSHEETS 7Hrs

Naming and Moving Worksheets - Copying Worksheets - Adding, Deleting and Hiding Worksheets - Grouping Worksheets - Moving, Copying, Deleting and Hiding Grouped Worksheets - Inserting, Deleting Columns and Rows - Modifying Cell Width and Height - Hiding and Unhiding Rows and Columns - Working with multiple workbooks - Printing Worksheets.

UNIT IV - PERFORMING CALCULATIONS 6Hrs

Using Operations - Creating Formulas - Copying formulas – AutoSum - Common Formulas - Date and Time formulas - Data Validations - Sorting and Filtering Data: Sorting tables - Using multiple - level sorting - Using custom sorting - Filtering data for selected view (AutoFilter) - Using advanced filter options.

UNIT V - WORKING WITH REPORTS & CHARTS 7Hrs

Creating subtotals- Multiple - level subtotals - Creating Pivot tables - Formatting and customizing - Pivot tables - Using advanced options of Pivot tables - Pivot charts - Instant Chart - Update Chart - Column Chart - Picture Fill - Adjust Chart Size - Line Chart - Scatter Chart - Formatting Charts - Using 3D Graphs.

COS 8

Text Book:

1. John Walkenbach, “Excel 2016 Bible”, Wiley Publication, 1st edition, November 2015.

References:

1. Greg Harvey, “Microsoft Excel 2016 All-in-One For Dummies” A Wiley Brand 1st Edition, December 2015.
2. William Fischer, “Excel: Quick Start Guide - From Beginner to Expert”, Createspace Independent Publishing Platform, May 2016
3. https://www.tutorialspoint.com/excel/index.htm
4. https://edu.gcfglobal.org/en/excel2016/
5. https://www.excel-easy.com/

	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2	**1**					
CO3			**3**			**6**
CO4						**6**
CO5			**3**			

Mean: 3.7

COS 321V EMERGING TECHNOLOGIES IN COMPUTER SCIENCE 2Hrs/2Cr

The objective of the course is to establish and cultivate a broad and comprehensive understanding of the rapidly evolving current technologies among the students. It aims at the student to accomplish advanced knowledge and professional development in the recent technologies further.

On successful completion of the course, the student will be able to

i. Summarize the application areas of IOT, building blocks of Internet of Things and characteristics.
ii. Determine software vulnerabilities and security solutions to reduce the risk of exploitation.
iii. Identify the characteristics of datasets and compare the trivial data and big data for various applications.
iv. Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
v. Develop knowledge in the main application of VR and AR technologies in medicine and surgery, cultural heritage and games.

UNIT I - INTERNET OF THINGS 6Hrs

Introduction - History of IoT – Components of IoT – Features of IoT – IoT architectures - Challenges in IoT implementation.– IoT applications – Advantages and Disadvantages of IoT- Relevance of IOT for the future.

UNIT II - INFORMATION SECURITY &CYBER SECURITY FUNDAMENTALS 8Hrs

Introduction to Information Security – Threats to Information Systems - Information Assurance Fundamentals – Basic Cryptography – Symmetric Encryption – Public Key Encryption – The Domain Name System (DNS) – Firewalls – Antiforensics – Fraud Techniques – Threat Infrastructure.

UNIT III - BIG DATA 5Hrs

Introduction - Characteristics of Big data – Challenges of Big data – Hadoop Framework – HDFS – Map Reduce method – Analysis Vs Reporting.

UNIT IV - ARTIFICIAL INTELLIGENCE 5Hrs

Introduction – History of AI - Goals of AI – Applications of AI –Subset of AI – The Future with AI - Introduction about machine learning and deep learning.

UNIT V - VIRTUAL REALITY & AUGUMENTED REALITY 6Hrs

Virtual Reality - Introduction - VR Applications - Three Illusions - Challenges in Virtual Reality - Augumented Reality: Introduction to augmented reality (AR) - The basics of AR functionality - Approaches to augmented reality - AR applications.

COS 10

Text Books:

1. Michael Minelli, Michele Chambers, Ambiga Dhira,“Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses,” Wiley Publications,2013.
2. Vijay Madisetti, Arshdeep Bahga,” Internet of Things A Hands-On- Approach”, 2014
3. Mayank Bhushan, Fundamentals of Cyber Security, New Delhi: BPB Publications. Print, 2017.

References:

1. https://www.guru99.com/iot-tutorial.html
2. https://www.javatpoint.com/iot-internet-of-things
3. https://www.javatpoint.com/cyber-security-introduction

	K1	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**	**4**		
CO3	**1**				**5**	
CO4			**3**			
CO5						**6**

Mean: 3.4

UNDERGRADUATE DEPARTMENT OF COMPUTER APPLICATIONS
Value Added Courses

W.e.f. 2020-2021

Semester	Course Code	Course Title	Hrs	Credit
I	BCA 121V	Graphics design with CorelDraw	2	2
III	BCA 22IV	Content Management System using WordPress	2	2
V	BCA 32IV	Data Visualization with Tableau	2	2

BCA 121V **Graphics design with CorelDraw** **2hrs/2cr**

This course aims to enabling the students to learn the concept of CorelDraw, to gain immense knowledge of CorelDraw. Students learn to create vector art and illustrations for logos, web graphics, brochures, and more.

Upon the successful completion of the course, students will be able to

i. Recognize the basics of CorelDraw
ii. Understanding the workspace and its various tools
iii. Designing various kinds of logos ,brochures and flyers by using special effects
iv. Illustrate the concepts of importing tables and adding images
v. Creating web graphics using bitmap

Unit 1: Introduction **6 hrs**
CorelDraw basics – Start and open drawings – scan images, work with multiple drawings, undo redo, and repeat actions, zoom, pan and scroll, preview, drawings, viewing modes, views save drawings.

Unit 2: CorelDraw Environment **7 hrs**
CorelDraw workspace tour – Application window – standard toolbar – toolbox – property bar – Dockers – Status bar, Line Shapes, and Outlines – Object, Symbols and Layers

Unit 3: 3D Effects **5 hrs**
Special effects – Lenses – Add 3D effects – Mosaics – Text – Format text – Manage Fonts - Writing tools – Templates and styles – Color styles

Unit 4: Working with Tables **6 hrs**
Tables – Add tables – Select, move and navigate table components, insert and delete table rows and columns, resize table cell, rows and columns, format tables and cells, text in tables, convert tables to text, merge and split tables and cells, manipulate tables as objects, add images, graphics and backgrounds to tables- import tables.

Unit 5: Working with Bitmaps **6 hrs**
Work with bitmaps – Special effects categories – Bitmap color modes, Trace, Printing, Web graphics, File formats

Textbook

1. “CorelDraw 2020 user guide”, Corel Corporation, 2020

References

1. CorelDRAW Graphics Suite 2019 Quick Start Guide
2. https://www.entheosweb.com/tutorials/coreldraw/default.asp
3. https://www.insidegraphics.com/category/coreldraw-tools/

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3						**6**
CO4		**2**				
CO5						**6**

Mean=3.4

BCA 221V Content Management System using WordPress 2hrs/2cr

This course aims to develop the skills of the students, for maintaining and developing websites and blog.

Upon successful completion of the course, students will be able to

i. Understand the CMS concept and its tool WordPress
ii. Design a blog using CMS tool WordPress
iii. Illustrating the Blog's media Library
iv. Apply the theme and widget in Blog
v. Classify the WordPress Plug-ins

Unit 1: Content Management System 6 hrs

Introduction – Content Management System – WordPresstool - Getting Started - Installing the WordPress Software on your Web Server - Prepare the WordPress - Configuration file - Loading the WordPress Files to Your Web Server - Configuring the FTP.

Unit 2: Creating Blog using WordPress 7 hrs

Managing Users in WordPress Adding New Users to WordPress - User Roles in WordPress Deleting a User Account - Creating Categories for your Blog - Creating "Static" Pages in WordPress Configure the WordPress - Publishing Blog Posts in WordPress Accessing the WordPress Post – Menu - Writing a Blog Post in WordPress Editing an Existing Post - Deleting Existing – Posts - Writing a Blog Post in WordPress Entering Your Post Information Entering the Post Content Using the HTML View to Edit your Post

Unit 3: Working with Media 5 hrs

Inserting Media into Your Posts - Inserting Images into Posts - Inserting Media from your Computer Feature Images - Inserting a Link to Media on Other Web Sites Inserting Media from your Blog's Media Library

Unit 4:Blog Using Themes 6 hrs

Controlling the Look of a WordPress Blog Using Themes - Working With Themes in the WordPress Dashboard - Previewing a WordPress Theme -Installing a New Theme - Manually Adding Themes to WordPress - Finding High Quality Themes on the Internet - Add Content to Areas of your Blog using Widgets - Adding Widgets to Your Site Removing Widgets from the Sidebar and Footer

Unit 5: Plug-ins 6hrs

Managing WordPress Plug-ins Activating Plug-ins - Deactivating Plug-ins Adding Plug-ins to Your Site Adding Plug-ins from the WordPress Plug-ins Directory - Adding Multiple Plug-ins using FTP Software - Removing Unwanted Plug-ins - Posting to WordPress Using Desktop Software

Textbook

1. Neil Staib, “A Step by step guide on WP”, 2017

References

1. Christopher Masiello,”Wordpress: From Beginner to Expert”, Kindle Edition, 2011
2. Sarah McHarry, “WrodPress to Go”, 2013
3. https://www.wp101.com
4. https://www.hostinger.in/tutorials/wordpress/

Mapping Course Outcome with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2						**6**
CO3		**2**				
CO4			**3**			
CO5		**2**				

Mean = 3.0

BCA 321V Data Visualization with Tableau 2hrs/2cr

This course aims to enable students to learn how to become a master at communicating business-relevant implications efficiently using data visualizations in Tableau, the most popular visualization program in the business world. Data visualization and predictive analytics is a norm in every industry today.

Upon successful completion of the course, students will be able to:

i. Understand data visualization
ii. Connect to various data sources
iii. Create complex calculations, share and publish visualizations
iv. Apply the filtering and groups
v. Build a variety of basic charts

Unit 1: Introduction 6 hrs

Introducing Visualization and Tableau - data visualization - expectations for a data visualization tool - reasons to make a switch to Tableau - positioning of Tableau - Tableau product line - file types in Tableau Tableau Workbook (twb) - Tableau Packaged Workbook (twbx) Tableau Data Source (tds) file - Tableau Packaged Data Source (tdsx) file

Unit 2: Connecting with Tableau 7hrs

Working with Single and Multiple Data Sources Desktop architecture - Data layer - Data connectors - Tableau environment To open – To close - Start page - Data Source Page Workspace - Workbooks and Sheets Visual Cues and Icons in Tableau - Connect to a File - Connect to a Text File - Connect to MS Access, R, MySQL, NoSQL Databases- Joins Adding Fields to the Data Pane - Exploring different types of Join Union

Unit 3: Function in Tableau 5hrs

Table Calculations - Profitability as Percent of Total - Moving average - Types of moving average - Rank - LOD (Level of Detail) - Percentile -Number functions - String functions - Logical Functions - Date functions

Unit 4: Filtering and Groups 6hrs

Simplifying and Sorting Your Data Filtering – filtering - Sorting - Discrete and Continuous Data - Groups - create a group - editing an existing group - creating hierarchies sets Contents - Difference between a Set and Group - Group Set Creating parameters

Unit 5: Statistics and Charts 6hrs

Statistics - Number Summary - Spread of data - Box Plot - Pie Chart - Line Graph - Scatter Plot – Histogram - Word Cloud - Waterfall Charts - Bump Charts - Bullet Graph

Textbook

1. Joshua N.Milligan, “Learning Tableau 2019”, Packt Publishing, 2019

References

1. SeemaAcharya, SubhashiniChellappan, “Pro Tableau”, A step by step guide, APress 2017.
2. Daniel G.Murray, with the InterWorks team “Tableau Your Data”, Wiley, 2013
3. https://www.tutorialspoint.com/tableau/tableau_quick_guide.htm
4. https://www.javatpoint.com/tableau
5. https://intellipaat.com/blog/tutorial/tableau-tutorial/introduction-tableau

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4					**5**	
CO5				**4**		

Mean = 3

UNDERGRADUATE DEPARTMENT OF INFORMATION TECHNOLOGY

w.e.f. 2020-2021

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
I	I	TAM/FR E/HIN	Language	3	2	30
I	II	ENS 1201	Conversational Skills	3	2	30
I	IIIC	BIT 1501	C Programming	5	5	75
I	IIIC	BIT 1403	C Programming Lab	4	4	60
I	IIIC	BIT 1405	Principles of IT	4	4	60
I	IIIS	BIT 1407	Digital Principles and Applications	5	4	60
I	**IV NME - I**	**BIT 1211**	**Digital Commerce**	1+2	2	30
I	IV LS - I	BIT 1203	HTML 5	1+2	2	30
Total				**30**	**25**	**375**
II	I	TAM/FR E/HIN	Language	3	2	30
II	II	ENS 1202	Reading & Writing Skills	3	2	30
II	IIIC	BIT 1502	C++ Programming	5	5	75
II	IIIC	BIT 1404	C++ Programming Lab	4	4	60
II	IIIC	BIT 1406	Data Structures using C (TL)	4 (2+2)	4	60
II	IIIS	MAS xxxx	Statistics	5	4	60
II	**IV NME- II**	**BIT 1212**	**Cyber crime and IT security**	3	2	30
II	**IV LS-II**	**BIT 1214**	**Data Analysis using Excel**	3	2	30
II	V		PED/NSS/SLP		1	15
Total				**30**	**26**	**390**
III	I	TAM/FR E/HIN	Language	3	2	30
III	II	ENS 2201	Study Skills	3	2	30
III	IIIC	BIT2501	SAD	5	5	75
III	IIIC	BIT2503	Software Testing	5 (3+2)	5	75
III	IIIC	BIT 2505	Java Programming	5	5	75
III	IIIC	BIT 2407	Java Programming Lab	4	4	60
III	IIIS	MAS xxxx	Operational Research	5	4	60
Total				**30**	**27**	**405**

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
IV	I	TAM/FR E/HIN	Language	3	2	30
IV	II	ENG 2202	Career Skills	3	2	30
IV	IIIC	BIT2502	Operating System	5(3+2)	5	75
IV	IIIC	BIT 2504	Computer Networks	5	5	75
IV	IIIC	BIT 2506	Relational Database Management Systems	5	5	75
IV	IIIC	BIT2408	Relational Database Management Systems Lab	4	4	60
IV	**IIIS**	**BIT 2422**	**R-Language**	5 (3+2)	4	60
IV	V		PED/NSS/SLP		1	15
Total				**30**	**28**	**420**
V	IIIC	BIT 3601	Web Programming(TL)	6(3+3)	6	90
V	IIIC	BIT3611	Python Programming	6 (3+3)	6	90
V	IIIC	BIT 3605	Software Engineering	6	6	90
V	IIIC	BIT3507	Enterprise Resource Planning	5	5	75
V	**IV LS–III**	**BIT 3211**	**Extensible Markup Language**	1+2	2	30
V	IV VE	VAL	Value Education	4	2	30
Total				**30**	**27**	**405**
VI	IIIC	BIT3602	.NET Programming(TL)	6 (3+3)	6	90
VI	IIIC	BIT 3604	S/W Development Lab	6	6	90
VI	IIIC	BIT 3606	DM & DW	6	6	90
VI	IIIC	BIT 3508	Mobile Technologies	5	5	75
VI	IV EVS	BIT 3200	Environmental Studies	4	2	30
VI	IV LS - IV	BIT 3210	Cloud Computing	3	2	30
Total				**30**	**27**	**405**
Grand Total (Semester I – VI)				**180**	**160**	**2400**

C: MAJOR CORE **S: MAJOR SUPPORTIVE** **I: INNOVATIVE**

NME: NON MAJOR ELECTIVE **VAL : VALUE EDUCATION**

LS: LIFESKILL

Value Added Courses

Sem	Course No.	Course Title	Hours	Credits
1	BIT 121V	Office Automation	2	2
3	BIT 221V	Web designing using Dreamweaver	2	2
3	BIT 321V	Animation using open source Tool	2	2

BIT 1211 DIGITAL COMMERCE 3 hrs/ 2 cr

The course aims at introduction to e-commerce, highlighting the features and benefits. Business models of e-Commerce will be subsequently explained. Relevance of e-Commerce with regard to marketing strategies will be covered. There is an additional topic on Electronic Payment System. Legal and ethical issues will be discussed.

Upon completion of this course students will be able to:

i. Acquire the basic knowledge about e-commerce, benefits and challenges.
ii. Gain the applications of e-commerce mechanisms, tools.
iii. Analyze the retailing in internet advertising
iv. Understand the mobile commerce and internet of things.
v. Understand the issues of e-commerce, marketing and payment systems in e-commerce

Unit 1: Overview of e-Commerce (9hrs)

Electronic Commerce: Definitions and concepts - History of E-Commerce – Drivers & benefits of e-Commerce – Social computing and E-commerce – The Electronic commerce business models – limitations and future of e-commerce.

Unit 2: E-commerce: Mechanisms, platforms and tools (8hrs)

E-marketplaces – customer shopping mechanisms - auctions, bartering and negotiating online – virtual communities and social networking – managerial issues.

Unit 3: Retailing in E-commerce (9hrs)

Products and services: E-tailing Business models – Employment and the online job market – Online banking and personal finance – Issues in E-tailing – Digital Government – E-learning, E-training and E-books – E-health.

Unit 4: Mobile Commerce and Internet of Things (8hrs)

Mobile commerce: concepts – Infrastructure – Mobile banking and financial applications – Mobile Entertainment, gaming, consumer services – location based commerce – Wearable computing and smart gadgets – Intelligent E-commerce: Introduction.

Unit 5: Marketing and Advertising in E-commerce (11hrs)

Online customer behavior – Online advertising methods – mobile marketing and advertising - Legal and ethical issues in e-Commerce: Security issues in e-Commerce – Regulatory framework of e- Commerce – Electronic commerce payment systems – Future of E-commerce.

Textbook:

1. Turban, Efraim, and David King, Electronic Commerce: A Managerial and Social networks Perspective, Pearson Education Asia, 2018.

Unit 1: page no: 3to33
Unit 2: page no: 41to 75
Unit 3: page no: 79to113
Unit 4: page no: 205to246
Unit 5: page no: 285to322

References:

1. Rayport, Jeffrey, Jaworksi and J.Bernard, **Introduction to E-Commerce**, Tata McGraw Hill, 2002.
2. The complete E-commerce book, Jaynice reynolds, 2020.
3. K.Ravi, **Frontiers of Electronic Commerce,** Addison – Wesley, 2005.
4. Bharat Bhasker, **Electronic Commerce,** The McGraw-Hill companies, 2nd edition 2006.
5. Laudon, Kenneth and Traver, **E-Commerce business. Technology. Society**, Pearson Education, 2004.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2			3			
CO3			3		5	
CO4					5	6
CO5		2				

Mean = 3.5

BIT 1212 CYBER CRIME & IT SECURITY 3 hrs/2 Cr

The course aims at enabling the students to understand the basic concept of Cyber security and problems associated with it and also to know the intellectual property rights and legal aspects of it.

Upon completion of this course students will be able to:

i. Gain the knowledge of basic concepts of cyber security and its problems.
ii. Acquire the depth knowledge in various threats in cyber crime.
iii. Understanding the various principles of security.
iv. Obtain the various securities in the database.
v. Gain the knowledge of copyrights in cyber security.

Unit 1: Basic concepts of Cyber Security (10 hrs)

Introduction-Cyber Security and its problem - Principles and Concepts of Cyber Criminology: Crime, Tort, Misdemeanor, Cyber Space, Cyber Crime, Cyber Criminology

Unit 2: Cyber Crime (9 hrs)

Threats to key sectors – cyber security fundamentals – cyber attack fundamentals – organized cyber attacks – cloud risks – cyber security threat actors – common vulnerabilities

Unit 3: Network Security (8 hrs)

Secure TCP/ IP: Encryption – non repudiation – authentication – authorization – TCP/IP security standards: TTPS – SCP – SFTP – SMP – LDAP – TP

Unit 4: Database Security (9 hrs)

Introduction to database security, security models, physical and logical security, security requirements, reliability and integrity, sensitive data, inference, multilevel databases and multilevel security,

Unit 5: Copyright (9 hrs)

Copyright - meaning of copyright - ownership of copyright - rights of the owner - term of copyright - Registration of copyright - International copyright – infringement of copyright

Textbook:

1. 1.Jonathan Rosenoer, Cyber Law: The law of the Internet, Springer-Verlag,1997.
   Unit 1: Cyber Law: The law of the Internet page no(11-50)
   Unit 5 : page no (269-241)
2. Burke, Roger Hopkins, “Introduction to Criminological Theory”, Willan Publishing; 2nd New edition.
   Unit 2: page no (1to 35)
3. Dr. William Stallings, “Cryptography and Network Security”, 6th Edition, Pearson Education Publication.
   Unit 3: (232-285)
   Unit 4: (483-594)

References:

1. Mark F Grady, FransescoParisi, The Law and Economics of CyberSecurity, Cambridge University Press,2006.
2. Hassan A. Afyduni, "Database Security and Auditing", Course Technology – Cengage Learning, NewDelhi.
3. Dr. B.L. Wadehra, "Law relating to patents, trademarks, copyright, design and geographical indications", 5th edition, Universal law Publication.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4				4		6
CO5			3			

Mean = 3.5

BIT 1214 DATA ANALYSIS USING EXCEL 3 hrs/2 Cr

The course aims at developing the skill and knowledge in MS Excel. Students will be able to create professional looking Spreadsheets, charts, calculation, reports and PivotTable in high speed and accuracy.

Upon completion of this course, the student will be able to:

i. Conduct and complete data analysis using main Excel file or workbook types and protect them before sharing
ii. Perform data calculations using basic arithmetic formulas, main categories built-in functions and Vlookup, trim.
iii. Visualize data using conditional formatting, main chart types and single cell sparklines.
iv. Organize data interactively using tables and customizable pivot tables while sorting, filtering and performing calculations on their contents.
v. Develop the real time Multiple Spreadsheets.

Unit 1: Introduction to Excel (9 hrs)

About Excel, Uses of Excel, Excel software, Title Bar, Menu Bar, Standard Toolbar, Formatting Toolbar, Columns & Rows : Selecting Columns & Rows, Changing Column Width & Row Height, Auto fitting Columns & Rows, Hiding/Unhiding Columns & Rows, Inserting & Deleting Columns & Rows, Cell, Address of a cell, Components of a cell – Format, value, formula, Use of paste and paste special.

Unit 2: Creating Formulas & Functions (9 hrs)

Using Formulas, Formula Functions – Sum, Average, if, Count, max, min, Proper, Upper, Lower, Using AutoSum. Advance Formulas: Concatenate, Vlookup, Hlookup, Match, Countif, Text, Trim.

Unit 3: Spreadsheet Charts (9 hrs)

Creating Charts, Different types of chart, Formatting Chart Objects, Changing the Chart Type, Showing and Hiding the Legend, Showing and Hiding the Data Table.

Unit 4: Data Analysis (9 hrs)

Sorting, Filter, Text to Column, Data Validation. PivotTables: Creating PivotTables, Manipulating a PivotTable, Using the PivotTable Toolbar, Changing Data Field, Displaying a PivotChart, Setting PivotTable Options, Adding Subtotals to PivotTables

Basic analysis techniques: Statistical hypothesis generation and testing - Chi-Square test - t-Test - Analysis of variance - Correlation analysis - Maximum likelihood test.

Unit 5: Data Analysis Techniques

Regression analysis - Classification techniques- Clustering- Association rules analysis

Textbook:

1. Excel 2019 Bible by Michael Alexander, Richard Kusleika, John Walkenbach

Unit 1: Excel 2019 Bible Page no: 3 - 198
Unit 2: Excel 2019 Bible Page no: 205 - 425
Unit 3: Excel 2019 Bible Page no: 443 - 490
Unit 4: Excel 2019 Bible Page no: 577 - 720
Unit 5: Excel 2019 Bible Page no: 755 - 770

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2			3			
CO3			3			
CO4				4		6
CO5			3			

Mean = 3.5

BIT121V OFFICE AUTOMATION 2hrs/ 2 cr

The course aims at developing the skill and knowledge in MS Word, Excel, Powerpoint and Access. Students will be able to create professional looking documents, charts, calculation, reports and presentations in high speed and accuracy.

Upon completion of this course students will be able to:

i. Fundamentals of Computers and Windows
ii. Create and edit documents such as resume, applications, and letters, school or college assignments professionally.
iii. Create project presentation, business plan presentation, school assignments and presentation for seminars etc.
iv. Create a database and program to track and manage data and information.
v. Automate a task, can add functionality to forms & Import and export to other Microsoft Office and other applications

Unit 1: Computer Science and Operating System (Windows) (6hrs)
Fundamentals of Computers - classification of computers -architecture of a simple processor -programming languages (Machine language, Assembly language, High level language) - data processing - data organization - data communication - windows introduction - working with windows.

Unit 2: Introduction to MS Word (6 hrs)
MS Word - Working with Documents: Opening & Saving files, Editing text documents, Importing & Exporting documents - Formatting Documents, Typeface - Setting Page style: Layout settings, Setting Document styles - Creating Tables: Table settings, Borders, Alignments, Sorting and Formula – Drawing – Tools - Printing Documents.

Unit 3: Introduction to MS Powerpoint (7 hrs)
Introduction to presentation: Opening new presentation, Different presentation templates, setting backgrounds, selecting presentation layouts - different views - animation, art and sound - including graphs, charts, tables and columns - Techniques for Making a Show Livelier - office connections - Printing a Presentation.

Unit 4: Introduction to MS Access: (6 hrs)
MS Access overview, Features of MS Access, creating a Database, Starting Access, Access Screen, Data types, Creating Tables, Adding data, Query data, Query criteria, Relationships and their types, Indexing, Grouping data, joins, create and modify a Forms, Form navigation, MS Access controls and properties.

Unit 5: MS Access Reports, Macros and Data (5 hrs)
Creating Reports, Types of Reports, Printing & Print Preview, MS Access build-In functions, MS Access Macros, Modules, Export the data, importing data from other databases viz. MS Excel etc.

Textbook:

1. MS office - S.S. Shrivastava, Laxmi Publications; First edition 2015
2. Microsoft office 365, All-in-one - Peter WeverkaFor Dummies; 1 edition May 29, 2019.

References:

1. Microsoft Office 2007 Bible - John Walkenbach, HerbTyson, FaitheWempen, caryN.Prague, Michael R.groh, PeterG.Aitken, and Lisa a.Bucki -Wiley India pvt.ltd.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2		4		6
CO3		2	3			6
CO4	1		3	4		6
CO5					5	6

Mean = 3.6

BIT221V WEB DESIGNING USING DREAM WEAVER 2 hrs/2 Cr

The course aims at enabling the students to understand a core technology markup language of the Internet used for structuring and presenting content for the WWW using dream weaver.

Upon completion of this course students will be able to:

i. Gain the fundamental knowledge of dream weaver and World Wide Web.
ii. Get the knowledge of tables, sites in HTML
iii. Acquire the practical knowledge of applying stylesheet and HTML.
iv. Gain the basic knowledge in database and forms.
v. Acquire the practical knowledge of connecting to database.

Unit: 1 Dreamweaver Basics (7hrs)

Working with web pages – opening Dreamweaver- Creating a new web page – Working with text – selecting text- deleting text- formatting text- moving text- copying and pasting text - drag and drop text editing- Creating Links- Working with Images.

Unit: 2 Working with Tables and Sites (6hrs)

Working with Tables- Inserting a Table- Adding Text to a Table Cell- Adding Images to a Table Cell- Selecting Table Elements- Adding Rows and Columns- Working with Sites- Creating a Site- Creating Files- Creating Folders- Creating Links- Uploading Files- Downloading Files.

Unit: 3 Using Stylesheets (6hrs)

Creating an Embedded Style Sheet- Applying an Embedded Style- Creating an External CSS Style Sheet- Linking to an Existing Style Sheet- Editing HTML- Viewing HTML- Writing HTML- Working with Code Snippets.

Unit: 4 Planning a Database-Driven Web Site (6hrs)

Selecting an Application Server-Using ASP- Using ASP.NET- Using JSP- Using PHP- Selecting a Database- Specifying an Application Server for a Site- Using HTML Forms- Creating HTML Forms- Submitting a Form- Resetting a Form.

Unit: 5 Designing a Database (5hrs)

Understanding Relational Databases- Designing Database Tables and Relationships- Creating a Microsoft Access Database- Retrieving Data from a Database- Defining a Database Connection- Creating Simple Queries.

Textbook:

1. Macromedia Dreamweaver MX fast & easy web development – Annesha Bakharia- edition – 2012

Reference:

1. Dreamweaver8-All in one for dummies- sue denkins – edition – 2008.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3	4		6
CO3		2				6
CO4	1		3	4		6
CO5					5	6

Mean = 3.6

BIT321V ANIMATION USING OPEN SOURCE TOOL 2 hrs/ 2 cr

The course aims at developing the skill and knowledge in 3D modeling and animation and equip the students to create simple games and animated movies.

Upon the completion of this course students will be able to

i. Obtain basic knowledge on Multimedia concepts and applications,3D concepts and animation.
ii. Understand the fundamental concepts in Blender and create objects.
iii. Design their own models using sculpting tools.
iv. Create skeleton models for animation.
v. Develop simple games and perform video editing.

Unit 1: Introduction to Multimedia and 3D Concepts (6hrs)

Multimedia basics − Multimedia applications − Evolving technologies for multimedia − Defining objects for multimedia systems − Multimedia databases −Three-Dimensional object representations – Color models – Virtual reality – Animation.

Unit 2: Blender Basics (7hrs)

Introduction to Blender, The Blender Interface, importing objects − working with viewports , Modelling: creating and editing objects, Mesh Modeling Fundamentals: Creating and manipulating mesh objects, fundamental modeling tools and mesh selection tools – join or separating meshes − curves –text−modifiers.

Unit 3: Sculpting and Painting (5hrs)

Sculpting tools – Adaptive sculpting – Hiding and Masking – Texture paint – vertex paint – weight paint – Grease pencil – Modes: Draw mode – Sculpt mode –Edit paint mode – Weight paint mode.

Unit 4: Animation and Rigging (6hrs)

Key frames –Armatures: Bones, Properties, Structure, Skinning, Posing – Actions − Drivers – Markers –Shape keys – Motion path

Unit 5: Rendering, Tracking and Masking and Create Scenes (6hrs)

Cycles – Cameras – Lights – Materials –Free style – Render outputs. Tracking and Masking: Motion Tracking – Masking – Movie clip Editor, Create scenes: Create an environment for our scene – Adding motion to our scene.

Textbook:

1. Modeling and Animation Using Blender Blender 2.80: The Rise of Eevee Authors: Guevarra, Ezra Thess, Apress publications, 2019.

Reference:

James Chronister, Blender Basics, Creative Commons Attribution-Non Commercial-Share Alike 4.0 International License,2017 fifth edition by James C.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2	3	4		6
CO3		2	3			6
CO4	1		3	4		6
CO5					5	6

Mean = 3.8

UNDERGRADUATE DEPARTMENT OF DATA SCIENCE

Vision

Academic excellence setting new technological trends in the realm of Data Science

Mission

As a Department, we are committed to

- Develop the skills and knowledge to analyze data in many forms and disseminate the insights.
- Enable to understand the disruption of technological change in the light of prevailing practices.
- Equip with technical skills to understand, manage and store large data sets for recent trends.
- To promote quality and professional ethics among the students.
- Equip an interdisciplinary skill set and knowing how to handle and analyze large amount of data.

UNDERGRADUATE DEPARTMENT OF DATA SCIENCE
Grid for B.Sc Data Science
w.e.f 2020-2021

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
1	I	TAS/FRS/ HIN XXXX	Language	3	2	30
1	II	ENS XXXX	English – I	3	2	30
1	III C	DSC 1401	Programming Paradigms	4	4	60
1	III C	DSC 1503	Relational Database Management Systems	5	5	75
1	III C	DSC 1405	RDBMS Lab	4	4	60
1	III S	DSC 1507	Digital Principles and Applications	5	4	60
1	IV E	DSC 1201	Data Science for Beginners	3	2	30
1	IV LS	DSC 1203	Data Analysis using Spread Sheet (T + L)	3 (2+1)	2	30
			Total	**30**	**25**	**375**
2	I	TAS/FRS/H IN XXXX	Language	3	2	30
2	II	ENS XXXX	English – II	3	2	30
2	III C	DSC 1402	Principles of Data Science	4	4	60
2	III C	DSC 1504	Object Oriented Programming with Java	5	5	75
2	III C	DSC 1406	Object Oriented Programming Lab	4	4	60
2	III S	MAS XXXX	Theory of Probability	5	4	60
2	IV E	DSC 1202	Marketing Analytics	3	2	30
2	IV LS	DSC 1204	Windows and File Management (T + L)	3 (2+1)	2	30
2	V		PED/NSS/SLP		1	15
			Total	**30**	**26**	**390**
3	I	TAS/FRS/H IN XXXX	Language	3	2	30
3	II	ENS XXXX	English – III	3	2	30
3	III C	DSC 2501	Data and Business Analytics	5	5	75
3	III C	DSC 2503	Data Structures	5	5	75
3	III C	DSC 2505	R Programming	5	5	75
3	III C	DSC 2407	R Programming Lab	4	4	60
3	III S	MAS XXXX	Statistics	5	4	60
			Total	**30**	**27**	**405**

Sem	Part	Course No.	Course Title	Hrs	Credit	Marks
4	I	TAS/FRS/HIN XXXX	Language	3	2	30
4	II	ENS XXX	English – IV	3	2	30
4	III C	DSC 2502	Artificial Intelligence	5	5	75
4	III C	DSC 2504	Data Mining and Warehousing	5	5	75
4	III C	DSC 2506	Python Programming	5	5	75
4	III C	DSC 2408	Python Programming Lab	4	4	60
4	III S	MAS XXXX	Resource Management Techniques	5	4	60
4	V		PED/NSS/SLP		1	15
			Total	**30**	**28**	**420**
5	III C	DSC 3601	Machine learning (T + L)	6 (4+2)	6	90
5	III C	DSC 3603	Software Engineering	6	6	90
5	III C	DSC 3605	Data Science Project Lab 1 (T + L)	6 (2+4)	6	90
5	III C	DSC 3507	Data Visualization	5	5	75
5	IV VE	HVS XXX	Human Values	4	2	30
5	IV LS	DSC 3201	Tableau (T + L)	3 (1+2)	2	30
			Total	**30**	**27**	**405**
6	III C	DSC 3602	Reinforcement Learning (T + L)	6 (4+2)	6	90
6	III C	DSC 3604	Big Data Analytics	6	6	90
6	III C	DSC 3606	Data Science Project Lab 2 (T + L)	6 (2+4)	6	90
6	III C	DSC 3508	Data Security and Compliance	5	5	75
6	IV EVS	DSC 3200	Environmental Studies	4	2	30
6	IV LS	DSC 3202	Internet of Things	3	2	30
			Total	**30**	**27**	**405**
			Grand Total (Semester I – VI)	**180**	**160**	**2400**

C: MAJOR CORE
E: NONMAJOR ELECTIVE
LS: LIFESKILL
VAS – VALUE ADDED COURSES
S: MAJORSUPPORTIVE
VE:VALUE EDUCATION
EVS : ENVIRONMENTAL STUDIES

Part III Supportive

Sem	Course No.	Course Title	Hours	Credits	Marks
1	DSC 1507	Digital Principles & Applications	5	4	60
2	MAS XXXX	Theory of Probability	5	4	60
3	MAS XXXX	Statistics	5	4	60
4	MAS XXXX	Resource Management Techniques	5	4	60
		Total	**20**	**16**	**240**

Part IV Non-Major Electives

Sem	Course No.	Course Title	Hours	Credits	Marks
1	DSC 1201	Data Science for Beginners	3	2	30
2	DSC 1202	Marketing Analytics	3	2	30
		Total	**6**	**4**	**60**

Part IV Life Skill Courses

Sem	Course No.	Course Title	Hours	Credits	Marks
1	DSC 1203	Data Analysis Using Spread Sheet (T + L)	3(2+1)	2	30
2	DSC 1204	Windows and File Management (T + L)	3(2+1)	2	30
5	DSC 3201	Tableau (T + L)	3(2+1)	2	30
6	DSC 3202	Internet of Things	3	2	30
		Total	**12**	**8**	**120**

Value Added Courses

Sem	Course No.	Course Title	Hours	Credits
1	DSC 121V	SPSS for Data Analysts	2	2

Program Specific Objective (PSO)

1. Understanding the insights and working principles of Data Science.
2. Explore technical knowledge in diverse areas of Data Analytics for handling data for higher studies and a thriving career.
3. Attain the ability to adapt new technologies and upgrade their skills through their life-long learning with an attitude towards their human values and ethics.
4. Generate creativity to recognize potential risk and provide innovative solutions in various business domains.
5. Adapt and apply mathematical techniques and data analytical tools to solve complex problems in the data domain.
6. Understand the basic concepts of computing techniques and fundamentals of mathematics programming and data science domain.
7. Provide framework for Data Science users with tools that will assist them in their decision-making when faced with Information Technology ethical dilemmas.
8. Meet the programming skills and technical skills which is the requirements of the IT based industries
9. Adapting to new technologies and constantly upgrade their skills with an attitude towards independent and lifelong learning.
10. Understand the basic concepts of digital fundamentals, OOP concepts, Databases, and analytics.

Program Outcomes (PO's)

PO 1: Abstract Thinking: Ability to understand the abstract concepts that lead tovarious data science theories in Mathematics, Statistics and Computer Science.

PO 2: Problem Analysis and Design: Ability to identify, critically analyze and design solutions to data science problems using fundamental principles of mathematics, statistics,computing sciences, and relevant domain disciplines.

PO3: Qualitative and Quantitative Results: Provide solutions to the complex computing problems reaching substantiatedconclusions using fundamental principles of mathematics, computationalscience, and relevant domain disciplines.

PO 3: Modern Software Tool Usage: Acquire the skills in handling data analytical tools towards problem solving and solution analysis for domain specificproblems.

PO 4: Individual and Team Work: Function effectively as an individual and as amember or leader in diverse teams and in multidisciplinary environments.

PO 5: Innovation and Entrepreneurship: Produce innovative IT solutions and servicesbased on global needs and trends.

PO 6: Societal and Environmental Concern: Utilize the data science theories forsocietal and environmental researches.

PO 7: Professional Ethics: Understand and commit to professional ethics and cyberregulations, responsibilities and norms of processional computing practices.

PO 8: Conduct Investigations and Complex Computing Problems: Use researchbased knowledge and research methods including design of experiments, analysis andinterpretation of data and synthesis of the information to provide valid conclusions.

PO 9: Applications in Multi-disciplinary domains: Understand the role of statisticalapproaches and apply the same to solve the real life problems in the fields of Data Science
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PO 10: Project Management: Apply the research based knowledge to analyze and solveadvanced problems in Data Science.

Mapping of Courses Outcomes (COs) with Programme Specific Outcomes(PSOs)

Courses	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
DSC 1401	✓	✓	✓							
DSC 1503		✓	✓	✓						
DSC 1405		✓			✓			✓		
DSC 1507		✓	✓		✓			✓		
DSC 1201	✓		✓	✓				✓		
DSC 1203		✓		✓						
DSC 1402		✓	✓	✓				✓	✓	
DSC 1504		✓	✓		✓			✓	✓	
DSC 1406		✓		✓	✓	✓		✓	✓	
DSC 1202				✓	✓	✓	✓	✓		
DSC 1204			✓	✓	✓		✓		✓	
DSC 121V		✓	✓	✓			✓		✓	

DSC 8

Mapping of Programme Specific Outcomes (PSO's)with Program Outcomes (PO's)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	✓	✓		✓	✓		✓	✓		
PSO2	✓	✓		✓	✓	✓	✓			
PSO3	✓	✓		✓	✓	✓	✓			
PSO4	✓	✓		✓		✓	✓		✓	
PSO5	✓	✓		✓	✓	✓			✓	
PSO6	✓	✓		✓		✓	✓	✓		
PSO7	✓	✓		✓	✓	✓			✓	
PSO8	✓	✓		✓	✓	✓			✓	
PSO9	✓	✓		✓	✓	✓		✓	✓	
PSO10	✓	✓		✓	✓	✓		✓	✓	

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DSC 1401 Programming Paradigms 4 Hrs/ 4 Cr.

The aim of this course is to learn the basic concept of computer and its revolution. It gives an overview of system architecture, software, programming languages, flowcharts and pseudo code.

At the end of the course, students will be able to

i. Describe computer and its components, usage of computers in business and society, utilize internet and web resources.
ii. Identify categories of programs, software and applications.
iii. Understand Programming types and the basic structures of Programming.
iv. Solve Problems using Flowcharts.
v. Understand Pseudo code and write Pseudo code for programs.

Unit 1 : Introduction to Computers (10)

Introduction to Computer Systems – Interaction with a Computer System- Input Output devices – Processing Data – Storing Data - Operating Systems – Networks – Data Communication - Connecting to the Internet – Online World .

Unit 2 : Software (13)

Application software – Database management – Software Programming and Development – Protecting Privacy – Computer and Data – Programming Language Generations – First generation – second – third – fourth – fifth generations.

Unit 3 : Programming Languages (13)

Procedure Oriented Programming – Object Oriented Programming – Languages –Variable – constants – reference – Data types – Control Structures – Conditional – Iteration – Nesting – Recursion – Exceptions –Data structures.

Unit 4 :Pseudo code (12)

Code is all around us – Gathering program requirements – Pseudo code – program diagram – writing the first set of pseudo code – making changes and adding keywords – adding language-specific syntax – comments – final program.

Unit 5: Introduction to Programming in C (12)

History of C – The C Character Set – Tokens – Identifiers – Keywords – Data Types – Constants - Variables – Operators – Structure of a C program – Formatted input/output functions – Unformatted input/output functions – Data Type Conversions – Control statements – Looping statements.

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Textbooks

1. Peter Norton, “Introduction to computers” , 6th edition, Tata McGraw-Hill, 2017.
2. Anil Bikas , “The Art of Programming through Flowcharts & Algorithms”,Chaudhuri – Firewall Media, 2015
3. Balagurusamy.E, ” Programming in ANSI C”, Eigth Edition, Tata McGraw Hill-2019.

References

1. YashwvantKanetkar,“Let us C:, BPB Publications”, 13th Edition, 2014
2. Martin J. Gentile, “ An Easy Guide to Programming in C Create Space Independent Publishing Platform” , 2nd Edition , 2015.
3. Jonathan Bard,” Using Pseudocode: Instructions in Plain English “, PowerKids Press, 2018.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3		**2**				
CO4			**3**			
CO5			**3**			

Mean : 2.6

DSC 1503 Relational Database Management Systems 5 Hrs/ 5Cr.

The aims of this course is to learn the basic concept of Database with different database model in detail and also extensively covers the Normalization process, overview of Entity Relationship Model, Relational Database Design and Transaction concepts. It covers practical concepts of SQL and PL/SQL.

At the end of the course, students will be able to

i. Learn the fundamentals of Data Models and to represent a Database system.
ii. Express the basic concepts of SQL and PL/SQL.
iii. Gain knowledge about Entity Relationship Model.
iv. Gain an introductory knowledge about Relational Database Design.
v. Understand the fundamental concepts of Transaction Processing andConcurrency Control Techniques.

Unit1 – INTRODUCTION TO DBMS (12)

What is Data – Types of Data – What is Database – What is DBMS – Advantages of DBMS – Disadvantages of DBMS – Database Architecture – Two Tier Architecture – Three Tier Architecture - Data Flow from external to internal world – Database Models – Overall system structure - Database administrator and Database users.

Unit 2 – INTRODUCTION TO SQL (17)

Introduction to SQL – DDL, DML, DCL, TCL – Data Types –SQL Operators – SQL Joins - Set operations - Aggregate functions– SQL Sub Queries – Database Users - Referential integrity - Triggers –View– Cursor- Procedures.

Unit 3 - ENTITY RELATIONSHIP MODEL (16)

E-R model: E-R diagram – Entity Set – Relationship – Degree - Weak Entity Set - Relational algebra – Keys – Need of Keys – Super Key, Candidate Key, Composite Key, Primary Key, Foreign Key – Constrains – Unique, Not null, Default, Check.

Unit 4 – RELATIONAL DATABASE DESIGN (15)

Relational database design – Schema – Goals of Normalization - First normal form - Pitfalls in relational database design - Functional Dependencies – Uses of Functional Dependencies - Decomposition - Boyce–codd normal form - Third normal form – Multivalued Dependencies - Fourth normal form – Denormalization

Unit 5- TRANSACTIONS (15)

Transaction Concepts – ACID Properties – Transaction States – Schedules – Serializability – Concurrency Control – Lock Based Protocol – Two-Phase Locking Protocol

Textbooks

1. MukeshNegi, “Fundamental of Database Management System: Learn Essential Concepts of Database Systems”, BPB Publications, 2019.
2. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, “Database System Concepts”, McGraw-Hill Education, 7th Edition, 2019.

References

1. Raghu Ramakrishnan, “Database Management Systems”, Fourth Edition, McGraw-Hill College Publications, 2015.
2. Walter Shields, “SQL QuickStart Guide: The Simplified Beginner's Guide to Managing, Analysing, and Manipulating Data With SQL”, 2019
3. Bella Cunningham, “Database Systems: Design, Implementation and Management”, 2019.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2			**3**			
CO3		**2**				
CO4			**3**			
CO5				**4**		

Mean : 3.0

DSC 1405 **RDBMS Lab** **4 Hrs/ 4 Cr.**

The aim of this course is to train the students to create database using Oracle for real time application.

At the end of the course the student will be able to

i. Develop database using SQL.
ii. Examine queries in SQL to retrieve any type of information from a data base.
iii. Classify various functions available in DML commands
iv. Construct queries using DCL commands.
v. Build procedure using join operations.

Lab Components

1. Creating database tables and using Data Types.
   Create Table, Modify Table, Drop Table.
2. Practical Based on Data Manipulation.
   Adding data with Insert, Modify data with Update, Deleting records with Delete.
3. Practical Based on Implementing the Constraints.
   NULL and NOT NULL, Primary Key and Foreign Key Constraint, Unique, Check andDefault Constraint.
4. Practical for Retrieving Data Using following clauses.
   Simple select clause, Accessing specific data with Where, Ordered By, Distinct and Group By.
5. Practical Based on Aggregate Functions.
   AVG, COUNT, MAX, MIN, SUM.
6. Practical Based on implementing all String functions.
7. Practical Based on implementing Date and Time Functions.
8. Practical Based on implementing use of union, intersection, set difference.
9. Implement Nested Queries.
10. Implement JOIN operation.

DSC 1507 Digital Principles and Applications 5Hrs/ 4 Cr.

The aim of this course isto understand the basic concepts of digital logicand the design of basic logic circuits. It also helps the student to learn combinational andsequential circuits.

At the end of the course, students will be able to

i. Perform conversion and arithmetic calculations in binary, decimal andhexadecimal number system.
ii. Gain knowledge on the application of digital principles using Gates, solveBoolean Algebra and simplify using K-map
iii. Analyze and synthesize combinational Logic Circuits.
iv. Compare various types of Flip flops and counters for data storage.
v. Acquire knowledge on shift Registers, Ring and Johnson‟s counters.

Unit 1:Number System (14)

Digital Concepts: Introduction, Decimal numbers, Binary numbers, Decimal to binary conversions, Binary arithmetic, 1's and 2's complements of Binary numbers, Signed numbers, Arithmetic operations. Hexadecimal numbers, Octal numbers, Digital codes, Binary coded decimal (BCD).

Unit 2:Building Blocks (16)

Logic Gates: Positive and negative logic, NOT gate, AND gate, OR gate, NAND gate, NOR gate, EX-OR and EX-NOR gates. Boolean Algebra: Boolean operations, logic expressions, rules and laws of Boolean algebra, De Morgan's theorems, Boolean analysis of logic circuits, Simplification using Boolean algebra, Standard forms, SOP and POS Expressions, Karnaugh map techniques SOP & POS (up to 4 variables).

Unit 3: Combinational Logic Circuits: (17)

Combinational Logic Circuits: Implementation, Universal property of NAND and NOR gates, Half adder, Full adder, Parallel binary adder, Comparators, Decoders, BCD to 7-segment decoder, Encoders, Code converters, Multiplexers and Demultiplexers, Parity generators and Checkers .

Unit 4:Sequential Logic Circuits (13)

Sequential Logic Circuits: SR Lathes, Gated S-R latch, gated D latch, Flip- Flops: Edge triggered flip flops, Master Slave flip flops, Applications Counters: Asynchronous counters, Decade Asynchronous counters, Synchronous counters, synchronous Decade counters, up/down synchronous counter, Applications.

Unit 5: Shift Register and Counters: (15)

Shift Register: serial in - serial out, serial in - parallel out, parallel in - serial out, parallel in parallel out configurations. Ring counter, Johnson’s counter

Textbook:

1. Thomas L. Floyd & RP Jain , “Digital Fundamentals”, 10th Edition, Pearson Edition, 2018.

Unit 1: Digital Fundamentals	Pg No: (28 - 70)
Unit 2:Digital Fundamentals	Pg No: (86 - 160)
Unit 3:Digital Fundamentals	Pg No: (186 - 198) (222 - 228) & (235 -268)
Unit 4:Digital Fundamentals	Pg No: (291 - 310) &(327 - 357)
Unit 5:Digital Fundamentals	Pg No: (382 – 395) & (399 – 402)

References :

1. P. Malvino, “Digital Principles and Applications”, McGraw Hill Int.,Fourth Edition, 2017
2. R. P. Jain,” Modern Digital Electronics”, Tata McGraw Hill Pub. Company, Third Edition, 2018.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3				**4**		
CO4			**3**			
CO5		**2**		**4**		

Mean : 3.0

DSC 1201 Data Science for Beginners 3 Hrs/ 2 Cr.

The aim of this course provides an outline of data science. It give the overview of computer data, structure, introduction about data science and processes. On successful completionof this course the student will have knowledge about the data science and its application.

At the end of the course, students will be able to

i. Understand the fundamental concepts of computer data and its types.
ii. Identify the process of data science.
iii. Determine the goal of data process.
iv. Analyse variousdata cleaning methods to clean collected data.
v. Summarize data models to suitable problem and findings.

Unit 1: Types of Data (7)

Introduction – fact of data - Structured data - Unstructured data- Natural language - Machine-generated data - Graph-based or Network data - Audio, image, and video - Streaming data

Unit 2: Data Science process (9)

The data science process - Setting the research goal - Retrieving data - Data preparation - Data exploration- Data modeling or model building- Presentation and automation

Unit 3: Process goal (10)

Defining research goals and creatinga project charter- Spend time understanding the goals and context of your research - Create a project charter - Retrieving data - Retrieving data - Don't be afraid to shop around - Do data quality checks now to prevent problems later

Unit 4: Cleaning data (10)

Cleansing, Integrating, and Transforming data - Cleansing data - Correct errors as early as possible - Combining data from different data sources - Transforming data

Unit 5: Building model (9)

Exploratory data analysis - Build the models- Model and variable selection - Model execution - Model diagnostics and model comparison -Presenting findings and building applications on top of them

Textbook:

1. Davy Cielen, Arno D. B. Meysman, Mohamed Ali, "Introducing Data Science", Manning Publications Co, 2016.

Chapters:

Unit I: Chapter 1.2, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.6, 1.2.7.
Unit II: Chapter 1.3, 1.3.1, 1.3.2,1.3.3,1.3.4,1.3.5,1.3.6.
Unit III: Chapter 2.2, 2.3.
Unit IV: Chapter 2.4, 2.4.1, 2.4.2,2.4.3,2.4.4.
Unit V: Chapter 2.6.1, 2.6.2, 2.6.3.

References

1. Annalyn Ng, “Data Science for the Layman”, Shroff Publishers; First edition, 2018.
2. Dinesh Kumar. U, “Business Analytics: The Science of Data-DriveDecision Making”, Wiley, 2017.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5			**3**			

Mean : 2.8

DSC 1203 Data Analysis using Spread Sheet 3 Hrs/2Cr.

The aim of this course is to understand the basic of Spread Sheet, Formulas, Functions, Charts and presentation techniques to maximize impact. It enables macros to increase interactivity, Using PivotTables and Power Pivots to turn raw data into clear information that supports key decisions.

At the end of the course,the students will be able to

i. Describes the basics of the spread sheet and Tables
ii. Understand the basic Formulas and Functions in Excel
iii. Gain knowledge about Pivot table and to consolidate data
iv. Develop macros and understand importance of Data Validation
v. Express the different types of Charts in Excel

Unit 1: INTRODUCTION TO EXCEL (8)

Introduction to Excel – Understanding Workbooks and Worksheets – Moving around Worksheet – Using Ribbon – Creating First Excel Workbook – Data Types – Entering Text, Values, Date and Time into Workbook – Modifying Cell Contents – Applying Number Formatting – Basic Worksheet operations – Adding comments to cells – Working to Tables

Unit 2: FORMULAS AND FUNCTIONS (9)

Formulas Basics – Entering formula in Worksheet – Editing Formulas – Using Cell Reference in Formulas – Formulas in Tables – Calculating Percentage – Rounding Numbers – Counting values in a Range – Working with Text – Using Text Functions – Excels Date and Time Functions

UNITIII: PIVOT TABLE, CONSOLIDATE DATA (10)

Creating a PivotTable - Specifying PivotTable Data - Changing a PivotTable's Calculation - Filtering and Sorting a PivotTable - Working with PivotTable Layout - Updating a PivotTable - Formatting a PivotTable - Creating a PivotChart - Prompting for User Input - Using the If…Then…Else Statement - Using Goal Seek – Consolidating Data

Unit4: MANAGING AND ANALYZING DATA, MACRO (9)

Importing Data – Cleaning up Data – Exporting Data – Data Validation – Validation Criteria – Creating Drop Down List – Formulas for Data Validation Rules – Data Validation Formula – Loading Data from other Data Sources - Working with Macros - Recording a Macro - Playing and Deleting a Macro - Adding a Macro to the Quick Access Toolbar – Scenario Manager

Unit 5 : CHARTS AND VISUALIZATION (9)

What is a Chart – Creating a Chart – Modifying and Customizing Charts – Chart Types – New Chart Types - Selecting Chart Elements – Modifying Chart Area and Plot Area – Title in Chart – Legends – Gridlines – Axes – Working with Data Series

Textbook

1. John Walkenbach, Michael Alexander, and Richard Kusleika, "Excel 2019 Bible", John Wiley & Sons, 2019.

References

1. PaulMcFedries, “Microsoft Excel 2019 Formulas and Functions”, Microsoft Press, 2019.
2. ShmuelOluwa, “Hands-On Financial Modeling with Microsoft Excel 2019: Build practical models for forecasting, valuation, trading, and growth analysis using Excel 2019”, Packt Publishing Ltd, 2019.
3. LokeshLalwani, “Excel 2019 All-In-One”, BPB Publications, 2019.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2			**3**			
CO3				**4**		
CO4			**3**			
CO5		**2**				

Mean : 3.0

DSC 1402 Principles of Data Science 4Hrs/ 4 Cr.

The aim of this course is to understand the fundamental conceptsof Data Science and acquire the overview of data engineering and business intelligence. It inculcates the importance of data visualization techniques, machine learning and statistical modeling which are used in data science domain

At the end of the course, students will be able to

i. Explore the fundamental concepts of data science.
ii. Apply data analysis techniques used for business applications.
iii. Select and implement machine learning techniques to data science applications.
iv. Utilize data visualization tools to Data Science applications.
v. Identify the computing environments that are suitable for the Data Science applications.

Unit 1– Fundamentals (12)

Introduction: Data Science- A Brief History of Data Science - A History of Data Analysis - The Emergence and Evolution of Data Science. Where Is Data Science Used?:What Are Data, and What Is a Data Set?: Perspectives on Data. A Data Science Ecosystem: Moving the Algorithms to the Data - The Traditional Database or the Modern Traditional Database.

Unit 2 – Data Engineering and Business Intelligence (16)

Exploring Data Engineering Pipelines andInfrastructure: Defining Big Data by the Three Vs - Identifying Big Data Sources - Difference between Data Scienceand Data Engineering - Making Sense of Data in Hadoop.Applying Data-Driven Insights to Business and Industry. Benefiting from Business-Centric Data Science

Unit 3 - Machine Learning and Statistical Modeling (17)

Learning from Datawith Your Machine: Defining Machine Learning and Its Processes - Learning Styles - Selecting algorithms based on function.Math, Probability, and Statistical Modeling: Exploring Probability and Inferential Statistics - Quantifying Correlation - Reducing Data Dimensionality with LinearAlgebra - Introducing Time Series Analysis.

Unit 4 – Data Visualization (14)

Data Visualizations: The Big Three - Picking the Most Appropriate Design Style - Selecting the Appropriate Data Graphic Type - Web-Based Applications for VisualizationDesign: Designing Data Visualizations for Collaboration - Visualizing Spatial Data with OnlineGeographic Tools.

Unit 5 - Computing for Data Science (16)

Using Python for Data Science: Sorting Out the Python Data Types - Putting Loops to Good use in Python - Using Open Source R for Data Science - R’s Basic Vocabulary - Delving into Functions and Operators - Doing Data Science with Excel: Making Life Easier with Excel.

Textbooks

1. John D. Kelleher and Brendan Tierney, "Data Science", First Edition, The MIT Press, London, 2018.
   Unit I (Text Book 1): Chapter 1.1, 1.2, 1.3, 2.1, 3.1, 3.2.
2. Lillian Pierson, "Data Science for Dummies", 2nd Edition, John Wiley & Sons publications, 2017.
   Unit II (Text Book 2): Chapter 2.1, 2.2, 2.3, 2.4.
   Unit III (Text Book 2): Chapter 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7.
   Unit IV (Text Book 2): Chapter 9.1, 9.3, 9.5, 11.1, 11.2.
   Unit V (Text Book 2): Chapter 14.1, 14.2, 15.1, 15.2, 17.1.

References

1. Davy Cielen, Arno D. B. Meysman, Mohamed Ali, "Introducing Data Science", Manning Publications Co, 2016.
2. Ramesh Sharda, DursunDelen, Efraim Turban, "Business Intelligence, Analytics, and Data Science: A Managerial Perspective", Pearson Education, Fourth edition, 2019.

Mapping of Course Outcomes with Bloom's Taxonomy :

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5			**3**			

Mean : 3.0

DSC 1504 Object Oriented Programming with Java 5Hrs/ 5Cr.

The objective of this course is to enable the student to understand the fundamental techniques of java. It also helps them to use advanced concepts of java to build an application on their own.

At the end of the course, students will be able to

i. Describe the fundamentals of the Object-Oriented Programming including defining Classes and Objects.
ii. Define Java structural design write, Compile and Execute programs
iii. Apply the principles of inheritance and polymorphism and implement in Java
iv. Write programs using the interface, packages and exceptions.
v. Understand I/O streams and use applets for real world problems.

Unit 1: Introduction to OOP and Java basics (10)

Principles of Object Oriented Programming (OOP)- Software Evaluation- OOP Paradigm- Benefits of OPP- Application of OOP – Abstraction – objects and classes – Encapsulation- Inheritance – Polymorphism- OOPs in Java – Characteristics of Java–Java Environment – Java Source File Structure – Compilation.

Unit 2: Java fundamentals (13)

Fundamental Programming Structures in Java –Data Types- Variables- Operators- Control Flow- Arrays – Packages -Concept & Syntax Of Class - Concept & Syntax Of Methods - Fields and Methods -Constructors & Destructors –Encapsulation - Access Specifiers -Access Control - Defining a Class- Creating an Object- Accessing Class Members- Instance Data and Class Data -Defining Methods –Constructors - Access Modifiers

Unit 3: Inheritance (13)

StringBuilder and StringBuffer - Methods and Messages - Parameter Passing -Comparing and Identifying Objects - Inheritance in Java - use of Inheritance - Types Of Inheritance – Single - Multi-level - Hierarchical - Hybrid - Method Overloading - Method OverridingPolymorphism in Java - Types Of Polymorphism - Super keyword -Super classes- sub classes.

Unit 4: Interfaces, Packages and Exceptions (12)

Interfaces – defining an interface- implementing interface- differences between classes and interfaces and extending interfaces- Implementing and Extending Interfaces - Abstract Classes - Define Package - Types Of Packages - Naming Convention - Steps For Creating Packages -The import Statement -Static Imports - CLASSPATH and Import - Exceptions – exception hierarchy – throwing and catching exceptions – built-in exceptions

Unit 5: I/OStreams and Applet Programming (12)

Files: Introduction – concept of streams – Stream classes – Using stream – I/O classes – File class – I/O Exceptions – creation of files – Reading / Writing characters/ Bytes – Handling primitive data types – Random Access Files. Applet Programming – Graphics programming: The Graphics class-Lines and rectangles-Circles and ellipses-Drawing arcs-Drawing polygons-Line graphs-Using Control loops in applets-Drawing Bar charts.

Textbooks

1. M.T.Somashekaa, D.S.Guru, K.S.Manjunatha, “Object Oriented Programming with JAVA “,PHI Learning Private Limited, 2017
2. E.Balagurusamy , “Programming with JAVA” McGraw Hill Education Private Limited, 2019

References

1. Danny Poo, Derek Kiong, Swarnalatha Ashok, “Object – Oriented Programming and Java”, 2nd edition, Springer, 2015
2. Stuart Reges, Martin Stepp , “Building Java Programs: A Back to Basics Approach”, 4th edition, Pearson 2017.

Mapping of Course Outcomes with Bloom’s Taxonomy

Bloom’s Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2			**3**			
CO3		**2**				
CO4				**4**		
CO5			**3**			

Mean : 3.0

DSC 1406 Object Oriented Programming Lab 4 Hrs/ 4Cr.

The aim of this course is to enable the student to understand the fundamental techniques of java. It also helps them to use advanced concepts of java to build an application on their own.

At the end of the course, the student will be able to:

i. Classify a simple application using Java programming.
ii. Develop robust program using Exception Handling.
iii. Implement application software and enhance problem solving ability.
iv. Create Client Server application using JDBC.
v. Design aapplication using Applet.

Lab Components

1. Working with Array and flow control statement.
2. Demonstrate the concept of command line arguments.
3. Implementation of Inheritance.
4. String Manipulation using Char Array.
5. Creating program using Interface.
6. Implementing Thread based applications & Exception Handling.
7. Implementing File concept.
8. Creating application using User-defined exception.
9. Creation of applet and passing parameter to Applet.
10. Design simple calculator using applet

DSC 1202 Marketing Analytics 3 Hrs/ 2Cr.

This objective of this course will enable the student to gain knowledge about the marketing strategy, survival analysis, Panel regression: how to use a cross-sectional time series, Strategic uses of segmentation, Implementing Big Data and Big Data analytics. It will also help the student to identify various types of marketing analytics.

At the end of the course, the student will be able to:

i. Identify the main components of marketing strategy and consumer behavior.
ii. Explain the function of survival analysis, predictive analysis and superior to descriptive analysis.
iii. Illustrate the Panel regression, data structure, fixed effects model and random effects model and testing.
iv. Categorize various segmentation and conceptual working process.
v. Extend the learning of Big Data , Big Data analytics and Exotic Algorithms.

Unit1: INTRODUCTION (8)

Brief principles of consumer behaviour and marketing strategy - Introduction - Consumer behaviour as the basis for marketing strategy - Overview of consumer behaviour - Overview of marketing strategy - An Insight

Unit2: SURVIVAL ANALYSIS : **(10)**

When are my customers most likely to buy? - Introduction -Conceptual overview of survival analysis - Business case - More about survival analysis - Model output and interpretation - Lifetime value: how predictive analysis is superior to descriptive analysis

Unit 3: PANEL REGRESSION (9)

– how to use a cross-sectional time series : - Introduction - What is panel regression- Panel regression: details - The data structure - The fixed effects model - The random effects model - Testing which effects to model -Business case

Unit 4:SEGMENTATION (8)

Introduction - Strategic uses of segmentation - part of a strategic marketing -Criteria for actionable segmentation - Conceptual process: Settle on a (marketing/customer) strategy - Collect appropriate (behavioural) data - Create/use additional data - Run the algorithm - Profile the output - Model to score database - Test and Learn

Unit 5: BIG DATA (10)

Implementing Big Data and Big Data Analytics: – Introduction - Is Big Data important - Surviving the Big Data panic - Big Data analytics - Big Data – Exotic algorithms

Textbook

1. Mike Grigsby, "Marketing Analytics: A practical guide to improving consumer insights using data techniques" Second Edition, 2018.

Unit I: Marketing Analytics ,(Chapter 1, 2), (20 – 33)
Unit II: Marketing Analytics,(Chapter 6), (84 -95)
Unit III: Marketing Analytics,(Chapter 7),(100 – 107)
Unit IV: Marketing Analytics,(Chapter 9), (121 – 133)
Unit V: Marketing Analytics,(Chapter 12), (185 -194)

References:

1. Wayne L. Winston, "Marketing Analytics: Data–Driven Techniques with Microsoft Excel", Wiley; First edition, 2014.
2. Dinesh Kumar. U," Business Analytics: The Science of Data-DriveDecision Making", Wiley, 2017.

Mapping of Course Outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3		**2**				
CO4				**4**		
CO5		**2**				

Mean : 2.6

DSC 1204 Windows and File Management 3 Hrs/ 2Cr.

The aim of this course provides knowledge of Windows Operating System and Files. It gives the overview of Computer Operating System, windows history, control panel, computer management, files and folders and windows accessories.

At the end of the course, students will be able to

i. Understand the history of windows operating system.
ii. Identify the settings of control panel.
iii. Understand the computer management tools.
iv. Utilize file settings and operations.
v. Apply accessories to user operations.

Unit 1: Introduction to Windows Operating System (9)

Windows History –use a Start menu and Apps – personalize your desktop – creating and editing text files – Windows explorer and options – Windows shortcut keys

Unit 2: Control Panel (10)

Control panel – User management – Program installation and Uninstallation – Sound – Display – Taskbar – Internet options – Recycle bin

Unit 3: Computer management (8)

Computer management – device manager – msconfig – Windows startup – Windows task manager.

Unit 4: Files and folders (9)

Creating files –file operations - dialog boxes – creating folder – remove folder – hidden folders and hidden files – read only and archive files – compressed files – files and folder security.

Unit 5: Accessories (9)

Command Prompt - Paint – Sound recording – Snipping tool – Run command

Textbooks

1. Paul McFedries, “Teach Yourself VISUALLY Windows 10”, Visual Publishers; First edition, 2020.
2. Rick Rouse, “Master Guide To Protecting Your Privacy And Security With Windows 10” , Wiley, 2017.

References

1. Michael Miller, “My Windows 10 Computer for Seniors”, QUE, 2020.
2. Alan Emsbury, “Windows 10: 2020 Beginners Guide to Unlock the True Potential of your Operating System”, Independently Published,2020.

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Mapping of Course Outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2		**2**				
CO3		**2**				
CO4			**3**			
CO5		**2**				

Mean : 2.4

Value Added Course

DSC 121V **SPSS for Data Analysts** **2 Hrs/ 2Cr.**

The aim of the course is to provides the basic knowledge of the program in order to be able to use it in a socio-economic context and in the exploration of corporate data.

At the end of this course, the student should be able to:

i. Understand the main features of SPSS.
ii. Use the SPSS GUI effectively.
iii. Perform descriptive analysis with SPSS.
iv. Perform common parametric and non-parametric tests.
v. Perform simple regressions and multivariate analyses (factor and cluster).

Unit 1: INTRODUCTION (6)

Introduction to SPSS - Data analysis with SPSS: general aspects, workflow, Critical issues - SPSS: general description, functions, menus, commands - SPSS file management

Unit 2: INPUT AND DATA CLEANING (6)

Defining variables - Manual input of data - Automated input of data and file import - Data manipulation: Data Transformation - Syntax files and scripts - Output management

Unit 3: DESCRIPTIVE ANALYSIS OF DATA (6)

Frequencies - Descriptive - Explore - Crosstabs – Charts

Unit 4: STATISTICAL TESTS (6)

Means - T-test - One-way ANOVA - Non parametric tests - Normality tests. Correlation and regression: Linear correlation and regression

Unit 5: ANALYSIS (6)

Multivariate analysis: Factor analysis - Cluster analysis

Methodology of Teaching – Learning

One hour for teaching a concept and one hour for Hands on Training.

References:

1. Julie Pallant, SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS, Routledge, July 2020.
2. Chukwuemeka Okoro, Teach Yourself Data Analyses with SPSS: From Basic to Advance, Independently Published, May 2020.
3. Field A., Discovering Statistics Using SPSS, Fourth Edition, SAGE, 2013

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Mapping of Course Outcomes with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2			**3**			
CO3			**3**			
CO4				**4**		
CO5			**3**			

Mean : 3

UNDERGRADUATE DEPARTMENT OF MICROBIOLOGY
w.e.f. 2020-2021

Sem	Part	Course No	Course Title	Hrs	Credits	Marks
I	I	XXX 0000	Tamil/French/Hindi	3	2	30
I	II	ENG 0000	Functional English I	3	2	30
I	III-C	MIC 1561	General Microbiology	5	5	75
I	III-C	MIC 1463	Lab in General Microbiology	4	4	60
I	III-S	MIC 1465	Biochemistry	4	4	60
I	III-C	MIC 1467	Lab in Biochemistry	5	4	60
I	IV-E	MIC 1269	Community Health – NME I	3	2	30
I	IV-LS	MIC 1271	Pollution and Waste Management – LS I	3	2	30
I	V	XXX 0000	Extension Activity (NSS/PED)	-	-	-
Total				**30**	**25**	**375**
II	I	XXX 0000	Tamil/French/Hindi	3	2	30
II	II	ENG 0000	Functional English II	3	2	30
II	III-S	MIC 1562	Cell Biology	5	5	75
II	III-C	MIC 1464	Immunology	4	4	60
II	III-C	MIC 1466	Lab in Immunology	4	4	60
II	III-C	MIC 1468	Microbial Physiology and Metabolism	5	4	60
II	IV-E	MIC 1270	Know About Microbes –NME II	3	2	30
II	IV-LS	MIC 1272	Bioproducts LS - II	3	2	30
II	V	XXX 0000	Extension Activity -NSS/PED	-	**1**	**15**
Total				**30**	**25+1**	**375/390**
III	I	XXX 0000	Tamil/French/Hindi	3	2	30
III	II	ENG 0000	Functional English II	3	2	30
III	III-C	MIC 2561	Microbial Ecology	5	5	75
III	III-C	MIC 2463	Molecular Biology	4	4	60
III	III-C	MIC 2565	Lab in Molecular Biology	5	5	75
III	III-C	MIC 2567	Analytical Microbiology	5	5	75
III	III-S	MIC 2469	Fundamentals of Pharmacology	5	4	60
III	V	XXX 0000	Extension Activity -NSS/PED	-	-	-
Total				**30**	**27**	**405**

Sem	Part	Course No	Course Title	Hrs	Credits	Marks
IV	I	XXX 0000	Tamil/French/Hindi	3	2	30
IV	II	ENG 0000	Functional English II	3	2	30
IV	III-C	MIC 2462	Microbial Genetics	4	4	60
IV	III-C	MIC 2564	Clinical Microbiology	5	5	75
IV	III-C	MIC 2566	Lab in Clinical Microbiology	5	5	75
IV	III-C	MIC 2568	Industrial Microbiology	5	5	75
IV	III- S	MIC 2570	Internship			
IV	III-S	MAS XXXX	Biostatistics	5	4	60
IV	V	XXX 0000	Extension Activity -NSS/PED	-	**1**	**15**
Total				**30**	**27+1**	**405/420**
Sem	**Part**	**Course No**	**Course Title**	**Hrs**	**Credits**	**Marks**
V	III-C	MIC 3761	Microbial Biotechnology	7	7	105
V	III-C	MIC 3563	Lab in Microbial Biotechnology	5	5	75
V	III-C	MIC 3665	Plant and Animal Cell Culture	6	6	90
V	III-C	MIC 3567	Lab in Plant and Animal Cell Culture	5	5	75
V	IV-LS	MIC 3269	Entrepreneurship in Microbiology – LS III	3	2	30
V	ES	MIC 3271	Environmental Studies	4	2	30
Total				**30**	**27**	**405**
VI	III-C	MIC 3762	Environmental and Agricultural Microbiology	7	7	105
VI	III-C	MIC 3564	Lab in Environmental and Agricultural Microbiology	5	5	75
VI	III-C	MIC 3666	Food and Dairy Microbiology	6	6	90
VI	III-C	MIC 3568	Lab in Food and Dairy Microbiology	5	5	75
VI	IV-LS	MIC 3270	Clinical Laboratory Technology - LS IV	3	2	30
VI	VE	XXX 0000	Value Education	4	2	30
Total				**30**	**27**	**405**
GRAND TOTAL				**180**	**158+2**	**2370/2400**

* **C-Core Courses**
* **NME - Non - Major Elective**
* **LS-Life Skill**
* **S – Supportive Courses**
* **VE- Value Education**
* **ES- Environmental Studies**

SUPPORTIVE COURSES (5 Hrs/W- 4 Cr)

Semester	Course Code	Course Title
I	MIC 1465	1. Microbial Biochemistry
II	MIC 1562	2. Cell Biology
III	MIC 2469	3. Fundamentals of Pharmacology
IV	MAS XXXX	4. Biostatistics

LIFE SKILL COURSES (3 Hrs/W- 2Cr)

Semester	Course Code	Course Title
I	MIC 1271	1. Pollution and Waste Management
II	MIC 1272	2. Bioproducts
V	MIC 3269	3. Entrepreneurship in Microbiology
VI	MIC 3270	4. Clinical Laboratory Technology

NON-MAJOR ELECTIVE COURSES (3 Hrs/W- 2Cr)

Semester	Course Code	Course Title
I	MIC 1269	Community Health
II	MIC 1270	Know about Microbes

VALUE ADDED COURSES (2Hrs/W-2Cr)

Semester	Course Code	Course Title
I	MIC 121V	Biocomposting
II	MIC 122V	Basics of Epidemiology
III	MIC 221V	Fundamentals of sanitation
IV	MIC 222V	Forensic Microbiology
V	MIC 321V	HACCP
VI	MIC 322V	Basics in Scientific Writing

Programme Specific Outcomes

PSO No	Upon completion of the BSc degree programme in Microbiology, the graduates will be able to
1	Formulate, articulate, retain and apply specialized language and knowledge relevant to the core concepts in microbiology.
2	Demonstrate competency in laboratory safety and in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods
3	Communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing.
4	Apply the Microbiology discipline through involvement in research or internship activities
5	Assess how microorganisms are used as model systems to study basic biology, genetics, metabolism and ecology.
6	Explain why microorganisms are ubiquitous in nature; inhabiting a multitude of habitats and occupying a wide range of ecological habitats and play an integral role in disease, microbial and immunological methodologies are used in disease treatment and prevention
7	Evaluate examples of the vital role of microorganisms in biotechnology, fermentation, medicine, and other industries important to human wellbeing
8	Outline that microorganisms have an indispensable role in the environment, including biogeochemical cycles, bioremediation and others
9	Demonstrate the following laboratory skills: aseptic and pure culture techniques, preparation of and viewing samples for microscopy, use appropriate methods to identify microorganisms, estimate the number of microorganisms in a sample, and use common lab equipment.
10	Identify and discuss the ethical issues and responsibilities of doing science

Mapping of Programme Specific Outcomes (PSO) with Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	X	X		X		X			X	X
PSO2		X	X	X	X	X	X		X	
PSO3	X	X		X	X	X	X		X	
PSO4	X	X	X	X	X		X	X		X
PSO5	X	X		X	X	X	X			
PSO6	X	X		X	X	X	X		X	
PSO7	X	X	X		X	X	X	X		
PSO8	X	X	X		X	X	X			X
PSO9				X		X	X	X	X	X
PSO10		X		X		X	X	X	X	X

Mapping of Courses with Programme Specific Outcomes (PSOs)

COURSE CODE	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
MIC 1561										
MIC 1463			✓							
MIC 1465	✓									
MIC 1467	✓									
MIC 1269						✓				
MIC 1271						✓				
MIC 1562								✓		
MIC 1464								✓		
MIC 1466					✓					
MIC 1468					✓					
MIC 1270								✓		
MIC 1272						✓				

MIC1561 General Microbiology 5 Hrs / 5Cr

This is an introductory course to microbiology for freshly enrolled undergraduates. The course aims to discuss how scientific community came together to debunk superstitions and discover the presence of microorganisms and their role in causing diseases. It gives insight into the possible theories of evolution, and the importance of microorganism in it. Current classifications, and the principles of taxonomy followed in microbiology as a field and their respective biological properties are discussed over three chapters. Also included are the basic tools and techniques necessary for an amateur microbiologist to study them.

Upon completion of this course, students will be able to

i. Compare theories on discovery of microorganisms and microbial evolution
ii. Use microscope to stain microorganisms with dyes for respective purpose
iii. Describe different methods of cultivation, counting and control of microorganisms
iv. Differentiate bacteria, archaea and virus based on their structure, taxonomy and characteristics
v. Categorize fungi and protists based on their structure, taxonomy and their characteristics

Unit I:Introduction to Microbiology (10Hrs)

Discovery of microorganisms – abiogenesis – Koch's postulates - Golden age of Microbiology; Microbial evolution – endosymbiosis, domains of life, scope of microbiology

Unit II: Basics of Microscopy (7Hrs)

Optics and properties of light, bright-field and dark-field, phase contrast, fluorescence, electron microscopy. Microbial size and shape. preparation and staining of microorganisms.

Unit III: Cultivation, counting and control of microbes (12Hrs)

Culturing microorganisms - sampling; Media- composition, types; techniques of pure culture isolation, inoculation; Counting bacteria; methods of microbial control - physical and chemical.

Unit IV: Prokaryotic diversity (14Hrs)

Bacteria – cell structure, classification, taxonomy, representative groups and characteristics;Archaea – diversity, taxonomy and general characteristics; Virus – properties, structure, classification and cultivation techniques.

UnitV: Eukaryotic diversity (8Hrs)

Classification, structure, reproduction and characteristics of fungi. Distribution, nutrition, classification, reproduction of protists

Textbook

Prescott L.M, Harley J. P and Klein D.A. (2016). Microbiology. 10 edn, McGraw Hill Book Co, New Delhi.

References

1. Slonczewski, J. L., & Foster, J. W. (2013). *Microbiology: An evolving science: Third international student edition*. WW Norton & Company.
2. Pommerville, J. C., & Alcamo, I. E. (2012). *Alcamo's Fundamentals of Microbiology: Body systems edition*. Jones & Bartlett Publishers.
3. Jacquelyn G. Black (2013), *Microbiology*, 8thedn, John Wiley & Sons International Publication.
4. Tortora, G. J., Funke, B. R., Case, C. L., & Johnson, T. R. (2018). *Microbiology: an introduction* (Vol. 13). San Francisco, CA: Benjamin Cummings.
5. Pelczar JM., Chan ECS., and Krieg NR. (1998). Microbiology. India: McGraw-Hill Education

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**	**2**			**5**	**1**
CO2		**2**	**3**	**4**	**5**	
CO3		**2**	**3**	**4**	**5**	
CO4	**1**	**2**			**5**	**1**
CO5	**1**	**2**			**5**	**1**

Mean: 3.1

MIC1463 Lab in General Microbiology 4Hrs/ 4Cr

In this laboratory course, students will be trained to explore skill-based knowledge in aseptic maintenance, handling microscopes and glassware. This course aims to provide technical hands-on-training in preparation of selective and differential media, isolation and maintenance of pure culture. Students will also identify the morphological characteristics of microbes using various staining methods.

Upon completion of this course, students will be able to

i. Apply the aseptic techniques and proper handling of glassware and equipment
ii. Prepare various culture media for the cultivation of microbes.
iii. Demonstrate pure culture isolation and maintenance.
iv. Use various staining techniques for morphological characterization of microbes.
v. Utilize storage technique for bacteria and fungi

Laboratory exercises include

1. Orientation to the laboratory: rules of conduct and general safety
2. Aseptic techniques and culture transfer methods
    a. Serial dilution
3. Microbiological culture media preparation and sterilization
    a. Preparation of solid and liquid media
    b. Preparation of agar slant, and agar deep
4. Isolation and Maintenance of Pure Cultures
    a. Streaking techniques: pour, spread, streak methods
    b. Isolation of fungi by Warcup's method
    c. Pure culture storage and maintenance.
5. Identification of morphological and cultural characteristics of unknown bacteria and fungi
6. Examination of living microorganisms
7. Bright-field light microscope and microscopic measurement of organisms
8. Bacterial Morphology and Staining
    a. Smear preparation and simple staining
    b. Differential Gram staining
    c. Negative staining
    d. Spore and capsule staining
9. Observation of bacterial motility by Hanging drop slide
10. Slide culture technique and Lactophenol cotton blue staining for fungi

Textbook

James, C., & Natalie, S. (2019). Microbiology. A Laboratory Manual. Edition 12 Pearson Education.

References

1. Johnson, T. R., & Case, C. L. (2014). Laboratory experiments in microbiology. Edition 10. Pearson/Benjamin Cummings.
2. Harley JP., and Prescott LM. (2002). Laboratory Exercises in Microbiology Fifth Edition. The McGraw−Hill Companies.
3. Brown AE., and Smith H. (2014). Benson's Microbiological applications: a laboratory manual in general microbiology. Edition 13. McGraw-Hill Education.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1				**4**	**5**	
CO2				**4**	**5**	
CO3				**4**	**5**	
CO4				**4**	**5**	
CO5				**4**	**5**	

Mean: 4.5

MIC 1465 Biochemistry 4Hrs / 4Cr

The course Biochemistry is designed to give a comprehensive understanding of the chemical nature and chemical behavior of living systems. It includes the classification, structure and functions of various biomolecules such as carbohydrates, amino acids, proteins, lipids and nucleic acids. This course aims to deal with classification, mechanism of enzyme action, enzyme kinetics, regulation and inhibition

Upon completion of this course, students will be able to:

i. Assess the chemical nature and chemical behavior in living systems.
ii. Differentiate the types of carbohydrates and their biological significances.
iii. Analyze the structure of amino acids & proteins.
iv. Explain the chemistry, structure and significances of lipids and nucleic acids.
v. Discuss the structure, properties, mechanism of enzyme action and the regulation of enzyme activity.

Unit I: Biochemical interactions (10 hrs)
Atoms - types of chemical bonding - functional groups - structure and Properties of water - dissociation constant - Henderson and Hassel balch equation - acids and bases - pH scale - buffers - molarity and normality.

Unit II: Carbohydrates (10 hrs)
Monosaccharides - isomerism - structural forms and derivatives. Disaccharides - Oligosaccharides - Polysaccharides - simple and complex - Biological significances of carbohydrates.

Unit III: Amino acids and proteins (10 hrs)
Amino acids: Structure - classification - properties - Protein - classification - Structure: primary, secondary, tertiary and quaternary. Biological significances of amino acids and proteins.

Unit IV: Lipids and nucleic acids (10 hrs)
Lipids: Structure and biological significances offatty acids - triglycerides - phospholipids - sphingolipids - glycolipids - cholesterol - lipoproteins. Nucleic acids: Nucleotides - empirical structures - Structure, properties and types of DNA and RNA.

Unit V: Introduction to enzymes (10 hrs)
Classification - properties - enzyme kinetics - factors affecting rate of enzyme activity - mechanisms of enzyme action - regulation of enzyme activity - enzyme inhibition - coenzymes and cofactors.

Textbook
Moran LA, Horton HR, Scrimgeour KG and Perry MD (2012) Principles of Biochemistry. 5th Edition, Pearson Education, Inc., New York, USA.

References

Nelson DL and Cox MM (2017) Lehninger Principles of Biochemistry. 7th Edition, W.H. Freeman Company, USA.

Satyanarayana U and Chakrapani U (2013) Biochemistry. 4th Edition, Elsevier - a division of Reed Elsevier India Pvt. Ltd., New Delhi.

Murray RK, Granner DK, Mayes PA and Rodwell VA (2000) Harper's Biochemistry. 25th Edition. Appleton & Lange, USA.

Berg JM, Tymoczko JL and Stryer L (2011) Biochemistry. 7th Edition, W.H. Freeman and Company, New York, USA.

Jain JL, Jain S and Jain N (2016) Fundamentals of Biochemistry. S. Chand & Company Ltd., New Delhi.

Ferrier DR (2017) Lippincott Illustrated Reviews Biochemistry. 7th Edition, Wolters Kluwer India Pvt., Ltd., Haryana.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**			**4**	**5**	
CO2	**1**			**4**	**5**	
CO3	**1**			**4**	**5**	
CO4	**1**	**2**				
CO5	**1**	**2**				

Mean: 2.8

MIC 1467 Lab in Biochemistry 2Hrs/Wk – 2 Cr

The lab course in Biological Chemistry includes pH metry, qualitative estimation of biomolecules, centrifugation, chromatographic separation of amino acids, and enzyme kinetics.

Upon completion of this course, students will be able to:

i. Use pH meter, colorimeter and centrifuge.
ii. Demonstrate paper and thin layer chromatography.
iii. Estimate the quantity of nucleic acids colorimetrically.
iv. Analyze biological samples for carbohydrates, protein and lipids qualitatively.
v. Evaluate the factors affecting enzyme activity.

Laboratory Exercises:

1. pH metry
2. Preparation of biological buffers
3. Acid *vs* Base titration
4. Estimation of sugar by colorimetry
5. Qualitative analysis of carbohydrates
6. Qualitative analysis of amino acids & proteins
7. Qualitative analysis of lipids
8. Quantitative estimation of DNA and RNA
9. Chromatography: Paper and Thin Layer
10. Centrifugation: separation of serum and milk proteins
11. Factors affecting enzyme activity on salivary and bacterial amylase

References

Plummer DT (1996) An introduction to Practical Biochemistry. Tata McGraw Hill, New Delhi.

Rajan S and Christy RS (2010) Experimental Procedures in Life Sciences. Anjanaa Book House Publishers and Distributors, Chennai.

Palanivelu P (2009) Analytical Biochemistry and Separation Techniques, 4th Edition, Twenty first Century Publications, Madurai

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1				**4**	**5**	
CO2				**4**	**5**	
CO3				**4**	**5**	
CO4				**4**	**5**	
CO5				**4**	**5**	

Mean: 4.5

MIC 1269 Community Health 3Hrs / 2Cr

This course will encourage the students to understand the history, the need and the importance of community health and create awareness on the current scenario of the environmental and occupational community health problems present in India. This course aims to guide students to carryout community health planning and resource assessment and also will have the opportunity to gain volunteer community-based work experience and create a community experience portfolio.

Upon completion of this course, students will be able to

i. Explain the concepts and goals of community health in India.
ii. Appreciate the roles and significance of organization in ensuring health for all.
iii. Discuss the health planning objectives
iv. Critique the need for environmental safety towards public health.
v. Analyze the possible hazards of workplace and the necessity of preventive measures to ensure worker's safety.

Unit I: Community and public health (8 hours)

Introductions – definition – general concepts –history of public health – philosophy behind health for all, primary health care, millennium development goals –state of health profile in India – past, present, future.

Unit II: Adolescence and Occupational health (8 hours)

Adolescence: a special group - physiological and psychological needs – health problems – Global and Indian scenario –Alcohol & drug abuse - interventions- initiatives in India; Occupational health – definition - health hazards – health problems in various occupations – preventive measures – safe work environment – social security and labour laws.

Unit III: community health and the environment (8 hours)

Introduction – outdoor and indoor air pollutants – protecting the air – sources and types of water pollutants – ensuring the water safety – waste water treatment – food borne disease – regulating food safety - managing solid and hazardous waste – natural, psychological and sociological hazards

Unit IV: Community organizing and health promotion (8 hours)

Introduction – need – assumptions and methods – the process of community organizing – basics of health promotion programming.

UnitV:Organizations that shape community and public health (8 hours)

International health –definition –organizations involved –WHO, UNICEF, UNESCO, FAO, ILO, UNDP, UNFPA, UNAIDS, world bank – organization of health care in India

Textbooks

1. McKenzie, James F, Pinger, Robert R (2014) An Introduction to Community & Public Health. United States: Jones & Bartlett Learning.
2. Bhalwar R and Vaidhya R (2009) Text Book of Public Health and Community Medicine. India: Department of Community Medicine, Armed Forces Medical College, World Health Organization, Pune.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	**1**	**2**				
CO2	**2**	**2**				
CO3			**3**	**4**	**5**	**6**
CO4				**4**	**5**	
CO5				**4**	**5**	

Mean: 3.6

MIC 1271 Pollution & Waste Management 3Hrs / 2Cr

Environmental management is actively moving toward strategies of reduction and prevention of pollution and waste management. Planning for pollution prevention is recognized as a vital component of this process. This course aims at introducing students the basic aspects of air, soil water and soil pollution, its effects and preventive measures. In the last two units they will gain knowledge on waste and disaster management.

Upon completion of this course, students will be able to

i. Outline information on air and soil pollutants and their control measures
ii. Assess standards and control measures for water and noise pollution
iii. Compare global and regional perspectives of environmental pollution
iv. Identify the sources, causes and types of solid wastes
v. Plan techniques for solid waste disposal and disaster management

Unit I: Air and Soil Pollution(8 hrs)
Definition-causes – sources - air pollutants - particulates and gaseous pollutants–prevention & control technologies of Air Pollution. Soil pollution-causes -sources –industrial waste effluents – heavy metals - degradation of soil quality- remediation of Contaminated Soil

Unit II: Water and Noise Pollution(8 hrs)
Water pollutants and their sources; Pollution of stream, lakes -Eutrophication- waste water treatments systems -water quality standards-prevention & control measures. Noise pollution-causes-sources-Decibel scale-noise instrumentation and monitoring procedure- impacts of noise pollution-control and preventive measures.

Unit III:Waste Management(8 hrs)
History of waste management, Waste – definition, types - Municipal solid waste- **o**rganic waste- commercial wastes-Toxic Waste-Recyclable-Soiled-Hazardous Wastes-Biomedical wastes- Animal wastes- Sewage Wastes- Urban and industrial wastes – e-waste.

Unit IV:Policy on Wastemanagement(8 hrs)
Environmental policy and law on waste management, Reduce-recycle-reuse policy; Current practices in India; worldwide waste management regimes

Unit V:Waste treatment(8 hrs)
Waste collection and transportation options, Chemical – physical – biological treatment methods – waste disposal and recycling methods, Landfills – wastewater treatment plants; Bioremediation

Textbooks

Atlas R. and Bartha .M (1988) Microbiology Fundamentals & Applications.2ndedn.Maxwell Macmillan International edn. UK.
Mitchell R (1992) Environmental Microbiology, Wiley – John Wiley Sons, Inc Publications, New York.

References

1. Bilitewski, B., Härdtle, G., Marek, K. (2013). Waste Management. Germany: Elsevier Science.
2. Vaughn, J. (2009). Waste Management: A Reference Handbook. United States: ABC-CLIO.
3. Eugene P. Odum (1990) Ecology – A Bridge between Science and Society.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2		2				
CO3				4		
CO4			3			
CO5						5

Mean: 3

MIC1562 Cell Biology 5Hrs / 5Cr

This course offers students the basic structure of prokaryotic and eukaryotic cells and the organization of cells and their organelles. It will help them understand the features common to all cells, from microbes to mammalian cells. Student will learn how cells interact with each other and the outer environment, the importance of cytoskeleton in various cellular processes such as intracellular transport, cell division etc. This course aims to help students to appreciate the various internal and external features of cells which allow them to perform diverse functions required of them for the proper functioning of an organism.

Upon completion of this course, students will be able to:

i. Outline various milestones in the discovery of the structure of diverse cells and their basic properties and functions
ii. Understand the fine structure of the plasma membrane, its functions and the various intercellular junctions and adhesion molecules that help cellular organization into tissues.
iii. Comprehend the structure and functions of organelles and the cytoskeleton.
iv. Discuss and compare various cell signaling strategies adapted by cells to convert external signals to various cellular responses.
v. Evaluate how cells divide, grow and die and the loss of cell cycle control leading to cancer.

Unit I: Introduction to cell biology (10hrs)

The discovery of cells- cell theory- basic properties of cells- characteristics that distinguish prokaryotic and eukaryotic cells- cellular organisation - types of prokaryotic cells- types of eukaryotic cells.

Unit II: Membranes and junctions (12hrs)

Structure of plasma membrane- Fluid mosaic model- Functions of plasma membrane. Transport across membrane- channels, pumps, carriers- absorption of glucose from the intestine. Endocytosis- exocytosis- membrane trafficking. Extracellular matrix- cell adhesion- intercellular junctions.

Unit III: CellularOrganelles and the cytoskeleton (12hrs)

Mitochondria, chloroplasts, peroxisomes, endoplasmic reticulum, secretory membrane system and golgi apparatus, nucleus. Cytoskeleton- major functions of the cytoskeleton. Actin fibres, microtubules, intermediate filaments- Centrioles and centrosomes- mechanism of muscle contraction and the role of cytoskeleton.

Unit IV: Cell communication (14hrs)

Cell signalling- local signalling and long-distancesignalling-Three stages of cell signalling- a preview of reception, transduction and response. Receptors in the plasma membrane- G protein coupled receptors, Receptor tyrosine kinases- ion channel receptors- intracellular receptors. Signal transduction pathways- Protein phosphorylation and dephosphorylation- second messengers. Responses- cellular and cytoplasmic responses. Mechanism of cholera toxin- stimulation of glycogen breakdown by epinephrine.

Unit V: The Cell Cycle **(10hrs)**

Key roles of cell division- Cell cycle- Phases of the cell cycle- Mitosis- Meiosis. Regulation of cell cycle. Apoptosis, Cancer as an example of loss of cell cycle controls.

Textbooks

1. Plopper, G. (2011). Principles of cell biology. First Edition. Jones and Bartlett Learning, MA, USA.
2. Reece, J. B., Urry, L. A., Cain, M. L., Wasserman, S. A., Minorsky, P. V., & Jackson, R. B. (2014). Campbell biology (No. s 1309). Boston: Pearson.

References

1. Karp, G., Iwasa, J., & Marshall, W. (2020). Karp's Cell and Molecular Biology. John Wiley & Sons.
2. Raven, P. H., Mason, K. A., Losos, J. B., Singer, S. R., & Johnson, G. B. (2014). Biology. 10th. AP, editor. Dubuque, Iowa: McGraw-Hill.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2			5	
CO2	1	2		4	5	
CO3	1	2	3		5	
CO4	1	2			5	
CO5	1	2	3		5	

Mean: 2.8

MIC1464 Immunology 5Hrs / 5Cr

This course attempts to provide a basic understanding in Immunology. The course aims to discuss cells and organs of the immune system, complement, antigens, antibody structure, antibody diversity, antigen-antibody interactions, cell mediated and humoral immune response. In the section on disorders of immune system, autoimmunity, hypersensitivity reactions, immunodeficiency disorders that include AIDS are dealt.

Upon completion of this course, students will be able to

i. Identify the basic concepts in Immunology such as cells, organs, cytokines and complement system.
ii. Explain antigen, antibody and their interactions.
iii. Discuss the role of B, T cells and MHC in antigen recognition
iv. Assess humoral immune response and antibody diversity
v. Outline the regulation of immune response and disorders of the immune system

Unit I: Overview of the immune system (15hrs)
A historical perspective -– cells, tissues, organs and microenvironments of the immune system. Types of immunity: innate – anatomical barriers, chemical defenses, complement system, inflammation, Pattern recognition receptors, cytokines and adaptive – properties – humoral and cellular.Antigens- Types, Properties, Epitopes, Determinants of Immunogenicity

Unit II:Humoral immunity (10hrs)
Development of B-cells. Activation of B Lymphocytes and Production of Antibodies. B cell receptor structure and function. Effector Mechanisms of Humoral Immunity.

Unit III: Antibodies (10hrs)
Antibody structure, classes, functions,Generation of diversity, Allotypes and idiotypes, Monoclonal antibodies, Antigen–antibody complexes - Primary interactions-affinity and avidity-secondary interaction-agglutination-precipitation. Primary and secondary immune responses of antibodies - Immunological memory and vaccination - adjuvants

Unit IV: Cell-mediated immunity (10 hrs)
Types of T-lymphocytes. Development of T-cell. T-cell receptors. Role of Major Histocompatibility Complex. Antigen recognition, processing and presentation by T-cell. Effector mechanisms of cell-mediated immunity. NK cells – Antibody-dependent cell mediated cytotoxicity

Unit V: Dynamics of the immune response, in health and disease(10hrs)
Allergy and hypersensitivity – Transplantation – Autoimmunity - Immunodeficiency disorders – AIDS.

Textbooks
1. Owen JA., Punt J and Stranford SA. (2013). Kuby Immunology. 7 th Ed. WH Freeman and Company, New York.
2. Coico R. and Sunshine. G. (2015). Immunology – A Short Course. 7 thedn. Wiley Blackwell, UK.

References:

1. Pier GB., Lyczak JB and Wetzler LM. (2004). Immunology, Infection, and Immunity.ASM press.
2. Delves PJ, Martin SJ, Burton DR and Roitt IM (2006).Essential Immunology. 11 th Ed.Blackwell Pub Ltd, UK
3. Murphy K. and Weaver C. (2017). Janeway's Immunobiology. 9th edn. GarlandScience, New York and London.
4. Abbas, A. K., Lichtman, A. H., Pillai, S. (2016). Basic Immunology: Functions and Disorders of the Immune System. Netherlands: Elsevier.
5. Wood, P. J. (2006). Understanding Immunology. United Kingdom: Pearson Prentice Hall.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2				**4**		
CO3					**5**	
CO4				**4**		
CO5			**3**			

Mean: 3.6

MIC1466 Lab in Immunology 4Hrs / 4Cr

The laboratory component includes identification and enumeration of blood cells, location of lymphoid organs in selected vertebrates, preparation of antigens. Immunization techniques, methods of raising polyclonal antibodies, repetitive bleeding methods, antibody titration, complement mediated hemolysis, ELISA test for AIDS and skin test for allergy reactions.

Upon completion of this course, students will be able to

i. Identify the primary and secondary lymphoid organs.
ii. Assess the steps involved in raising polyclonal antibodies
iii. Demonstrate the diagnostic tests based on antigen-antibody interactions
iv. Perform ABO blood grouping and detection of HIV
v. Apply skin tests for allergy reactions.

The Laboratory component includes exercises as follows:

1. Total and differential count of blood cells
2. Lymphoid organs in vertebrates – fish
3. Raising polyclonal antibodies, I-preparation of antigens
4. Raising polyclonal antibodies II-routes of immunization
5. Raising polyclonal antibodies III- bleeding techniques and separation of serum
6. Raising polyclonal antibodies IV-antibody titration
7. Complement mediated hemolysis
8. Ouchterlony double immunodiffusion (ODI)
9. Mancini's single radial immunodiffusion (SRID)
10. Immunology of ABO blood grouping
12. ELISA test for AIDS
12. Skin test for allergy reactions

References:

1. Myers RL. (1989). *Immunology: A Laboratory Manual*. Wm. C. Brown, Dubuque, Iowa.
2. Hay FC and Westwood OMR (2003). *Practical Immunology*. 4th Ed. Blackwell Science UK.
3. Garvey JS., Cremer NE and Sussdof DH (1993).*Methods in Immunology – A Laboratory Text for Instruction and Research*. 3rd Ed. The Benjamin/Cummings Publisher, London.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2				4		
CO3					3	
CO4			4			
CO5		2				

Mean: 3

MIC1468 Microbial Physiology and Metabolism 5Hrs/WK- 4Cr

This course provides students the components of physiology and metabolism of microbes. This course aims to emphasize on the nutritional diversifications and uptake of nutrients by microbes and their growth. The students are exposed to the basic idea on nature of energy, concepts of thermodynamics and oxidation reduction reactions. It gives an opportunity to learn the basic principles and processes common to metabolism of all microbes.

Upon completion of this course, students will be able to:

i. Outline how the nutritional needs of microbes are diverse and compare the modes of transport microbes employ to uptake nutrients
ii. Identify the physiological changes in microbes during growth, the methods to measure microbial growth and to explain the role of environmental factors in influencing microbial growth
iii. Analyze and evaluate the laws governing biochemical reactions in microbes
iv. Discuss and compare how microbes catabolize carbohydrates aerobically and anaerobically for energy production
v. Evaluate how proteins and fats are utilized by microbes and how photoautotrophic microbes make food

Unit I: Microbial Nutrition (12h)

Categories of essential nutrients- forms, sources and functions of essential nutrients- nutritional types of microorganisms- transport of nutrients across the cell membrane- Diffusion- osmosis- active transport- passive transport

Unit II: Microbial growth (12h)

Bacterial cell cycle- binary fission- growth curve- methods of analysis of population growth- environmental factors that affect microbes - Ecological association among microbes- Mutualism- commensalism- parasitism- biofilms- quorum sensing -sporulation

Unit III: Microbial Metabolism (12h)

Enzymes- structure- Functions- Regulation of enzymatic activity- Factors affecting enzyme activity- thermodynamics- cell energetics- Biological oxidation and reduction- ATP as a source of energy- laws of thermodynamics- catabolism and anabolism

Unit IV: Carbohydrate metabolism (16h)

Aerobic respiration- Glycolysis- Krebs cycle- Electron transport chain. Anaerobic respiration- Fermentation- Metabolism of chemolithotrophs/ chemolithotrophic microbes

Unit V: Photoautotrophic bacteria, Protein, fat and nucleotide metabolism of chemorganotrophs (18h)

Bacterialphotosynthesis- Oxygenic and anoxygenic photosynthesis, rhodopsin-based phototrophy. Deamination- Amino acid biosynthesis- beta- oxidation of fats- lipid synthesis- synthesis of purines, pyrimidines and nucleotides.

Textbooks

1. Willey JM., Sherwood LM., and Woolverton CJ. (2011). Prescott's Microbiology, 8th ed., McGraw Hill International Publication.
2. Black JG. (2013). Microbiology. 8th ed. John Wiley & Sons International Publication

References

1. Talaro, K. P., Chess, B. (2017). Foundations in Microbiology. 10th Edition. United States: McGraw-Hill Education.
2. Foster, J. W., Slonczewski, J. (2017). Microbiology: An Evolving Science. United Kingdom: W.W. Norton.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	2				
CO2		2		4		
CO3			3		5	
CO4		2	3			
CO5		2			5	

Mean: 2.9

MIC 1270 Know About Microbes 3Hrs / 2Cr

A comprehensive course that aims to give a basic understanding on the structure and characteristic features of wide range of microorganisms. This course aims to describe the role of these microorganisms in our daily life, agriculture, industries and medical fields.

Upon completion of this course, students will be able to:

i. Illustrate the structure and features of bacteria, viruses, algae, fungi and protozoa.
ii. Discuss the importance of microbes in our daily life.
iii. Identify the microbial agents that cause diseases.
iv. Explain the role of microorganisms in agriculture.
v. Evaluate the importance of microbes in the production of industrially important products.

Unit I: Introduction to microorganisms (8 hrs)
Structure and general characteristic features of bacteria - viruses - algae - fungi - protozoa.

Unit II: Microbes in our daily life (8 hrs)
Normal microflora of humans - microbiology of milk and dairy products - microorganisms in food spoilage and its control - edible mushrooms - SCP.

Unit III: Microbes of medical importance (8 hrs)
Biology and pathogenesis of*Salmonella typhi* - *Mycobacterium tuberculosis* - *Clostridium botulinum* - HIV - SARS CoV2 - *Hepatitis* - *Candida albicans* - *Plasmodium vivax* - *Entamoeba histolytica.*

Unit IV: Microbes of agricultural importance (8 hrs)
Nitrogen fixationby symbiotic and non-symbiotic microorganisms - Biofertilizers - Bacterial insecticides - Entomopathogenic fungi - Plant viruses (TMV and CMV).

Unit V: Microbes of Industrial importance (8 hrs)
Role of microorganisms in the production of industrially important products - wine - vinegar -lactic acid - citric acid - penicillin - vitamins.

Textbook

Dubey RC and Maheshwari DK (2013) A Textbook of Microbiology. S. Chand & Company Ltd., New Delhi.

References

Tortora GJ, Funke BR and Case CL (2016) Microbiology: An Introduction. 12th Edition, Pearson Education, Inc., New York, USA.

Pelczar MJ, Chan ECS and Kreigh NR (2000) Microbiology. 8th Edition, Tata McGraw Hill, New Delhi.

Kanungo R. ed. (2017) Ananthanarayan and Paniker's Textbook of Microbiology. 10th Edition, The Orient Blackswan, Hyderabad.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**				
CO2	1	**2**				6
CO3	1	**2**	**3**			
CO4	1	**2**			**5**	
CO5	1	**2**		**4**	**5**	

Mean: 2.5

MIC 1272 Bioproducts 3 Hrs / 4Cr

This course dealt the production of various products from microbes mainly through fermentation. The course will facilitate the students to became an entrepreneur by providing basic information about fermentation and the organisms used.

Upon completion of this course, students will be able to

i. Describe the production fermented dairy products
ii. Explains the applications of microbes in the field of pharmaceuticals.
iii. Discuss the production of beverages and other chemical compounds
iv. Explain the importance of alternative energy and the production of biofuels.
v. Demonstrate how microbes itself used as products.

Unit I: Foods (8 Hrs)

Dairy industry - organisms used, fermented dairy products and nutritive values of cheese, yogurt, acidified milk, kefir and koumiss.

Unit II:Pharmaceuticals (8 Hrs)

Antibiotics - organism used - fermentation - production of streptomycin and tetracycline. Production of insulin and interferon through cloned microbial cells.

Unit III: Beverages and other useful chemicals (8 Hrs)

Production of beer and wine; production of acetic acid, citric acid, lactic acid, vitamin and amino acids.

Unit IV: Biofuels (8 Hrs)

Biogas and bioethanol - definition - methods - raw materials (wastes) - collection and processing - role of microbes - fermentation - anaerobic digester - renewable natural gas - safety measures.

Unit V: Microbes as products (10 Hrs)

Single cell protein: microorganisms used; raw material used as substrate; condition for growth and production; nutritive value and uses of SCP. Mushroom production: cultivation of different types of mushroom; edible mushroom; Nutritive value of an edible mushroom. Microbial fertilizers- Production of *Rhizobium*, *Azotobacter*, *Azospirilla* and - Phosphate solubilizing bacteria; mycorrhiza.

Textbooks:

1. L. M. Prescott, J. P. Harley and D. A. Klein. Microbiology-, McGraw Hill
2. Frazier, Food microbiology. W.C. Tata McGraw Hill.

References:

1. Bergerson F J. 1980. Methods for Evaluating Biological Nitrogen Fixation. John Wiley & Sons.
2. Casida, Industrial microbiology-, L.E. New age international Ltd, Publishers. New Delhi:
3. N. J. Pelczar, S. Chand, R. Krieg. Microbiology- Tata McGraw Hill.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**	**3**			
CO2	1	**2**	**3**			
CO3		**2**	**3**			
CO4		**2**	**3**		**5**	
CO5		**2**	**3**		**5**	

Mean: 2.8

VALUE ADDED COURSES

MIC 121V **Biocomposting** **2Hrs / 2Cr**

This course is designed to provides basics of composting, its various methods and applications. This course aims to infuse knowledge about the maximum utilization waste in to useful products by means of composting. By visiting industries students will be enlighten and acquire information to become an entrepreneur.

Upon completion of this course, students will be able to

i. Discuses various eco-friendly methods for waste management.
ii. Explain the energy production potential of natural wastes.
iii. Illustrate the utilization and nutritive value of agro-wastes.
iv. Explain the production of alternative energy and their importance.
v. Enlighten the students with field exposure

UnitI: Composting (6 Hrs)
Definition - History - fundamentals - microorganisms involved - phases of composting - methods - materials used - applications.

Unit II: Vermicomposting (6 Hrs)
Definition - collection - characterization - composting methods - factors involved - methods of vermicompost - maintenance - harvesting.

UnitIII:Agro-waste (6 Hrs)
Collection - role of microbes - fermentation - product recovery of products such as organic acids, vitamin and amino acids.

Unit IV: Biofuels (6 Hrs)
Biogas - Screening of waste (ligno-cellulose) - types of digester - factors - production of biogas; Bioethanol - raw materials - microbes involved - fermentation - product recovery.

UnitV: Field exposure (6 Hrs)
Visit to any one or two industries.

Textbook:

1. The Gardener's Guide to Composting, 3rd edition, by Stu Campbell. North Adams, Massachusetts: Storey Publishing, 1998.

References:

1. P.D. Grover and S.K. Mishra, Biomass Briquetting: Technology and Practices. Published by FAO Regional Wood Energy Development Programme in Asia, Bangkok, Thailand, 1996.
2. Magdalena Muradin and Zenon Foltynowicz, Potential for Producing Biogas from Agricultural Waste in Rural Plants in Poland. Sustainability, 2014, 6, 5065-5074.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**	**3**			
CO2	1	**2**	**3**			
CO3		**2**	**3**		**5**	
CO4		**2**	**3**			
CO5		**2**	**3**			

Mean: 2.6

MIC 122V Basics of Epidemiology 2Hrs / 2Cr

This course introduces the principles and basic methods of modern epidemiology. It covers the methods involved in surveillance of diseases and assessing and validating the reliability of screening and diagnostic tests. The course also covers the aspects of epidemiological approaches in identifying the cause of diseases and assessing the preventive and therapeutic measures of disease outbreak.

Upon completion of this course, students will be able to:

i. Explain the modes of transmission and outbreak of epidemiological diseases.
ii. Analyze and interpret the epidemiological data.
iii. Assess and validate the reliability of screening and diagnostic tests.
iv. Discuss the various epidemiological approaches in identifying the cause of disease.
v. Evaluate the methods in assessing preventive and therapeutic measures of disease outbreak.

Unit I: Dynamics of disease transmission (6 hrs)
Modes of transmission - clinical and sub-clinal diseases - disease outbreaks - immunity and susceptibility - incubation period - herd immunity - attack rate

Unit II: Measuring occurrence of disease(6 hrs)
Surveillance - stages of disease in population - measures of morbidity - incidence and prevalence rates - measures of mortality - mortality rate - case-fatality rate - proportionate mortality

Unit III: Assessing and validating reliability of screening and diagnostic tests (6 hrs)
Biologic variations in human population - validity of screening tests - tests with dichotomous results - tests of continuous variables - use of multiple tests - reliability of tests - kappa statistic

Unit IV: Epidemiological approach to identify the cause of disease(6 hrs)
Observational studies - Case reports and case series - Ecologic studies - Cross-sectional studies -Case control studies - Cohort studies

Unit V: Assessing preventive and therapeutic measures (6 hrs)
Randomized trials - selection of subjects - studies with and without comparison - factorial design - phases of testing drugs - multiple risk factor intervention trial - registration of clinical trials - ethical considerations

Textbook:
Celentano DD and Szklo M (2019) Gordis Epidemiology. Sixth Edition, Elsevier Inc., Canada.
References:
Beaglehole R, Bonita R and Kjellstrom T (1993) Epidemiology. World Health Organization,Geneva
Rothman KJ (1998) Modern epidemiology. Little Brown and Company, Boston/Toronto

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**				
CO2	1	**2**	**3**	**4**	**5**	
CO3		**2**	**3**	**4**	**5**	
CO4		**2**	**3**	**4**	**5**	
CO5		**2**	**3**	**4**	**5**	

Mean: 3.2

MIC221V Fundamentals of Sanitation 2Hrs / 2Cr

This course helps students to understand the imperative of hygienic practices in reducing disease outbreaks associated with poor sanitation. To that end, the course provides insight into the various practices involved in maintaining sanitation in hospital, other healthcare facilities and food plants as these are some of the most important sources of deadly disease outbreaks. Students will learn about various disinfectants, detergents, sanitizers and cleaning equipment used to maintain hygiene in healthcare facilities and food plants.

Upon completion of this course, students will be able to:

i. Comprehend the importance of personal hygiene, nosocomial infections, infectious disease burden in India.
ii. Understand the hospital environment, chemicals and equipment used for maintaining hygiene in healthcare facilities (HCF).
iii. Discuss different disinfection and sterilization practices adapted by HCFs
iv. Realize the importance of food safety and various disease outbreaks related to poor handling of food
v. Comprehend the various food safety measures taken by diverse food industries to minimize contamination.

Unit I: Introduction to sanitation(6 hrs)
Nomenclature/terms- significance of sanitation- basic principles of personal hygiene- healthcare associated infections (HCAI)- anti-microbial resistance (AMR)- diseases associated with poor sanitation- infectious disease burden in India

Unit II: Hospital housekeeping I (6 hrs)
Hospital environment and different hazards- Detergents and disinfectants- Cleaning procedures for different areas of the hospital- Cleaning equipments- operation and maintenance- waste disposal and treatment.

UnitIII: **HospitalhousekeepingII (6 hrs)**
Infection control measures- disinfection and sterilization- types and practices- prevention and control of hospital infection- WASH in healthcare facilities- WHO guidelines.

Unit IV: Food safety I (6 hrs)
Biosecurity and sanitation- foodborne bioterrorism- food contamination sources- allergens in food- sanitizers- sanitary equipments- pest control

Unit V: Food Safety II (6 hrs)
Sanitation in different types of food industries- dairy processing plants- meat and poultry – seafood plant sanitation- fruit and vegetable processing plants- beverage plant sanitation.

Textbook:

1. Marriott, N. G., Schilling, M. W., &Gravani, R. B. (2018). *Principles of food sanitation*. Springer.
2. World Health Organization (2019). Water, Sanitation and Hygiene in Healthcare Facilities: Practical Steps to Achieve Universal Access to Quality Care. Geneva: World Health Organization.

References:

1. World Health Organization Staff, & World Health Organization. (2004). Laboratory Biosafety Manual. World Health Organization.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1	**2**			**5**	
CO2		**2**		**4**	**5**	
CO3			**3**		**5**	
CO4		**2**			**5**	
CO5	1		**3**			

Mean: 3.2

MIC 222V **Forensic Microbiology** **2Hrs / 2Cr**

Microbes are involved in everything of human life. Criminalistics and forensics are not exceptions. This course is designed for the understanding the use of the microbes and microbiological methods for adding strength to the existing forensic investigation strategies.

Upon completion of this course, students will be able to

i. Relate microbiology for the advantage of forensics
ii. Collect and preserve microbes for the support of existing evidences
iii. Know the utility of biological material for forensic analysis
iv. Analyze and apply the molecular techniques for forensic investigation
v. Design experiment for developing evidences for investigations

Unit I: Introduction to Forensics and Microbiology (6 hrs)
Locard's exchange principle, Microbes and their ubiquitous nature, collection of samples from the crime scenes, basics of microbial culture techniques.

Unit II: Microbiome analysis in forensics (6 hrs)
Protection of the crime scene, Microbes as supporting evidences microscopic observation of the diatoms and planktons for support of evidences in deaths due to submergence, post-mortem microbiome.

Unit III: Forensic Serology (6 hrs)
Composition of blood, Blood grouping and typing for racial distinctions, Lewis antigen in genetics, secretors and non – secretors as evidences, serogenetic markers (HLA typing) in lineage analysis

Unit IV: Molecular techniques in forensic analysis (6 hrs)
Genetic markers from biological sample, methods of isolating DNA from the blood and body fluid) Blotting techniques, RAPD and RFLP, DNA fingerprinting, DNA sequencing and PCR in parental disputes,

Unit V: Microbial Forensics and critical analysis (6 hrs)
Microbes as the evidences for prosecution**,** case – dependant customization of the protocols, historical perspectives and the future prospect, Governance and regulations for monitoring vaccines, drugs and bio-weaponry.

Textbooks:

1. Microbiology: Lansing M Prescott & D Harley and Donald E Klein
2. Forensic Microbiology. David O. Carter, Jeffery K. Tomberlin, M. Eric Benbow, Jessica L. Metcalf, John Wiley & Sons, 21-Mar-2017

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2			3	3	3	6
CO3		2	3	4		
CO4			3	4	5	6
CO5			3	4		6

Mean: 3.8

MIC 321V **Hazard Analysis and Critical Control Point System (HACCP)** **2Hrs / 2Cr**

This course focuses on the application on hazard analysis and risk-based preventive controls (HARPC) that align with the Food Safety Modernization Act (FSMA) regulations and HACCP principles. It includes the FDA-recognized "standardized curriculum" developed by the Food Safety Preventive Controls Alliance (FSPCA).

Upon completing the course, students will be able to:

i. Implement science-based HACCP Principles as a basis for food and food safety.
ii. Possess a working knowledge of how to meet FSMA regulatory requirements outlined in the Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food.

Unit I: Introduction & Overview (6 hrs)
History and Introduction to HACCP, Principles and applications of HACCP. Prerequisite programs, Good manufacturing practices (GMP), Standard Operating Procedures (SOP), and Sanitation Standard Operating Procedures (SSOP). TACCP and VACCP, Codex Alimentarius Commission.

Unit II: Application of HACCP to control Food Hazards(6 hrs)
Definition of the terms: Hazard, Risk, Food business operation, Critical Control Point, Risk assessment, Hazard analysis, Control measure corrective action, critical limit, deviation, monitor, validation and verification.

Unit III: Critical Control Points (CCP) (6 hrs)
Application of CCP food business operation - methods of identifying CCP to ensure food safety, Critical limits specification.

Unit IV: Identification and Prevention of Hazard(6 hrs)
Identification of biological, chemical, and physical hazards - food (Food additives and adulterants),Allergens (Natural and Artificial residues) - Drugs (Veterinary drug residues). Preventive measures.

Unit V:HACCP plan and Legislations(6 hrs)
Monitoring procedures, Verification, and record-keeping procedures within a food manufacturing industry. Food Hygiene Regulations 2006 and the EU Regulations - Codes of Practice with regard to the system of HACCP. Implementation procedures based on HACCP principles. Labelling under the EU Consumer Information (Consumer Regulation 1169/2011, Food Information Regulations 2014).

Textbook

1. *HACCP: A Systematic Approach to Food Safety*, Jeffrey T. Barach and Melinda M. Hayman, Fifth Edition 2014.

2. Food Quality and Safety Systems - A Training Manual on Food Hygiene and the Hazard Analysis and Critical Control Point (HACCP) System, John R. Lupien(1998), Publishing Management Group, FAO Information Division ISBN 92-5-104115-6

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2			3	3	3	6
CO3		2	3	4		
CO4			3	4	5	6
CO5			3	4		6

Mean: 3.8

MIC 322V BASICS OF SCIENTIFIC WRITING 2Hrs / 2Cr

This course aims to introduce the concept of academic writing in the field of biological sciences. It emphasizes on the precision, clarity and other technical skills necessary in writing a research article, a thesis, a review paper or while presenting an oral/poster presentation. The course will be dealt in writing exercises that will touch grammar, sentence construction, paragraph writing, components of research paper such as title, abstract, materials and methods, interpretation of results and its discussion. Do's and don'ts exercises on vocabulary and expressions related to science will also be provided. Students will become familiar with citing references, their formats, as well as the different types of plagiarism. On a final note, they will also engage in writing summarized scientific text to present in seminars, posters, as well as replying to emails and letters.

Upon completion of this course, students will be able to

i. Employ grammar properly in forming sentences and paragraphs
ii. Prepare a scientific report
iii. Identify reference formats and avoid plagiarism
iv. Recognize and apply diverse scientific terminologies and vocabulary
v. Construct emails, letters, oral as well as poster presentations

Unit I: Grammar for academic writing (6hrs)
Articles, Subject-verb agreement, Prepositions, Sentence construction, Participle clauses, Verb patterns, punctuation

UnitII: Organizing a scientific report (6hrs)
Writing Exerciseson Titles, Abstract, Materials and Methods**,** Results and Discussion

Unit III: Bibliography and Plagiarism (6hrs)
Reading exercises, Reference Formats, types of plagiarism, Plagiarism checker softwares

Unit IV: Expressions and Vocabulary in science (6hrs)
Exercises on words that are often confused, Unnecessarily complex words, Empty, wordy and redundant expressions

UnitV: Presentations, Emails and Cover Letters (6hrs)
Writing exercises on preparing oral and poster presentation, framing email and cover letters.

Textbook
Giba, J. (2014). *Developing skills in scientific writing*. Esteve Foundation.

References

1. Viallard, M. L. (2013). *Mastering scientific and medical writing. A self-help guide*. SM Rogers, Springer.
2. Wallwork, A. (2012). *English for academic research: writing exercises*. Springer Science & Business Media.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2	3			
CO2			3	4		6
CO3			3	4		6
CO4			3	4		6
CO5			3	4		6

Mean: 4.1

DEPARTMENT OF BIOCHEMISTRY
w.e.f. 2020-2021

Sem	Part		Course No.	Course Title	Hr/wk	Credit
I	I		TAS XXXX	TAS/FRS/HIS	3	2
	II		ENS XXXX	English	3	2
	III	Core	BCH 1451	Fundamentals of Biochemistry	4	4
			BCH 1553	Biomolecules	5	5
			BCH 1455	Biomolecules Lab	4	4
		Supportive	BCH 1357	Biochemistry – I	3	3
			BCH 1159	Biochemistry – I Lab	2	1
	IV	Non-Major Elective -1	BCH 1261	Wonders of Human Body	3	2
		Life skill-1	BCH 1263	Food Technology	3	2
	V	NSS/PED/SLP		Extension activity	-	1
				Total	**30**	**25 +1**
II	I		TAS XXXX	TAS/FRS/HIS	3	2
	II		ENS XXXX	English	3	2
	III	Core	BCH 1452	Cell Biology & Genetics	4	4
			BCH 1554	Human Physiology	5	5
			BCH 1456	Cell Biology, Genetics & Human Physiology Lab	4	4
		Supportive	BCH 1358	Biochemistry– II	3	3
			BCH 1160	Biochemistry–II Lab	2	1
	IV	Non-Major Elective -2	BCH 1262	Nutrition and Health	3	2
		Life skill-2	BCH 1264	Emergency Care	3	2
	V	NSS/PEDSLP		Extension activity	-	1
				Total	**30**	**25 + 1**
III	I		TAS XXXX	TAS/FRS/HIS	3	2
	II		ENS XXXX	English	3	2
	III	Core	BCH 2651	Metabolism	6	6
			BCH 2653	Enzymology	6	6
			BCH 2355	Nutrition & Dietetics	3	3
			BCH 2457	Metabolism, Enzymology &Nutrition Lab	4	4
		Supportive	BCH 2459	Microbiology	5	4
	V	NSS/PED/SLP		Extension activity	-	1
				Total	**30**	**27 + 1**

Sem	Part		Course No.	Course Title	Hr/wk	Credit
IV	I		TAS XXXX	TAS/FRS/HIS	3	2
	II		ENS XXXX	English	3	2
	III	Core	BCH 2652	Immunology	6	6
			BCH 2654	Clinical Biochemistry	6	6
			BCH 2356	Cancer Biology	3	3
			BCH 2458	Immunology & Clinical Biochemistry Lab	4	4
		Supportive	MAS2454	Biostatistics	5	4
	V	NSS/PED/SLP		Extension activity	-	-
				Total	**30**	**27 + 1**
V	III	Core	BCH 3651	Molecular Biology & Genetic Engineering	6	6
			BCH 3653	Analytical Techniques	6	6
			BCH 3655	Pharmacology & Toxicology	6	6
			BCH 3557	Molecular Biology & AnalyticalTechniques Lab	5	5
	IV	Life skill-3	BCH 3259	Forensic Biology	3	2
		EVS	BCH 3261	Environmental Studies	4	2
				Total	**30**	**27**
VI	III	Core	BCH 3652	Plant Biochemistry	6	6
			BCH 3654	Protein Chemistry	6	6
			BCH 3656	Endocrinology	6	6
			BCH 3558	Plant Biochemistry, Protein Chemistry and Endocrinology Lab	5	5
	IV	Life skill-4	BCH 3260	Waste Management	3	2
		HVS	HVS XXXX	Human Values	4	2
				Total	**30**	**27**
				Grand Total	**180**	**158**

Part-III-Supportive

Courses offered by Department of Biochemistry

Sem	Part	Course No.	Course Title	Hr/wk	Credit	Target Department
I	III	BCH 1357	Biochemistry - I	3	3	Chemistry
	III	BCH 1159	Biochemistry – I Lab	2	1	
II	III	BCH 1358	Biochemistry – II	3	3	
	III	BCH 1160	Biochemistry – II Lab	2	1	
III	III	BCH 2459	Microbiology	5	4	Biochemistry
			Total	**15**	**12**	

Part-IV-Non-Major Elective

Sem	Part	Course No.	Course Title	Hr/wk	Credit
I	IV	BCH 1261	Wonders of Human Body	3	2
II	IV	BCH 1262	Nutrition and Health	3	2
			Total	**6**	**4**

Part-IV Life Skill Courses

Sem	Part	Course No.	Course Title	Hr/wk	Credit
I	IV	BCH 1263	Food Technology	3	2
II	IV	BCH 1264	Emergency Care	3	2
V	IV	BCH 3259	Forensic Biology	3	2
VI	IV	BCH 3260	Waste management	3	2
			Total	**24**	**12**

Value Added Courses

Sem	Course No.	Course Title	Hr/wk	Credit
I	BCH 121V	Biomembranes	2	2
	BCH 122V	Human anatomy	2	2
II	BCH 221V	Enzyme Application	2	2
	BCH 222V	Diet Therapeutics	2	2
III	BCH321V	ClinicalDiagnosticPractices	2	2
	BCH322V	Herbal Medicines	2	2
		Total	**12**	**12**

Programme Specific Outcome – B.Sc. Biochemistry

After the completion of the course, the graduates will be able to:

1. Discuss the structure of biomolecules and their interactions in the essential pathways in cell for the growth and energy production.

2. Outline the anatomy and analyze the physiological functions of organs, their importance and the role of hormones in regulation.

3. Apply the knowledge of the basic cell structure, interactions, signaling its molecular expression and regulation in the sustenance of human life.

4. Demonstrate the importance of diet, its sources, deficiency and values of nutrition

5. Identify the working principle of instruments involved in analysis of biomolecules and formulate the techniques to be used in line with the advanced laboratory automation.

6. Communicate the knowledge of the defense mechanisms against infectious diseases, clinical manifestations and management.

7. Demonstrate the knowledge of drug, its action and the adverse effects of drugs on human body system.

8. Compile the physiology, biochemical events in plants and the importance of secondary metabolites in drug formulation.

9. Explain relationship between different components in ecosystem and effect of environmental degradation on human life.

10. Identify the metabolic disorders, clinical manifestation of diseases, diagnostic tools and the application of stem cells.

Mapping of Programme Outcomes (POs) with Programme Specific Outcomes (PSOs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO 1	x	x		x	x	x				
PSO 2	x	x		x	x	x				
PSO 3	x	x		x	x	x	x			
PSO 4	x	x		x	x	x	x		x	
PSO 5	x	x		x	x	x		x		
PSO 6	x	x	x		x		x		x	
PSO 7	x	x	x	x			x		x	
PSO 8	x	x		x		x		x	x	
PSO 9	x	x	x			x	x		x	
PSO 10	x	x		x		x		x	x	

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs)

I YEAR

Courses	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**	**PSO 9**	**PSO 10**
BCH 1451	**x**	**x**	**x**		**x**			**x**		**x**
BCH 1553	**x**		**x**	**x**	**x**			**x**		**x**
BCH 1455	**x**		**x**		**x**			**x**		
BCH 1357	**x**	**x**	**x**	**x**	**x**					**x**
BCH 1159	**x**	**x**		**x**	**x**			**x**		**x**
BCH 1261	**x**	**x**	**x**	**x**			**x**			
BCH 1263	**x**			**x**	**x**			**x**	**x**	
BCH 1452	**x**	**x**	**x**					**x**	**x**	**x**
BCH 1554	**x**	**x**	**x**		**x**	**x**	**x**			
BCH 1456	**x**	**x**	**x**		**x**	**x**		**x**		**x**
BCH 1358	**x**	**x**		**x**			**x**		**x**	**x**
BCH 1160	**x**			**x**	**x**	**x**			**x**	**x**
BCH 1262		**x**		**x**		**x**			**x**	**x**
BCH 1264		**x**			**x**	**x**			**x**	**x**

BCH 1451 FUNDAMENTALS OF BIOCHEMISTRY 4Hrs/4Cr

The objective of this course is to introduce the basic concepts required to understand biochemistry. The topics discussed include solutions, units of measurements, pH, oxidation – reduction reactions, basic concepts of thermodynamics, which form the fundamentals of Biochemistry. The students will also be explored to concepts of biochemical bonding and forces involved in the structural moiety of various biomolecules and its functions.

At the end of the course, students will be able to:

i. Apply the knowledge on the preparation and importance of the various solution used in Biochemistry.
ii. Utilize the basic knowledge of the decimals and units in measurement of compounds.
iii. Identify water as a biological solvent and the different transport mechanism of molecules in living organisms.
iv. Demonstrate pH, pH measurement and buffer system in the body.
v. Compile the concept of molecules and compare the different bonds involved in the biological compounds.

Unit 1 –Basic Concepts of Biochemistry 12 Hours

Introduction – Definition, branches of biochemistry, scope and importance – concepts of solute and solvents – solutions – types –saturated, dilute, concentrated, solubility – definition – Molarity, Molality, Percentage, Normality, PPM – numerical problems – stock, working standards – importance of w/v, v/v solutions.

Unit 2 – Units of Measurements 10 Hours

International system of units – definition of base units – decimal – multiple and submultiples of S.I. Units – application of S.I. Units in laboratory medicine – thrust areas in the use of S.I. Units – conversion rules.

Unit 3–Water 12Hours

Structure – hydrogen bonding – dipole interaction – physicaland chemical properties – cellular reactions of water – ionization –basic principles – diffusion, simple, facilitated, osmosis and osmotic pressure – isotonic solutions – reverse osmosis – significance of osmosis in biological systems – concepts of density – specific gravity.

Unit 4 – Concept of pH, pOH 13Hours

Definition – Sorenson pH scale – Henderson Hasselbalch equation- pH meter – Buffer systems – factors affecting buffer capacity – physiological buffers – types and importance – properties of acids and base – titration curves of strong acids and weak bases – pKa values.

Unit 5– Biochemical bonds and Energetics 13 Hours

Concepts of atoms, molecules and chemical bonds –importance - ionicbonds, covalent bonds – Vander Waals forces – electrophiles and nucleophiles - Basic concepts – principles – Law of thermodynamics and their applications in biologicalsystems - free energy production – oxidation and reduction reactions – oxidation number–membrane potential -standard electrode potentials.

References:

1. Donald Voet& Judith Voet (2011) Biochemistry 4rth edition, John Willey & Sons. New York. ISBN 13: 978 -0470 – 91745 -9.
2. Rastogi S.C. (2010) Fundamentals of Biochemsitry, 3rd edition, Tata Graw Hill publications, Noida. ISBN: 9780070681750.
3. Nelson.D.L, Cox. M. M. Lehninger's. (2009) Principle of Biochemistry. 6th ed. Freeman,
4. Harold Varley (2006) practical clinical Biochemistry 6th Edition, CBS Publishers, New Delhi.
5. Berg.J.M, Tymoczko.J.L, Stryer, L. (2006.) Biochemistry. 6th ed. Freeman.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2				**4**		
CO3		**2**				
CO4				**4**		
CO5		**2**				

Mean: 3.0

BCH 1553 BIOMOLECULES 5Hrs/5Cr

This course provides an understanding of the biomolecules. It will emphasize the chemical structures and reactions of biological molecules. It also emphasizes the functions of the functional groups present in biomolecules. This course lays a fundamental to understand the advance topics in biochemistry.

At the end of the course, students will be able to:
i. Identify the structure and functions of carbohydrates, proteins, lipids and nucleic acids.
ii. Recognize the structures of the monomers, their functional groups and the bonds in the formation of biomolecules.
iii. Explain the importance of lipids, PUFA & Omega fatty acids, and lipoproteins in humans.
iv. Recognize the importance of the three-dimensional structure of proteins in the maintenance of the shape and the role of non-covalent bonds.
v. Summarize the types of nucleic acids and the importance of vitamins and minerals in cell function.

Unit 1 – Carbohydrates 18Hours
Introduction – nomenclature and classification – monosaccharide - structure – straight chain and cyclic structure – physical and chemical properties - structure and biological functions – glucose, fructose, galactose, mannose – stereoisomers, structural isomers, epimers, enantiomers – oligosaccharides – structure and importance- disaccharides- sucrose, lactose, maltose, isomaltose, cellobiose, trehalose – trisaccharide's – rhamnose, raffinose – polysaccharides – homopolysaccharides – starch, glycogen, cellulose, inulin, pectin, chitin – heteropolysaccharides – hyaluronic acid, heparin, chondroitin sulphate.

Unit 2– Proteins 12Hours
Introduction – amino acids – classifications, structure and properties – peptide bonds – types – N-terminal and C-terminal, protein – classification, properties – structure and importance – primary, secondary, tertiary, quaternary, denaturation, renaturation – salting in and salting out.

Unit 3– Lipids 15Hours
Introduction – classification – structure and importance – simple lipids – fats & oils and waxes – compound lipids – phospholipids, phosphoglycerides, phosphoinositide, phosphosphingosides, glycolipids, Sulpholipids – derived lipids – steroids, terpenes, carotenoids – classification of fatty acid – saturated – unsaturated – essential – non-essential – cyclic – hydroxyl or oxygenated – physical and chemical properties – emulsification – saponification – hydrolytic rancidity – oxidative rancidity – iodine number – acid number.

Unit 4- Nucleic acids 14Hours
Introduction – components of nucleic acids - nucleosides – nucleotides – DNA - base composition - types - structure and importance – primary – secondary – RNA - types, structure and importance – tRNA – mRNA – rRNA – heterogeneous RNA – properties and functions.

Unit 5 – Vitamins and Minerals **16Hours**

Introduction – classification – fat soluble vitamins – A, D, E, K - water soluble vitamins – B, C - structure, source, functions, daily requirements and deficiency – Macro minerals – Ca, P, Na, K, Cl and micro minerals – Co, I, Fe, Mn, F - source, functions, daily requirements and deficiency.

References:

1. Vasudevan DM, Sreekumari S, KannanVaidyanathan, (2013), Textbook of Biochemistry forMedical Students, 7th edition, Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi. ISBN: 9789350905302.
2. Chatterjee MN and RanaShinde, (2012), Textbook of Medical Biochemistry,8thedition Jaypee Brothers Medical Publishers, New Delhi.
3. Lehninger A.L, David L. Nelson and Michael M. Cox (2008), Principles of Biochemistry 5thedition, W.H. Freeman Publishers, New York, ISBN: 0-716-7710-8.
4. Satyanarayana U (2007), Biochemistry 3rd edition. Book and Allied (P) Ltd. Kolkata. ISBN: 81-87134-80-1.
5. LubertStryer (1997), Biochemistry. 4th edition, W. H. Freeman and Company, New York

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2				**4**		
CO3		**2**				
CO4			**3**			
CO5		**2**				

Mean: 2.8

BCH 1455 BIOMOLECULES LAB 4 Hrs/4Cr

This is an introductory level course designed to provide a broad-based analysis of biomolecules. It will aid to get the students acquainted with the fundamental knowledge in preparation of solutions and reagents. General strategies for identification of biomolecules will be introduced with basic biochemistry lab techniques.

At the end of the course, students will be able to:
i. Describe the different preparation of standard solutions and the numerical problems associated within.
ii. Create methods for isolation and detection of different biomolecules.
iii. Analyze the quality of oil through various parameters.
iv. Prepare the buffer solution and identify the pH values of different foods for consumption.
v. Determine the different concentration of organic constituents in solution.

Experiments

1. Preparation and numerical problems on normal, molar, percent solutions and dilutions
2. Analysis of carbohydrates – glucose, fructose, lactose, sucrose, starch
3. Analysis of amino acids – phenylalanine, tyrosine, tryptophan, cysteine, arginine
4. Test for proteins – albumin
5. Test for lipids – cholesterol
6. Starch from potato, sweet potato. Tapioca, Yam
7. Casein from milk – Raw milk (Goat, Buffalo, Country cow), Packaged Milk
8. Lecithin from egg yolk – (Hen, Duck, Emu, Quail)
9. Reducing Sugar – Benedict's quantitative method
10. Amino acid – Formal titration
11. Determination of acid number, saponification number, iodine number.
12. Principle and use of pH meter
13. Measuring and adjusting pH of given sample – water, soft drinks
14. Preparation of different types of buffer solutions
15. Verify Beer-Lambert's law - colorimetric method.

References:

1. Jayaraman J. (2011), Laboratory Manual in Biochemistry, 5th edition, New Age International Publishers (P) Ltd., New Delhi. ISBN: 978-8122430493.
2. Keith Wilson and John Walker, (2010), Principles and Techniques of Biochemistry and Molecular Biology. 7th edition. Cambridge University Press, UK, ISBN: 978-0-521-51635-
3. Harold Varley (2006), Practical Clinical Biochemistry, 6thedition.CBS Publishers. New Delhi.
4. Sadasivam S, Manickam A, (1996), Biochemical Methods 2nd edition. New Age International Publishers, (P) Ltd., New Delhi. ISBN: 81-224-0976-8.
5. David T Plummer (1988), An introduction to Practical Biochemistry, 3rd edition. Tata McGraw Hill Publishing Company Limited, ISBN: 978-0-07-099487-4.

BCH 12

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2				**4**		
CO3		**2**				
CO4			**3**			
CO5		**2**				

Mean: 2.8

BCH1357 BIOCHEMISTRY – I 3Hrs/3Cr
(Supportive for Chemistry-SF)

The course will provide the basic knowledge on general metabolism of the chief biomolecules that take place in the human bodyat cellular level and their relationship with enzymes.

At the end of the course, students will be able to:
i. Outline the importance of metabolism of amino acid and urea cycle.
ii. Discuss the classification, nomenclature, basic concepts and the importance of enzyme kinetics.
iii. Identify the energy yielding pathways involved in carbohydrate metabolism as immediate source of energy.
iv. Explain the importance of lipids and their significance in energy production.
v. Compile and demonstrate the different vitamins, minerals & their daily requirements for the physiological function of human body.

Unit 1 -Protein & Amino acid Metabolism 8Hours
Introduction – anabolism and catabolism – biosynthetic pathways - glutamate, serine, glycine, proline, cysteine, tyrosine, tryptophan, phenylalanie, histidine – biosynthesis of urea – biosynthesis of proteins.

Unit 2–Enzymes 10 Hours
Introduction – nomenclature – classification – characteristic - applications – active site – isoenzymes – substrate – product – zymogen - coenzyme - cofactor, mechanism action – enzyme unit – turn over number – Michaeli'sMenten equation – significance of Km – inhibitors – LB plot – applications of immobilized enzyme.

Unit 3– Carbohydrate Metabolism 10 Hours
Introduction – sequence of reactions – energetics – biomedical importance – glycolysis, TCA cycle, pyruvate dehydrogenase complex, Cori's cycle, ETC, Oxidative phosphorylation, glucogenesis, glucogenolysis, gluconeogenesis, HMP shunt pathway.

Unit 4 – Lipid Metabolism 8 Hours
Introduction – sequence of reactions – energetics – biomedical importance – biosynthesis pathway - long chain fatty acid – triacylglycerols – phosphoglycerols – Ketogenesis – oxidation of fatty acids.

Unit 5 – Vitamins and Minerals 9Hours
Introduction – classification – fat soluble and water soluble vitamins – source, daily requirements, structure, functions – Macro and micro minerals - source, daily requirements, physiological role.

References:

1.Chatterjee MN and RanaShinde, (2012), Textbook of Medical Biochemistry, 8th edition JaypeeBrothers Medical Publishers, New Delhi.
2. Lehninger A.L, David L. Nelson and Michael M. Cox (2008), Principles of Biochemistry 5th edition, W.H. Freeman Publishers, New York, ISBN: 0-716-7710-8.
3.Satyanarayana U (2007), Biochemistry 3rd edition. Book and Allied (P) Ltd. Kolkata. ISBN: 81-87134-80-1.
4.Dr. P. Asokan (2003), Enzymes, 1st edition Chinnaa Publications, Vellore.
5.LubertStryer (1997), Biochemistry. 4th edition, W. H. Freeman and Company, New York

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2	**1**					
CO3				**4**		
CO4			**3**			
CO5			**3**			

Mean: 2.8

BCH 1159 **BIOCHEMISTRY I LAB** **2Hrs/1Cr**
(Supportive for Chemistry-SF)

The lab course provides the estimation processes of biomolecules from the food materials and daily usage materials.

At the end of the course, students will be able to:
i. Use colorimeter to detect different concentration of organic and inorganic constituents in solution.
ii. Detect the lactose level in milk. – Raw milk (Goat, Buffalo, country cow), Packaged Milk
iii. Analyze the activity of salivary amylase on starch.
iv. Separate lecithin from egg yolk. – Hen, Emu, Duck, Quail)
v. Analyze the ascorbic acid, iron, riboflavin and lycopene content by using different method from natural sources.

Experiments

1. Estimation of amino acid by ninhydrin method.
2. Estimation of Lactose from milk by Benedict's quantitative method.
3. Assay of salivary amylase.
4. Isolation of Lecithin from egg yolk.
5. Estimation of Iron by Wong's method.
6. Estimation of Ascorbic acid from lemon by 2, 4 – dichlorophenol indophenol method.
7. Estimation of Riboflavin by Fluorometric method.
8. Estimation of Lycopene by spectrophotometric method.

References:
1. Jayaraman J. (2011), Laboratory Manual in Biochemistry, 5th edition, New Age International Publishers (P) Ltd., New Delhi. ISBN: 978-8122430493.
2. Keith Wilson and John Walker, (2010), Principles and Techniques of Biochemistry and Molecular Biology. 7th edition. Cambridge University Press, UK, ISBN: 978-0-521-51635-8.
3. Harold Varley (2006), Practical Clinical Biochemistry, 6thedition.CBS Publishers. New Delhi.
4. Sadasivam S, Manickam A, (1996), Biochemical Methods 2nd edition. New Age International Publishers, (P) Ltd., New Delhi. ISBN: 81-224-0976-8.
5. David T Plummer (1988), An introduction to Practical Biochemistry, 3rd edition. Tata McGraw Hill Publishing Company Limited, ISBN: 978-0-07-099487-4.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2	**1**					
CO3				**4**		
CO4		**2**				
CO5		**2**				

Mean: 2.2

BCH 1261 WONDERS OF HUMAN BODY 3Hrs/2Cr
(Non – major elective)

The course will give the students about the functional wonders in the human body. It emphasizes the happenings, when the body performing normal functions. The students are opened to innovative comparison of modern inventions with the human organs. The students are able to understand that human body is a chemical factory with various departments and regulations.

At the end of the course, students will be able to:
i. Communicate the wonders of brain function, chest, stomach and pregnancy.
ii. Demonstrate the uniqueness of brain cells and sense organs.
iii. Rate the mass organ liver and super acid in digestion.
iv. Explain puberty, fertilization, gestation and lactation.
v. Explain the importance of biomolecules in growth, development and energy production in humans.

Unit 1 – Head 8Hours
Functions of brain – skull – the safety locker – suture – coup and counter coup injury – uniqueness of brain cells – brain – a computer – brain – the mind and thinking – five senses of organs – eye function vs. camera functions – nose – ventilation system of our body – mouth – food intake and speech – hazards of tobacco chewers; ear – hear – skin – the largest organ – thermoregulation and irradiations.

Unit 2 – Chest and Spine 5Hours
Lungs – inhalation and exhalation – ribs – expansion and contraction – vertebral column – erect posture – spinal cord –the reflex action – CSF – shock absorber.

Unit 3 – Stomach 6Hours
Stomach – mucus – HCl – super fire in digestion – liver – mass organ –metabolism of foods, drugs, poison and defense – regenerative capacity – proliferation rate – small intestine – digestion – large intestine – digestion and excretion.

Unit 4 – Wonders in Women 5Hours
Puberty – menstruation – menopause – fertilization in uterus – changes in uterus during pregnancy – fetal development – stages – fetus-mother relationship – fetal feeding – amniotic fluid – child birth – mammary gland – formation of milk.

Unit 5 – Human Body – A Chemical Factory 6Hours
Carbohydrates, proteins, fats, nucleic acids, vitamins and minerals – functions and importance - blood – blood vessels – cellular particles – inorganic, organic constituents – hormones in blood – metabolic intermediates – ATP – the chemical form of energy.

Reference:

1. Sembulingam and PremaSembulingam (2012), Essentials of medical physiology 6th edition. Jaypee Brothers Medical Publishers, New Delhi. ISBN-10: 9350259362.
2. Arthur C. Guyton and John E. Hall (2006), A Textbook of Medical Physiology, 11th edition, Elsevier Saunders Inc. ISBN: 0-7216-0240-1.
3. Gerald J. Tortora, Sandra Reynolds Grabbwiski (2004), Introduction to Human Body – The Essentials of Anatomy and Physiology, 6th edition. John Wiley and Sons. Inc, New York, ISBN: 0-471-222798.
4. Prakasam Reddy L, (2003) Fundamentals of Medical Physiology, 3rd edition, Paras Medical Publishers, Hyderabad. ISBN: 81-8191-016-8.
5. Chatterjee C.C. (2002), Human Physiology, Vol I & II, Medical Allied Agency, Kolkata.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2	**1**					
CO3				**4**		
CO4		**2**				
CO5			**3**			

Mean: 2.4

BCH 1263 FOODTECHNOLOGY 3Hrs/2Cr
(Life skill)

This is course deals with the various substances used in food preparation and preservation. Special emphasis is given on the food adulterants, binders, colors, flavoring agents, artificial sweeteners, sequestering agents, emulsifying, stabilizing agents and antioxidants will be discussed. Students will be exposed to the methodology involved in the preparation of various food products in a simple way.

At the end of the course, students will be able to:
i. Outline the concept of food and importance of food quality and safety.
ii. Analyze the types of food adulterants and its effects.
iii. Identify the media and methods of cooking andthe importance of additives enhance quality of food.
iv. Demonstrate the importance of food processing and preservation.
v. Apply the knowledge of preparation of different food products at small scale.

Unit 1 - Concepts of Food 5Hours
Definition-basic concepts –nutritional and non –nutritional constituents of food –food quality –appearance, flavor, textural factors–sensory evaluation –gustation, olfaction, colour –food safety–definition-types of hazards –factors affecting food safety–food adulteration and control of food quality-food laws and standards.

Unit 2 - Cooking of Foods and Food Additives 8Hours
Definition –cooking media –change in media –methods for cooking –shallow fry –deep fry –microwave oven –fireless –direct fire –steaming –roasting. Food additives –definition –classification –antimicrobial agents-nitrides, sulphides, Sulphur di oxide, sodium chloride, hydrogen peroxide, antioxidants –chelating –coloring –curing –ant caking –leavening –pH control and antifoaming agents –flavors –flour improvers -fumigants –nutrient supplements –nonnutritive sweeteners –preservatives –stabilizers –thickeners –emulsifiers.

Unit 3 -Food Preservation and Processing 5Hours
Food deterioration –preservation -refrigeration –cool storage –freezing –types –slow freezing –quick freezing –freezing curve –thermal processing – rancidity of oil - sterilization –pasteurization and blanching –drying and dehydration –evaporation –irradiation.

Unit 4 - Preparation of Food Products 6Hours
Beverages –preparation of coffee –tea –cocoa –soft drinks –fruit beverages –alcoholic beverages. Jam & Jellies –preparation –finishing –pickles preparation –storage. Tomato products –pulping & processing of tomato juice –tomato puree –paste –ketchup, sauce and soup.

Unit 5 –Preparation of Cereal, Milk Products & Confectionaries 6Hours
Bread making –cakes –cookies –pastries and quick breads –milk processing –milk products –cream –butter –skim milk –ghee –ice cream –khoa –kheer –panner –milk shakes –milk powder –cheese preparation –milk substitutes –sugar boiled and chocolateconfectionary.

References:

1. SakuntalaManay, N. Shadakerswamy. M (2001), Foods, Facts and Principles 2nd edition, New Age international Private Limited, New Delhi.
2. Mahindru S. N. (2000), Food additives – Characteristics, Detection and Estimation, Tata McGraw Hill Publishing Company Limited, New Delhi.
3. Shirley J. VanGarde&Morgy Woodburn (1999), Food Preservation and Safety Principles and Practice, Surabi Publications, Jaipur.
4. Francis Aylward (1999), Food Technology Processing and Laboratory Control, Allied Scintific Publishers, Bikaner, India.
5. William C. Frazier and Dennis C. Westhoff (1995), Food Microbiology, 4th edition, Tata McGraw Hill Publishing Company Limited, New Delhi.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2	**1**					
CO3				**4**		
CO4			**3**			
CO5			**3**			

Mean: 2.6

BCH1554 CELL BIOLOGY & GENETICS 4Hrs/4Cr

The course is designed with an aim to understand the cellular processes and principles of heredity. The course will approach this field by exploring a series of basic questions which will provide a conceptual frame work for dealing with our evolving understanding of cells. The student will gain an appreciation for the first-time frame of evolution of life on earth and understand genetic changes in population during evolution.

At the end of the course, students will be able to:

i. Explain the basic concept of structures, properties, functions, differences of a prokaryotic and eukaryotic cell and the use of microscope in cell identification.

ii. Demonstrate the different models proposed on the structure of cell membrane and the structure and function of the different organelles of a cell.

iii. Explain the types of cell divisions, their regulation and cell to cell interaction.

iv. Communicate the Mendelian principles and demonstrate the different experiments to predict the gene interaction and the influence of environment.

v. Outline the variation in gene frequency and demonstrate the various alteration of chromosome.

Unit 1 – Basic concepts in Cell Biology 10 Hours

Molecules of life - Cellular evolution - assembly of macromolecules - Origin of life- Discovery of cell – cell theory – development of experimental cytology and advances- integrated structural organization of prokaryotic and eukaryotic cells- Concept of a composite cell and Molecular composition of cells – Cell wall , cell envelope -sub cellular level studies – cell fractionation studies - application of high tech imaging.

Unit2 – Biomembranes& Cell Organelles 14 Hours

Biomembranes - Definition - Structural organization- Molecular models – Fluid Mosaic Model and other models -Membrane permeability- Transport across cell membranes - Transmembrane

Signals – Cell organelles – nucleoid, nucleus, mitochondria, golgi bodies, lysosome, endoplasmic reticulum, peroxisome, vacuoles – Cytoskeleton - microtubules and microfilaments - extracellular matrix-collagen, elastin, fibrillin, fibronectin, laminin and proteoglycans.

Unit 3 – Applied aspects of Cells 10Hours

Dynamics of cell growth – cell division – elongation – cell cycle – mitosis and meiosis - Components in cell cycle control - Cyclin, CDKs, role of protein kinase, Check points in cell cycle, phase dependent cyclic CDK complexes – cell interaction – cell adhesion – senescence - apoptosis – cell differentiation – normal cell and cancer cell

Unit 4 – Mendelian Genetics 14Hours

Principles of inheritance – breeding experiments – phenotype – genotype – gene interaction – epistasis -codominance- linkage and crossing over – sex determination – sex linked, limited, influenced inheritance – linkage, linkage maps, recombination – extra chromosomal inheritance – mutations – study of quantitative traits.

Unit 5 – Population genetics & Chromosomal aberrations 12Hours

Hardy Weinberg Law – factors affecting gene frequency – structural and numerical alteration of chromosome – euploidy – aneuploidy - deletion, duplication, translocation, inversion – evolutionary significance of chromosomal aberrations.

References:

1. Essential Cell Biology, 3rd edition, by Alberts*et al.*, Garland. Publishing Co., 2009.
2. Campbell NA and Reece JB. Biology, 8th edition, Pearson Benjamin Cummings,San Francisco. 2008
3. Raven, P.H *et al*, Biology, 7th edition Tata McGrawHill publications, New Delhi, 2006.
4. Gerald Karp (2003) Cell and Molecular Biology – Concepts and Experiments , 3rd edition John Wiley and sons . Inc., New York, ISBN : 0 – 471 – 26890 – 9
5. Peter. J. Russell (1998) Genetics 5th edition, The Benjamin Cummings Publishing Comapany, Inc., CannadaISBN : 0-321 -00038 – 2.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2	**1**					
CO3				**4**		
CO4		**2**				
CO5			**3**			

Mean:2.4

BCH 1534 HUMAN PHYSIOLOGY 5Hrs/5Cr

This course is designed to provide students with the fundamental mechanisms underlying normal functioning of cells, tissues, organs, and organ systems of the human body. This course addresses the students with the basic mechanisms of homeostasis by integrating the functions of cells, tissues, organs, and organ systems. Students will be explored to acquire complete understanding of human physiology that is fundamental to the courses in biochemistry, where the students will demonstrate competence and the familiarity with various organ systems.

At the end of the course, students will be able to:
i. Identify the relationship between anatomy & physiology and the major levels of organization from molecules to organism**.**
ii. Recognize and identify the principle tissue, major components, regulation and functions of physiological systems.
iii. Communicate the importance of blood in transport and supply nutrients to whole body.
iv. Explain the action potential in skeletal muscle, heart muscle, and the use of electrocardiography, electromyography, special senses and functions.
v. Describe the mechanisms of digestion, breathing, hemodynamics, formation of glomerular filtrate and fertilization.

Unit 1– Fundamentals of Human Physiology 10Hours
Overview of human anatomy – levels of organization – physiological systems - integumentary system – homeostasis – fluid compartment – structure and functions of glands – exocrine & endocrine glands.

Unit 2 - Digestive system 15Hours
Introduction – organs of digestive system - movements of food in gastrointestinal tract – mastication – deglutition – digestion – absorption – carbohydrate, protein, fat, water and electrolytes - assimilation – enzymes and hormones of digestive tract – regulation of GIT.

Unit 3 – Respiratory and Cardiovascular system 18Hours
Introduction – organs of respiration – structure & function - gas exchange – respiratory volume and capacity - factors affecting gas exchange – high altitude and deep-sea physiology — regulation.
Introduction – organs of cardiovascular system – heart – structure – functions – blood vessels – types – cardiac cycle – cardiac impulse – ECG – blood pressure - components of blood – functions – erythropoiesis – hematopoiesis. – clotting.

Unit 4 – Neuro-Muscular system 15Hours
Introduction – organs of nervous system - structure – function – CNS – neurons – reflexes, transmission of nerve impulse synapse – neurotransmitters – CSF – special senses - vision, hearing, pain, smell, taste, thermoregulation - higher functions - learning, memory. Musculoskeletal system – types of muscles – contraction- relaxation of skeletal muscles – Neuromuscular junctions.

Unit 5 – Excretory and Reproductive system 17Hours

Structure – Function – kidney – nephron – juxtaglomerular apparatus – mechanism of urine formation – micturition – diuretics.

Male reproductive system – structure - spermatogenesis – hormonal control – female reproductive system – structure - oogenesis – menstrual cycle – pregnancy – parturition – lactation – hormonal regulation.

References:

1. Sembulingam and PremaSembulingam (2012), Essentials of Medical Physiology 6th edition. Jaypee Brothers Medical Publishers, New Delhi. ISBN-10: 9350259362.
2. Arthur C. Guyton and John E. Hall (2006), A Textbook of Medical Physiology, 11th edition, Elsevier Saunders Inc. New York. ISBN: 0-7216-0240-1.
3. Gerald J. Tortora, Sandra Reynolds Grabbwiski (2004), Introduction to Human Body – The Essentials of Anatomy and Physiology. 6th edition. John Wiley and Sons. Inc, ISBN: 0-471-222798.
4. Prakasam Reddy L (2003), Fundamentals of Medical Physiology, 3rd edition, Paras Medical Publishers, Hyderabad, ISBN: 81-8191-016-8.
5. Chatterjee C.C. (2002), Human Physiology, Vol. I & II, Medical Allied Agency, Kolkata

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		2				
CO2	1					
CO3				4		
CO4			3			
CO5				4		

Mean: 2.8

BCH 1436 CELL BIOLOGY, GENETICS &HUMAN PHYSIOLOGY LAB 4 Hrs/4Cr

In haematological analysis, students will be trained in collection of blood specimen, identifying blood groups, determination of RBC, WBC and ESR. Students will also be trained in exercise on cytological observation of different stages of cell division and isolation of cellular organelles.

At the end of the course, students will be able to:
i. Isolate the cellular organelles from plant and animal sources.
ii. Analyze the various stages of cell division and plasmolysis from natural sources
iii. Evaluate the Mendelian problems and Hardy-Weinberg equilibrium-based problems.
iv. Detect the hematological parameters and blood pressure.
v. Detect hearing sensitivity and color vision.

Experiments

1. Analysis of the various stages of mitosis and meiosis in the root tips of onion.
2. Observation of cell plasmolysis – onion peeling and notonia leaf peeling
3. Isolation of mitochondria from liver – Goat, Chicken.
4. Isolation of chloroplast from leaves.
5. Visualization of lampbrush chromosome.
6. Solving problems on Mendelian ratios – monohybrid, dihybrid cross.
7. Test for Hardy Weinberg equilibrium - Demonstration
8. Determination of blood pressure using Sphygmomanometer – different conditions – normal,light exercise and heavy exercise.
9. Determination of ESR and blood grouping and Rh typing.
10. Estimation of hemoglobin by Sahli's method.
11. Determination of bleeding time and clotting time – Capillary method
12. Preparation and examination of blood smear.
13. Enumeration of RBC - Hemocytometry.
14. Determination of differential WBC count – Hemocytometry.
15. Detecting the pathway of color vision using Ishihara chart.
16. Hearing test – Tuning Fork Test – Rinne's test & Weber's Test.

References:

1. Jayaraman J. (2011), Laboratory Manual in Biochemistry, 5th edition, New Age International Publishers (P) Ltd., New Delhi. ISBN: 978-8122430493.
2. Pal G K, Pravathi Pal (2010), Text book of practical physiology, 3rd edition, Unversity press, Hyderabad, ISBN: 978-81-7371-671-3.
3. Jacques Wallach (2007), Interpretation of diagnostic tests, 8th edition, Lippincott William &Wilklins, Philadelphia, ISBN-13: 978-0-7817-3055-6.
4. Geoffrey M. Cooper (1997), The Cell – A molecular Approach, ASM publications, Washington.
5. Santra S.C. Chatterjee T.P. Das A.P. (1989), College Botany Practical – Volume I, New Central Book Agency, Kolkata.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			**3**			
CO2				**4**		
CO3			**3**			
CO4				**4**		
CO5				**4**		

Mean: 3.6

BCH1358 BIOCHEMISTRY – II 3Hrs/3Cr
(Supportive for Chemistry-SF)

The primary principle of the course is to teach the fundamental principles of clinical chemistry and to provide an appreciation of the biochemical and physiological factors involved in the maintenance and alteration of organ and tissue functions. The course deals with basic functions of hormones and the metabolic disorders of various metabolic pathways of the major biomolecules.

At the end of the course, students will be able to:
i. Explain the different endocrine glands with concepts and functions of hormones in regulation of metabolism.
ii. Discuss the major disorders associated with carbohydrate and lipid metabolism
iii. Evaluate the disorders of protein metabolism, jaundice and urea cycle.
iv. Explain the metabolic pathways and disorders with nucleic acid
v. Identify the deficiencies concerned with vitamins and minerals.

Unit 1- Endocrine system & Disorders 10Hours
Introduction - definition – overview – glands – hypothalamus, pineal, thyroid, pancreas, adrenal, testes, ovaries – hormone – definition - secretion and functions, hyper and hypo secretion disorders.

Unit 2 - Carbohydrate and Lipid metabolic disorders 10Hours
Carbohydrate metabolic disorders – hypo & hyperglycemia, diabetes mellitus – glycosuria – fructosuria – GSD – Lipid metabolic disorders – fatty liver – obesity – cirrhosis – lipoproteinemia – atherosclerosis – myocardial infarction – inborn errors of metabolism**.**

Unit 3 - Protein/Aminoacid metabolic disorders 8Hours
Protein/Aminoacid metabolic disorders – cystinuria, albinism, maple syrup urine disease, Hartnups disease – Jaundice – urea cycle disorders – inborn errors of metabolism**.**

Unit 4 - Nucleic acid metabolic disorders 7Hours
Brief introduction – salvage pathway of purine & pyrimidine – metabolism – disorders of nucleic acids – Inborn errors of metabolism – gout – LeschNyhan syndrome – xanthinuria-oroticaciduria – adenosine deaminase (ADA) deficiency**.**

Unit 5 - Vitamin and Mineral disorders 10 Hours
Xerophthalmia, scurvy, rickets, beriberi, pellagra, anemic disorders, goitre, fluorosis, hepatomegaly, osteomalacia, osteoporosis.

References:

1. Vasudevan DM, Sreekumari (2013) textbook of biochemistry for medical students 7th edition Jaypee brothers medical publishers pvt ltd, New Delhi.
2. Satayanarayana U (2007), Biochemistry 3rd edition, Book and allied (P) limited, Kolkata 8187134 80-1
3. Thomas M. Devlin (2005) Textbook of Biochemistry with clinical correlations 6thedition , Wiley Liss publications New York.
4. MN Chatterjee, Ranashinde (2002), Textbook of Medical Biochemistry, 5th edition, Jaypee Brothers Medical publishers, New Delhi
5. Carl Burtis , Edward R. Ashwood (1999) Tietz Textbook of clinical chemistry 3rd edition , W.B, Saunders company Philadelphia.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2				**4**		
CO3			**3**			
CO4				**4**		
CO5				**4**		

Mean: 3.6

BCH 1244 BIOCHEMISTRY II LAB 2Hrs/2Cr
(Supportive for Chemistry-SF)

The lab course provides the estimation processes of biomolecules from the urine and blood.

At the end of the course, students will be able to:
i. Analyze the organic and inorganic constituents of urine under normal conditions.
ii. Analyze the organic and inorganic constituents of urine under diseased conditions.
iii. Analyze the serum proteins and its by-products by using different methods.
iv. Determine the amount of glucose and cholesterol in blood.
v. Analyze by different methods the amount of bilirubin and uric acid in blood.

Experiments
1. Qualitative analysis of normal&abnormal constituents of urine
2. Estimation of serum cholesterol – Zak's method
3. Estimation of serum creatinine by Jaffe's method
4. Estimation of blood glucose by Phenol sulphuric acid method
5. Estimation of serum bilirubin by Malloy and Evelyn method
6. Estimation of blood urea by DAM – TSC method
7. Estimation of serum uric acid by Caraway method
8. Estimation of serum protein – Lowry's method

References:
1. Jayaraman J. – Laboratory Manual in Biochemistry (2011). 5th edition. New Age International Publishers P Ltd., New Delhi. ISBN: 978-8122430493.
2. Keith Wilson and John Walker (editors) – Principles and Techniques of Biochemistry and Molecular Biology. (2010) 7th edition. Cambridge University Press.ISBN 978-0-521-51635-8.
3. Harold Varley. Practical Clinical Biochemistry (2006) 6thedition.CBS Publishers. New Delhi.
4. Sadasivam S, Manickam A – Biochemical Methods (1996). Revised 2nd edition. New Age International Publishers, P Ltd. New Delhi. ISBN: 81-224-0976-8.
5. David T Plummer – An introduction to practical Biochemistry. (1988) 3rd edition. Tata McGraw Hill Publishing Company Limited. ISBN: 978-0-07-099487-4.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1			3			
CO2				4		
CO3			3			
CO4				4		
CO5				4		

Mean: 3.6

BCH1262 NUTRITION & HEALTH 3Hrs/2Cr

The goal of this course is an attempt to significantly improve the nutritional status of the people and improve nutrition and health outcomes of vulnerable segments of the population especially of children, women (adolescents and nursing mothers) and elderly. And also done by awareness on future functional foods, nutritional supplements, healthy life style and ethical principles in nutrition will be emphasized.

At the end of the course, students will be able to:
i. Demonstrate the food as a source of nutrients and importance of balanced diet.
ii. Compile the calorific value of foods and the role of protein and lipid in foods.
iii. Outline the nutritional requirements in various stages of life for men and women.
iv. Discuss the food allergens and apply the knowledge of nutrition in disease management.
v. Identify the nutritional assessment methods of the national and international organizations.

Unit 1- Introduction to Nutrition 5 Hours
Definition - scope – History of nutrition - food groups – nutritive value of foods – importance of carbohydrate, protein, lipids, vitamins & minerals, BMR – balanced diet –Diet therapy - Advantages and disadvantages - relationship between nutrition & health – Diabetes mellitus, infectious diseases (Covid19).

Unit 2 - Nutritional requirements for Infants & children 7 Hours
Nutritional and feeding of normal infants – digestion of food – chemical composition of human milk – advantages of human milk and cow's milk – nutritional requirement for children's growth and nutritional status – mal nutrition – causes.

Unit 3- Nutrition of adolescents 5 Hours
Growth rate of adolescents – nutritional requirement – balanced diet – male and female – nutritional issues – nutritional concerns during adolescents – nutritional guide lines.

Unit 4- Nutritional requirements for pregnancy and lactation 7 Hours
Physiological adjustment – factors affecting during pregnancy – nutritional requirements – balance diet – lactating women – nutritional requirements – stages of lactation – production and distribution of supplementary foods – improving health and nutritional status for pregnancy and lactating women.

Unit 5 - Nutrition for aged people and Nutritional assessment 6 Hours
Physiological changes and bio chemical changes – nutritional requirements – balance diet – RDA - national and international organization – WHO, ICMR, PAHO, FAO – recommendation.

References:

1. Swaminathan. M (2014), Advanced Textbook on Food and Nutrition, 2nd edition, volume 2 ,The Bangalore Printing and Publishing Company, Bangalore.
2. Gupta L.C, Kusum Gupta and Abhishek Gupta (2006), Food and Nutrition – Facts and figures, 6th edition, Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi. ISBN: 81-8061- 571-5
3. Srilakshmi. B, (2001), Dietetics, 3rd edition, New Age International Pvt. Ltd. Publishers, New Delhi. ISBN: 81- 224- 1252- 1
4. Anderson, L.,(1982) Nutrition in health and disease, 17th ed. Lippincott Co. Philadelphia ISBN: 9780397542826
5. Ramakrishana. S and VenkatRao. S, (1995), Nutritional Biochemistry, T.R Publications Pvt., Madras. ISBN: 81- 85427- 35 – 6

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2	**1**					
CO3			**3**			
CO4			**3**			
CO5			**3**			

Mean: 2.6

BCH 1264 EMERGENCY CARE 2Cr/3Hrs

The course is designed to introduce the students on basics of life saving first aid and its safety principles during emergencies and other situations. The students will be prepared to make appropriate decisions regarding first aid care, and how to provide care for injuries or sudden illness in sustaining the life of the victims and minimizing the consequences of injury, relieving pain or sudden collapse until professional help arrives. First aid emergency action principles through demonstrations by professionals first aid trainers from St. John‘s Ambulance will provide practical knowledge and exposure to the students.

At the end of the course, students will be able to:
i.Demonstrate the ABC rule during emergency management.
ii.Apply first aid in household emergencies.
iii.Equipped to perform CPR, AED and Heimlich manoeuvre during major emergencysituations.
iv.Plan to render first aid in special conditions and disasters.
v.Discuss the guidelines of first aid offered by various national and international organizations.

Unit 1 – Basic Concepts of First aid 5 Hours
Definition – ABC rule – emergency action principles –Personal protection - emergency management systems – spot analysis - primary assessment - secondary assessment - emergency moves (Medivac) – legal awareness& responsibilities of first aid – first aid kit.

Unit 2- Minor Emergencies 6 Hours
First aid - accident care - wounds & bleeding - burns – hypothermia/hyperthermia - dehydration – electric shock – allergies – bites and stings – sprains – cramps – eye injuries – pain –air way obstructions - breathing emergencies – choking.

Unit 3- Major Emergencies 7 Hours
First aid - head injury – concussion – cerebral compression – spinal injuries – chest injury – angina - heart attack – CPR – AED – stroke – epilepsy – fractures - dislocations – splinting - suicide emergencies- drowning- cold shock – bleeding – unconsciousness – levels of response (AVPU scale) – soft tissue injuries – poisoning.

Unit 4 – First Aid in Special conditions 6 Hours
Special care and first aid for infants, children’s and aged persons – first aid in pregnancy- diabetic emergency – Weil’s disease – Marine stings – fish hooks for divers – disaster emergencies – management - do’s & don’ts.

Unit 5 – Certification and Organizations 6 Hours
First aid training methods – Hand on training demonstrations - volunteers - Youth Red Cross – management measures – guidelines of first aid – role of government and voluntary organizations – National and International organizations – Red Cross – Red Crescent & St. John Ambulance Association.

References:

1. First Aid to the injured (2009), 5th edition, St. John Ambulance, New Delhi.
2. Alton L. Thygerson, (2006), First Aid, 5th edition, Jones Bartlett Publishers, London ISBN: 07-637-4244-9.
3. Jon R. Kroner (2004), First Aid Manual, 2nd edition. D.K. Publications, London, ISBN: 07 -566 -0195-9.
4. Doring Kindersley (2002), First Aid Manual 9th edition, A publication of St. John Ambulance & British Red Cross Society, ISBN: 07-5136- 9438.
5. Kathleen Handel (1992), The American Red Cross First Aid Safety Hand book, Little brown, United Kingdom, ISBN 03 -167-3646-5.

Bloom's Taxonomy	**K1**	**K2**	**K3**		**K4**	**K5**	**K6**
CO1		**2**					
CO2			**3**				
CO3			**3**				
CO4					**4**		
CO5			**3**				

Mean: 3.0

Value Added Courses

BCH121V BIOMEMBRANES 2Hrs/2Cr

The aim of this course is to acquire knowledge and relevant competencies for a critical interpretation of the physiological and pathological phenomena at the cellular level. This is an introductory course on Biomembranes, which gives an over view of the organization, chemistry and general functions of various biomembranes. Analysis of the membrane organization by using electron microscope and the importance of RBC ghost as model system are also discussed.

At the end of the course, students will be able to:
i. Recognize the relationship among architecture, physicochemical properties, and functions of the cell membrane.
ii. Analyze and explain membrane changes(physical and chemical)induced by external agents or in adaptive response to environmental pressure.
iii. Justify pharmacological action strategies that target the membrane.
iv. Propose experimental procedures that suit the study of the membrane, in terms of composition, structural organization of its components and physical and functional properties.
v. Develop a rationale for novel therapeutic interventions and applications in Biotechnology

Unit 1 - Introduction 5Hours
Definition, membrane structure – A historical perspective, Overton and Langmuir, Gorter and Grendel, Davson and Danielle, Robertson model, Singer and Nicholson – the fluid mosaic model, Urwin and Henderson model, structure of membrane proteins.

Unit 2 - Biological role of membranes 6Hours
Membrane structure and components, membrane lipid chemistry and properties. Fatty acids and membrane proteins, membrane fluidity – role of lipids and cholesterol, membrane proteins – peripheral and integral proteins and their functions, membrane asymmetry, membrane excitability and potential.

Unit 3 - Selective permeability of membranes 8Hours
Transport across membranes – simple diffusion, active, passive, facilitated diffusion, alternating confirmation model, ionophores mechanism – primary active transport, sodium potassium pump, transport by modification, phosphate transport in bacterial cell, bacteriorhodopsin proton pump, secondary active transport – symport and antiport, phagocytosis, pinocytosis and Donan membrane equilibrium.

Unit 4 - Vesicular transport and membrane fusion 6Hours
Types of vesicle transport and their function – Clathrin, COP I and COPII coated vesicles. Molecular mechanism of vesicular transport, membrane fusion, Receptor mediated endocytosis of transferring.

Unit 5 - Techniques used for the analysis of Biomembranes 5Hours
Electron Microscopy, - SEM & TEM – Principles and Applications - Freeze fracture technique, membrane reconstitution after purification and use of detergents and red blood cell ghosts.

Reference Books

1. Molecular Cell Biology (2013)7thed,Lodish, H., Berk, A. Kaiser C.A, Krieger, M., Bretscher., W.H. Freeman& Company (New York) , ISBN: 13: 978 -1-4641-0981-2.
2. Lehninger: Principles of Biochemistry (2013) 6thed,Nelson, D.L., Cox, M.M., W.H. Freeman and Company (New York)., ISBN 13:978- 1- 4641 -0962-1.
3. Biochemistry (2010) 4rth edition, Garret, R.H. and Grisham, C, M., CengageLearning (Boston), ISBN – 13:978-0-495-11464-2.
4. Principles of Biochemistry (2008) 3rd ed. Voet D.J. Voet, J.G. and Pratt, C.W., JohnWiley& Sons, Inc, (New York), ISBN;13 -978-0470-23396-2.
5. The structure of Biological Membranes, Yeagle, P, CRC press, London, 2ndedn, 2005.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		**2**				
CO2	**1**					
CO3				**4**		
CO4		**2**				
CO5			**3**			

Mean: 2.4

BCH 221V ENZYME APPLICATIONS 2 Hrs /2Cr

The objective of the course is to highlight the importance of enzymes and its mechanism in life process. The students obtain more knowledge about various applications of enzymes in the fields of food industry, pharmaceutical industry, dairy industry, textile industry, agriculture industry and other applications.

At the end of this course the students will be able to
i. Understanding the enzymes and enzyme production.
ii. Explain the clinical applications of enzymes in various diseases.
iii. Describe the various sources and applications of dairy industry.
iv. Students will learn about applications of enzymes in research and textile industry.
v. Develop the ability to understand, practice an enzyme used in agriculture.

UNIT 1 – **Introduction of Enzyme application** 7 Hours
History of Enzymology, advantages of enzymes over chemical catalysts – nomenclature - classification – general characterization – functions – Industrial production – sources – methods – solid substrate fermentation and submerged fermentation – factors affecting enzyme production.

UNIT 2 -Enzymes in Medical conditions 7 Hours
Enzymes used to treat conditions - Wound healing, swelling - Streptokinase, Urokinase, serrati peptidase - Metabolism - trypsin, chymotrypsin, serrati peptidase- Drug delivery – Papain - diagnosis - Hyaluronidase – *manufacture of medicines* - Creatine kinase - - Immobilized enzymes – applications.

UNIT 3 - Enzymes in dairy industry 5 Hours
Introduction to dairy industry – sources, application of enzyme in dairy industry – amylase, β – gluconates, bromelain, cellulose, chymosin, Ficin, glucose isomerase, lipase, papain, pectinases, proteases, pepsin, trypsin**.**

UNIT 4 – Enzymes in Textile industry 5 Hours
Introduction to textile industry – cellulase, pectinase, lactases, lactamases, proteases – applications, degumming of silk, wool processing, carbonization of wool, modification of polyester lipases.

UNIT 5 - Enzymes in the Agriculture industry 6 Hours
Introduction to agriculture industry – definition – sources – soil fertility – phosphatases, sulphatases – soil fertility – β glucosidase, urease – biological oxidation –dehydrogenase – Agr**oa**processing, animal feed additives, agrochemicals, animal feed from agriculture waste.

References:

1. W. Gerhartz( ), Enzymes in Industry: Production and Applications, 3rd edition, VCH Publishers ISBN: 978-3-527-31689-2
2. Trevor Palmer(2004), Enzymes – Biochemistry, Biotechnology & Clinical Biochemistry, Affiliated East – West Press Pvt. Ltd, New Delhi.
3. Dixon, M., and Webb, E. C. (1979) Enzymes, 3rd edition, Longmans, Green & Co., London, and Academic Press, New York.
4. Nicolas C Price and Lewis Stevens (1999), Fundamentals of Enzymology, Oxford University Press, New York.
5. David L. Nelson, Michael M. Cox, (2005), Lehninger Principles of Biochemistry, 4th edition, W. H. Freeman & Company, New York.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1			**3**			
CO2				**4**		
CO3			**3**			
CO4			**3**			
CO5		**2**				

Mean: 3.0

BCH 321V CLINICAL DIAGNOSTIC PRACTICES 2Hrs/2Cr

The course deals with the clinical procedures commonly used in a clinical lab. Students will be exposed to the tests performed in the areas of pathology, biochemistry and microbiology.The course also explicit the cross matching of blood and processes of the blood banking procedures.

At the end of the course, students will be able to:
i. Explain the basic skills of sample collection, handling and preservation.
ii. Analyze the clinical manifestations of blood, urine and CSF.
iii. Discuss the organ function tests and biochemical parameters in diseases.
iv. Analyze the diagnostic procedures for various infectious diseases.
v. Explain the methods of blood transfusion, cross matching and function of blood bank.

Unit 1 – Biological Samples & Blood Transfusion & Banking
Clinical sample – definition –blood – urine – feaces – synovial fluid – amniotic fluid – saliva – solid tissue – collection – preservation – handling – storage.
Blood cross matching – blood transfusion – testing donor blood – storage – transport – maintenance of blood bank records.

Unit 2 – Pathology
Blood functions – cell morphology – blood cell counting – anticoagulants – serum – plasma – changes in blood on keeping – ESR – bleeding time – clotting time – blood grouping and Rh typing.
Urine – normal and abnormal constituents – clinical significance.
CSF – lumbar puncture – appearance – chemical constituents – pressure – Lange colloidal god reaction – biochemical changes – clinical significance.
Biopsy – Fine needle Aspiration Cytology – Staining.

Unit 3 – Biochemical Tests
Biochemistry – principles – blood glucose level – Diabetes Mellitus – GTT – HbA1c – obesity – lipid profile – atherosclerosis – myocardial infarction – liver function test – total protein – bilirubin – SGOT/SGPT – alkaline phosphatase – renal function test – urea – creatinine – hormones – hCG – thyroid hormones – sex hormones.

Unit 4 - Microbial Diagnosis
Introduction – Microscopy – morphology – bacteria – fungi – virus –parasites – sterilization and disinfectants – growth and maintenance of microbes – culture media – staining techniques – biochemical characterization – antimicrobial study – diagnostic test - WIDAL test – VDRL – CRP – ASO – HIV – HbsAg – ELISA – RIA – Disposal of biomedical waste.

Unit 5 - Instrumentation & Diagnostic imaging
Principle – uses –auscultation – sphygmomanometer - conventional X – ray examination - ultrasound examination — computed tomography – magnetic resonance imaging – radiation protection of patients.

References:

1. Praful B. Godkar&Darshan P. Godkar, (2014), Textbook of Medical Laboratory Technology- set of 2 volumes. Clinical Laboratory sciences and Molecular Diagnosis, 3rd edition, Bhalani publishing House, Mumbai. ISBN: 9789381496190.
2. Keith Wilson and John Walker (2010), Principles and Techniques of Biochemistry and Molecular Biology, 7th edition. Cambridge University Press. ISBN 978-0-521-51635-8.
3. Harold Varley. Practical Clinical BiochemistryHardcover (2006) 6thedition,CBS Publishers.
4. Curl A. Burtis and Edward R, Ashwood (1999), Tietz Textbook of Clinical Chemistry, 3rd edition, Harcourt Brace & Company Asia Pvt. Ltd., Philadelphia.
5. David T Plummer – An introduction to Practical Biochemistry. (1988) 3rd edition. Tata McGraw Hill Publishing Company Limited. ISBN: 978-0-07-099487-4.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5		**2**				

Mean: 2.4

CERTIFICATE COURSES

Certificate Course 1
BCHCC 1 - PHARMA MARKETING

Certificate Course 2
BCHCC2 –DIAGNOSTIC TECHNIQUES

Eligibility for Enrollment

1. **Minimum Qualification** –Pass in Higher Secondary Examination

2. **Eligibility Criteria**– Science stream in Higher Secondary

3. **Course Duration** – 30 hours (2Hrs/wk.)

4. **Evaluation Pattern**
   (a) Continuous Internal Assessment (CIA)
   Conducted for 25 marks with one test for 15 marks and one assignment for 10 marks.

   (b) End-of-Semester Examination (EOS)
   Online exam for One and half hours with 50 marks as maximum.
   The question papersare set and valued by the course teachers.

   (c) Equal weight of 50% is given to both CIA and EOS.

5. **Letter Grade is awarded to students on a four-point scale:**

Marks Obtained Out of 50	Course Grade	Grade Description
37.5-50	O	Outstanding
32.5-37	A	Very Good
27.5-32	B	Good
25-27	C	Average

6. **Certificates will be issued with the College emblem signed by the Principal and the Head of the department on the successful completion of the course.**

CERTIFICATE COURSE - 1

BCHCC 1 PHARMA MARKETING 2Hrs./Cr.

The course familiarizes the students in the field of pharma marketing and emphasizes the skills essential for the pharma marketing. It gives an overview on human anatomy and physiology and the effects of drug. It also gives a comparative analysis of local and global marketing concern with leading companies**.**

At the end of the course, students will be able to:
i. Understand all major marketing concepts
ii. Understand how to apply the marketing concepts over the pharmaceutical market
iii.Realize how to manipulate the demand concept and how to use it in pricing pharmaceuticals
iv. Able to understand the use of marketing management philosophies
v. Apply pricing, promoting techniques over any proposed product.

Unit 1 – Introduction & Overview
Growth of pharmaceutical and biotechnology industries – demand and supply chain of pharmaceutical marketing – principle and practices of pharmaceutical marketing – survey of most commonly used drugs in India – classification & nomenclature – leading Indian and International pharma industries and marketing networks.

Unit 2 – Medical Terminology and Application
A) **Terms used in biology** – Elementary anatomy and physiology of human body – basics of circulatory – digestive – central nervous and excretory system – structural and functional integration of major systems.
B) **Terms used in Pharmacology Market** – Allopathy and Herbal products – personalized drugs and drugs dispensing tools – market trend analysis – distribution – market links – trade route.

Unit 3 – General Pharmacology
Introduction – definition – principle – absorption of drug – route of drug administration – mechanism of biotransformation of drugs – mechanism of drug action – factors modifying drug effects – drug assay – drug toxicity and side effects.

Unit 4 – Politics, Ethics and Opportunities
Local and Global pharmaceutical markets and pharmaceutical industries – legal and regulatory agencies – GATT agreement and WTO regulations – patents and IPR regimes – Indian Patent act – leading Indian and International Universities – academic programmes and career opportunities.

Unit 5 –Strategic Marketing
New product planning and development process – product mix – management of new product launch – pricing decisions – brand creation – Drug Price Control Order (DPCO) – e-marketing and e- detailing – GAP analysis – SWOT analysis – customer relation management.

References

1. Tootelian DE, Wertheimer al, Mikhailitchenko AN, Essentials of Pharmacy Management 2nd Pharmaceutical press: 2012.
2. Ferrell OC, Hartline MD, Marketing Startegy, 5thed, United states of America, South western College Publications: 2012
3. Desselle SP, Zgarrick DP, Alston GL. Eds, Pharmacy Management: Essentials for All Practice Settings, 3ed, New York, McGraw Hill 2012.
4. Kotler P. and Graw.A. Principles of Marketing, (2006) Pearson Education, New Jersey.
5. Kokate C.K. Purohit.A.P. Gokhale S.B. (2004) Pharmacognosy 29th edition.

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1		**2**				
CO2			**3**			
CO3					**5**	
CO4			**3**			
CO5			**3**			

Mean: 2.6

CERTIFICATE COURSE - 2

BCHCC 2 DIAGNOSTIC TECHNIQUES 2Hrs/2Cr

The course deals with the diagnostic procedures commonly used in a clinical diagnostic lab. Students will be exposed to the tests performed in the areas of pathology, biochemistry and microbiology. The students will have a clear idea on the basics and principles of clinical chemistry, general microbiology, clinical hematology, histopathology, blood banking and blood transfusion techniques, molecular & immunological diagnostic techniques. This paper imparts the required skills for the detection of diseases, operation and application of various advance techniques.

At the end of the course, the students will be able to:
i. Understand contemporary methods and practical approaches that are used in the clinical laboratories for the investigation of the diseased state.
ii. Identify various microorganisms with latest biomedical techniques and can demonstrate the diseases associated with them.
iii. Able to perform collection, processing, staining and quality control in cytological diagnosis.
iv. Able to carry out differential diagnosis of disease by the help of immunological techniques.
v. Understand the basics of transfusion medicine, future molecular biology challenges and efficiently work in diagnostic molecular setup.

Unit 1 – Biological Samples & Hematology
Clinical sample – definition – blood – urine – feces – synovial fluid – amniotic fluid – saliva – solid tissue – collection – preservation – handling – storage - Blood functions - cell morphology – complete blood cell counting – anticoagulants – serum – plasma – ESR, bleeding time, clotting time.
Blood grouping and Rh typing - Blood cross matching – blood transfusion – testing donor blood - storage – transport - maintenance of blood bank records - Automation - Coulter counter, coagulometer, automatic ESR analyzer, urine analyzer.

Unit 2 – Histopathological techniques
Biopsy – Patient preparation - Sample collection - Fixation -Adhesive and mounting media, Cell block and cytospin technique - Staining - PAP, Diff-quick, MGG, H&E, Schorr staining, significance of PAPHPV, Destaining and restaining of slides, Cover slipping, aspiration and exfoliative cytology - Fine Needle Aspiration Cytology – Staining.

Unit 3 – Biochemical Techniques
Biochemistry - principles – blood glucose level – Diabetes mellitus – GTT – HbA1c – obesity – lipid profile – atherosclerosis – myocardial infarction –liver function test – total protein – bilirubin – SGOT/SGPT – alkaline phosphatase – renal function test– urea – creatinine. Hormones – hCG – thyroid hormones – sex hormones - CSF – lumbar puncture – appearance – chemical constituents – pressure – Lange colloidal gold reaction – biochemical changes – clinical significance - Urine – normal and abnormal constituents – clinical significance.

Unit 4 – Microbial Diagnostic techniques

Introduction – microscopy – morphology – bacteria – fungi – virus – parasites – sterilization and disinfectants – growth and maintenance of microbes – culture media – staining techniques – biochemical characterization – antimicrobial study – diagnostic test – WIDAL test – VDRL – CRP – ASO – HIV – HBsAg – Covid 19 test - Disposal of biomedical waste.

Unit 5 -Molecular & Immunological diagnostic techniques

Nucleic acid amplification testing, PCR, Principle, Types, applications, Thermal cycler - RTPCR - Nested PCR - Blotting techniques, Southern blotting, Western blotting, Radioisotopes - measurement of blood volume, determination of red cell volume and plasma volume, red cell life span, platelet life span - Flow cytometry, Stem cell banking, Prenatal Diagnosis - ELISA, RIA, FIA, FACS - Imaging techniques.

References:

1. Mukherjee. L.K (2017), Medical Laboratory Technology, Vol.1-3,3rd edition, Tata Mcgraw Hill.
2. SoodRamnik,(2015), Text book of Medical Laboratory Technology,2nd edition, Jaypee Publications
3. Praful B. Godkar& Darshan P. Godkar, (2014), Textbook of Medical Laboratory Technology- set of 2 volumes. Clinical Laboratory sciences and Molecular Diagnosis, 3rd edition, Bhalani publishing House, Mumbai. ISBN: 9789381496190.
4. Keith Wilson and John Walker (2010), Principles and Techniques of Biochemistry and Molecular Biology, 7th edition. Cambridge University Press. ISBN 978-0-521-5163
5. Harold Varley. Practical Clinical Biochemistry Hardcover (2006) 6th edition, CBS Publishers.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1		3				
CO2			4			
CO3					3	
CO4		2				
CO5			3			

Mean: 3.0

UNDERGRADUATE DEPARTMENT OF BUSINESS ADMINISTRATION

Value Added Courses

w.e.f. 2020-2021

BBA121V	**Basic Computer Skills for Managers**	**2Hrs / 2Cr**
Course Objective	The students will have a clear understanding on the basic knowledge of Computer functions in all aspects of organizational administration.	
Course Outcomes	On completion of the course, students should be able to	
	i	Understand Functions and Operations of Computers
	ii	To Understand the various System Hard Components
	iii	To Access the various Word Processing Functions.
	iv	Practice the Various Arithmetic Operations and Graphical Functions
	v	Enrich the Networking Skills.
Unit	**Content**	
I (6 Hrs)	**Computer Basics:**Introduction – Characteristics of Computer – Classifications of computer –Importance - Computers in Business-Facilities available in computerized system.	
II (4 Hrs)	**Components of a Computer system:** Hardware components – Software components of Micro computers – Classifications of Software components.	
III (8 Hrs)	**Word Processing:** Introduction - OS Interface - Customizing the Word Application - Document Views - Basic Formatting in Word Processing - Advanced Formatting - Navigating through a Word Document - Performing a Mail Merge - A Quick Look at Macros, Printing Documents.	
IV (6 Hrs)	**Worksheets: -** Introduction – Workbook – Worksheet - Formatting in excel - Advanced formatting in Excel - Working with formulas – Printing.	
V (6 Hrs)	**Presentations:**Introduction - Creating a Presentation - Basic Formatting in PowerPoint - Advanced Formatting - Using Templates - Inserting charts - Inserting tables; **Internet:** Introduction - Network Management-LAN in Business Environment-Types of LAN – Internetworking.	
References		
Text Book:	Computer Applications in Management - Dr.Vivekanand Pandey,Dr.AhmedTsnimSiddiqui - Himalaya Publishing House.	
Reference Books:	1.	Computing Skills for Managers,Siddharth Dutta.
	2.	ICT management in Business, Amy Snider.

BBA 2

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2				4		
CO3			2			
CO4					5	
CO5				4		

Mean: 3.2

BBA221V	Event Management Skills 2Hrs / 2Cr	
Course Objective	The prime objective of this course is to inculcate the learners to design and manage events professionally.	
Course Outcomes	On completion of the course, students should be able to	
	i	Start general planning of events.
	ii	Outline key roles and responsibilities of wider team
	iii	Prepare events budget and manage finance for future planning
	iv	Advice on potential income sources for fund raising
	v	Execute event marketing and communications through planning process
Unit	**Content**	
I (6 Hrs)	**GeneralPlanning**: The event concept- Defining and Communicating the event's vision and mission- Setting SMART objectives - The SWOT analysis - Event actions plan.	
II (6 Hrs)	**Organizational structure of event team**: Event team- Recruitment- Legal obligations – Roles - Internal communications - Work experience - Staff- Volunteers; The wider team: Steering group - Board- Sub-group; Other services.	
III (6 Hrs)	**Budgets and Financial Management:** Transparency – Budget preparation - Control mechanism- Other Financial issues.	
IV (6 Hrs)	**Fundraising**: Revenue plan - Potential funding and Income sources - Raising commercial sponsorship - Sponsorship proposal - The Tendering process.	
V (6 Hrs)	**Marketingand Communications:** Situational analysis - Market plan- Resources - Identifying target markets - Forming the marketing objectives- Developing the marketing strategy- Marketing tools - Media relations and Planning.	
References		
Text Book:	Events management, David Williams	
Reference Books:	1.	Sustainable Event Management, Jones meegan, 2016, Scott Press Inc.
	2.	Event management, Laura Capell, 2014, Enrich Publications.

	K1	K2	K3	K4	K5	K6

BBA 4

CO1	1					
CO2				4		
CO3			2			
CO4					5	
CO5				4		

Mean: 3.2

BBA321V	Soft Skills for Managers 2Hrs / 2Cr	
Course Objective	The students will have a clear understanding on the basic knowledge of selected soft skills. This course will make them better prepared to face their future corporate life.	
Course Outcomes	On completion of the course, students should be able to	
	i	Understand the fundamental aspects of soft skills and their importance in making them better prepared for their future.
	ii	Learn the basic mannerism that needs to be followed in a work place.
	iii	Have good knowledge about the various types of CV/Resume and how they have to prepare their resume for applying to future jobs.
	iv	Demonstrate the importance of planning their career in such a way that they are on the right track in their career path.
	v	Educate and provide knowledge about the various stress factors and how to manage stress in a successful manner.
Unit	**Content**	
I (6 Hrs)	**Introduction to soft skills -** importance of soft skills – Attributes regarded as soft skills – Practising soft skills.	
II (6 Hrs)	**Manners**: Introduction – poor manners among youth–Manners to get respect from others – Corporate grooming tips – Mobile phone etiquettes in office – Annoying office habits.	
III (6 Hrs)	**Preparing CV/ Resume**: Introduction – Types of resumes – Tips for writing a CV - CV/ Resume preparation do's and don'ts– Common resume blunders	
IV (6 Hrs)	**Career planning**: Introduction – guidelines for choosing a career – Myths about choosing a career – Tips for successful career planning – Guidance to develop career goals.	
V (6 Hrs)	**Stress management** – Introduction – Effects of stress – sources of stress – Signs of stress - Stress management tips.	
References		
Text Book:	Soft skills by Dr K. Alex, S.Chand and company limited, 2014 edition	
Reference Books:	1.	Soft Skills: Key To Success In Workplace And Life by Meenakshi Raman and Shalini Upadhyay
	2.	Personality Development and Soft Skills by Barun K. Mitra 2016 edition publisher : Oxford publication.

BBA 6

	K1	K2	K3	K4	K5	K6
CO1	1					
CO2				4		
CO3			2			
CO4					5	
CO5				4		

Mean: 3.2

UNDERGRADUATE DEPARTMENT OF PSYCHOLOGY

PROGRAMME FOR B.Sc. PSYCHOLOGY FROM 2019 BATCH ONWARDS

SEM	PART	CODE	TITLE	Hr/Wk	Cr	Marks
I	Part I	Lang	Tamil/Hindi/French	3	2	30
	Part II	Lang	English	3	2	30
	Part III Major	PSY 1501	General Psychology - I	5	5	75
		PSY 1403	Developmental Psychology - I	4	4	60
		PSY 1405	Biological Psychology	4	4	60
	Supportive course	PSY 1407	Introduction to Sociology	5	4	60
	Part IV	NME XXXX	XXX	3	2	30
		LS XXXX	XXX	3	2	30
			TOTAL	**30**	**25**	**375**
II	Part I	Lang	Tamil/Hindi/French	3	2	30
	Part II	Lang	English	3	2	30
	Part III Major	PSY 1502	General Psychology - II	5	5	75
		PSY 1404	Developmental Psychology - II	4	4	60
		PSY 1406	Statistics For Psychology	4	4	60
	Supportive Course	PSY 1408	Educational Psychology	5	4	60
	Part IV	NME XXXX	XXX	3	2	30
		LS XXXX	XXX	3	2	30
	Part V	Extension	NSS, SLP, PED	2	1+1	
			TOTAL	**30+2**	**25**	**375**
III	Part I	Lang	Tamil/Hindi/French	3	2	30
	Part II	Lang	English	3	2	30
	Part III Major	PSY 2501	Social Psychology - I	5	5	75
		PSY 2503	Experimental Psychology - I	5	5	75
		PSY 2405	Rehabilitation Psychology	4	4	60
		PSY 2507	Abnormal Psychology - I	5	5	75
	Supportive Course	PSY 2409	Geriatric Psychology	5	4	60
			TOTAL	**30**	**27**	**405**

SEM	PART	CODE	TITLE	Hr/Wk	Cr	Marks
IV	Part I	Lang	Tamil/Hindi/French	3	2	30
	Part II	Lang	English	3	2	30
	Part III Major	PSY 2502	Social Psychology - II	5	5	75
		PSY 2404	Research Methods in Psychology	4	4	60
		PSY 2506	Abnormal Psychology - II	5	5	75
		PSY 2508	Experimental Psychology - II	5	5	75
	Supportive Course	PSY 2410	Industrial Psychology	5	4	60
	Part V	Extension	NSS, SLP, PED	2	1	
			TOTAL	**30 + 2**	**27+1**	**405**
V	Part III Major	PSY 3601	Cognitive Psychology	6	6	90
		PSY 3603	Health Psychology	6	6	90
		PSY 3605	Principles of Counselling	6	6	90
		PSY 3507	Disaster Management	5	5	75
	Part IV	LS XXXX	XXX	3	2	30
		EVS	Understanding our Environment	4	2	30
			TOTAL	**30**	**27**	**405**
VI	Part III Major	PSY 3602	Positive Psychology	6	6	90
		PSY 3604	Organizational Behaviour	6	6	90
		PSY 3606	Research Project	6	6	90
		PSY 3509	Sports Psychology	5	5	75
	Part IV	LS XXXX	XXX	3	2	30
		HVS		4	2	30
			TOTAL	**30**	**27**	**405**
GRAND TOTAL FOR SEMESTER (1 TO 6)				**180+4**	**158+2**	**2370**

SUPPORTIVE COURSES

SEM	PART	CODE	TITLE	Hr/Wk	Cr	Marks
I	**III**	**PSY 1407**	Introduction to Sociology	5	4	60
II	**III**	**PSY 1408**	Educational Psychology	5	4	60
III	**III**	**PSY 2409**	Geriatric Psychology	5	4	60
IV	**III**	**PSY 2410**	Industrial Psychology	5	4	60

NON-MAJOR ELECTIVE COURSES

SEM	PART	CODE	TITLE	Hr/Wk	Cr	Marks
I	**IV**	**PSY 1201**	Psychology in Daily Life	3	2	30
II	**IV**	**PSY 1202**	Counselling &Guidance	3	2	30

LIFE – SKILL COURSES

SEM	PART	CODE	TITLE	Hr/Wk	Cr	Marks
I	**IV**	**PSY 1203**	Life Skill Education	3	2	30
II	**IV**	**PSY 1204**	IT Skills for Psychologists	3	2	30
V	**IV**	**PSY 3201**	Cyber Psychology	3	2	30
VI	**IV**	**PSY 3202**	Consumer Psychology	3	2	30

Value Added Courses

SEM	CODE	TITLE	Hr/Wk	Cr
I	**PSY 121V**	Problem Solving	2	2
II	**PSY 122V**	Stress Management	2	2
III	**PSY 221V**	Self-Awareness	2	2
VI	**PSY 222V**	Empathy	2	2
V	**PSY 321V**	Emotional Intelligence	2	2
VI	**PSY 322V**	Resilience	2	2

PROGRAM SPECIFIC OUTCOME

End of the program the student will able to:

PSO1: Recall and assimilate the meaning, methods in psychology

PSO2: Express the psychological terms and understand the higher order concepts in psychology

PSO3: Review the important psychological concepts and apply it in an appropriate place.

PSO4: Compare and appraise the acquired skills and techniques in the fields of psychology.

PSO5: Demonstrate the knowledge and skills required for an effective professional in psychology.

PSO6: Assess the client's issues and understand their psychological problems in appropriate context.

PSO7: Employ the psychological knowledge and skills in different settings.

PSO8: Apply the ethical principles and values of psychology in the society.

PSO9: Create awareness and sensitization for the needy population on various psychological issues.

PSO10: Identify, Analyse and interpret the information in scientific manner and formulate intervention strategies for psychological well being.

Mapping of Program Specific Outcomes (PSOs) with Program Outcomes (POs)

POs /PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	X	X	X	X	X	X	X	X		
PSO2	X	X	X	X	X	X	X			
PSO3	X	X	X	X	X	X	X			
PSO4	X	X	X	X	X	X	X			
PSO5	X	X	X	X	X	X	X		X	X
PSO6	X	X			X	X			X	X
PSO7	X	X	X		X	X	X	X	X	X
PSO8	X	X	X		X	X	X		X	X
PSO9	X	X	X		X	X	X		X	X
PSO10	X	X	X		X	X	X	X	X	X

Mapping of Program Specific Outcomes (PSO) with Courses

Course code / PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Semester - I										
PSY 1501	X	X	X		X		X			
PSY 1403	X	X	X		X					X
PSY 1405	X		X	X	X					X
PSY 1407	X	X		X					X	X
PSY 1201		X	X		X			X		X
PSY 1203	X		X		X			X		X
Semester - II										
PSY 1502		X	X	X	X					X
PSY 1404	X	X	X		X					X
PSY 1406	X	X			X	X				X
PSY 1408	X	X	X			X				X
PSY 1202	X	X						X	X	X
PSY 1204		X	X	X	X			X		
Semester - III										
PSY 2501	X		X	X				X		X
PSY 2503					X	X	X	X		X
PSY 2405	X	X	X				X		X	
PSY 2507		X			X	X	X		X	
PSY 2409	X		X	X					X	X
Semester - IV										
PSY 2502			X		X		X	X		X
PSY 2404		X				X	X	X		X
PSY 2506		X			X	X			X	X
PSY 2508					X	X	X	X		X
PSY 2410			X		X		X	X		X
Semester - V										
PSY 3601	X	X		X	X				X	
PSY 3603		X	X	X	X				X	
PSY 3605		X			X	X		X		X
PSY 3507		X	X			X			X	X
PSY 3201		X		X			X	X		X
Semester - VI										
PSY 3602			X	X	X			X		X

Course code / PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
PSY 3604				X	X		X		X	X
PSY 3606		X	X		X		X			X
PSY 3509		X	X	X				X	X	
PSY 3202		X	X	X	X					X

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

K1 = Knowledge

K2 = Understand

K3 = Apply

K4 = Analyze

K5 = Evaluate

K6 = Create

B.Sc. PSYCHOLOGY	PART III MAJOR:CORE PAPER-1	5 Hrs Per week
Semester – I	GENERAL PSYCHOLOGY I	Credit 5:
Code: PSY 1501		MARKS:75

This course general psychology aims to introduce different areas of psychology and create knowledge and develop the skills to improve the self and the society.

At the end of this course, the students will be able to:

i. Describe the Basic concepts in Psychology.
ii. Associate relationship between attention and perception
iii. Use learning theories for day today life
iv. Distinguish and relate different types of memory
v. Infer the concept on thinking and language.

UNIT I Introduction to Psychology

A definition of Psychology-practical problems, Methods of Psychology, Work of Psychologists, Schools of psychology.

UNIT IIAttention & Perception

Attention & Perception- Conscious clarity, determinants of Attention, Distraction, Training attention, Physiological basis of attention, Sensory deprivation, attention and overt behaviour; Perceptual constancies, Instabilities, perception of fundamental physical dimensions, illusions, Organizational factors of perception, sensory interaction; Perception in learning.

UNITIII Learning

Learning: Principles of learning - Classical conditioning, Operant Conditioning, Principles of reinforcement, Cognitive Learning, Individualized learning, Learner & learning.

UNIT IV Memory

Memory - Kinds Of memory, Processes of memory, Stages of memory, Levels-Of-Processing model, Forgetting, Biology of memory.

UNIT V Thinking and Language

Thinking and language- Thinking process, Concepts, Problem-solving, Decision Making, Creative thinking, Language, communication.

Pedagogical Method:

Lecture, PPT, Group discussion, activity and exposure visits.

TEXT BOOKS:

1. Lally, M., & Valentine-French, S. (2018). Introduction to Psychology. California, USA: College of Lake County.
2. Morgan, Clifford.T., King, Richard.A., Weisz,John.R., Schopler, John (1993).Introduction to Psychology, TataMcGraw Hill.

REFERENCE BOOKS

1. Marx, Melvin H. (1976) Introduction to psychology - Problems, Procedures & Principles, MacMillan Publishing Co.
2. Hilgard, E.R., Atkinson, R.L., Atkinson, R.C., (1979): Introduction to Psychology, Harcourt Brace Jovanovich. Inc.
3. Baron, R. A., &Misra, G. (2014). Psychology, 5th ed. New Delhi: Pearson Education
4. NCERT (2002). Introduction to Psychology- Part-I. New Delhi: NCERT

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy(K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3			3			
CO4				4		
CO5				4		

Mean =3

B.Sc. PSYCHOLOGY	PART III MAJOR:CORE PAPER-2	4 Hrs Per week
Semester – I	DEVELOPMENTAL PSYCHOLOGY I	Credit 4:
Code: PSY 1403		MARKS:60

This course aims to apply psychological principles in various developmental stages. This course will guide the learners to understand the milestones in the development of behaviour, cognition, and emotions in various stages of life.

At the end of this course, the students will be able to**:**

CO1: Recognize Basic concepts of human Growth and Development.

CO2: Infer and assimilate the physical and cognitive development of infancy and toddlerhood

CO3: Associate Language and Personality Development of infancy and toddlerhood

CO4: Understand and Relate physical and cognitive development of early childhood for better childhood.

CO5: Demonstrate the theoretical perspectives of development for a healthy Middle Childhood

UNIT I Introduction

Conception through birth: Fertilization, Prenatal development, Environmental Influences on prenatal development; stages of child Birth, types of childbirth: prenatal hazards & complications of low birth weight.

UNIT II Infancy & Toddlerhood

Infancy & Toddlerhood (0-3 years) - Physical & Cognitive Development - Body Systems of neonate, infant reflexes, infant Sensory capacities, Milestones of motor development, Environmental influences on motor development; Piaget's Sensorimotor Stage.

UNIT III Infancy & Toddlerhood

Infancy & Toddlerhood - Language and Personality Development - Theories of language development, Stages of language development from 0-3 years; Emotional development - Temperamental differences, Development of Attachment - Individual differences and long term correlates of attachment.

UNIT IV Early childhood

Early childhood (3-6 years) - Motor Skills, Piaget's Preoperational stage, Development of language; gender differences, fears and aggression; Prosocialbehaviour, Child rearing practices and parenting styles

UNIT V Middle Childhood

Middle Childhood (6-12 years) - Piaget's Stage of Concrete operations, Development of self-concept, Components of self-concept, Theoretical perspectives on self-concept - Freud's latency period, Erickson's Industry vs. Inferiority, Social learning theory, Information processing approach; The child in the peer group, functions and influences of the peer group, Friendship & popularity Visits to nursery schools / hospitals to get an idea about preschoolers and infants should be arranged.

Pedagogical Method:

Lecture, PPT, Group discussion, activity and exposure visits.

TEXT BOOK:

1. Hurlock, E(1980),**Developmental Psychology**, Tata McGraw Hill Publishing Co.

REFERENCES:

2. Papalia, Diane E, Olds, Sally Wendoks (2003): **Human Development**, Tata McGraw Hill Publishing Co
3. Brown, Carol (2008), **Developmental Psychology**, Sage publications

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

CO/K	K1	K2	K3	K4	K5	K6
CO1		2				
CO2		2				
CO3				4		
CO4			3			
CO5				4		

Mean = 3

B.Sc. PSYCHOLOGY	PART III MAJOR:CORE PAPER-3	4 Hrs Per week
Semester – I	BIOLOGICAL PSYCHOLOGY	Credit 4:
Code: PSY 1405		MARKS:60

This course aims to develop the understanding and application of psychological principles and theories biological perspectives. This course will develop knowledge about brain and its impact on the behaviour and cognition among the learners.

At the end of this course, the students will be able to:

CO1: State the meaning of Biological Psychology and Recall historical views of human behaviour.

CO2: Sketch and Describe the structure and functions of neuron

CO3: Explain the functions of neurotransmitters

CO4: Distinguishtheoriesof hormones in determining human behaviuors.

CO5: Compare the biology of emotional behaviour of normal and impaired brain.

UNIT I Introduction

The Nature of Biological Psychology**-** Meaning and Definition of Physiological Psychology - Historical views on human behavior - The Modern Era of Brain Imaging -Physiological Psychology and Neuroscience

UNIT II Neuroanatomy

Neuroanatomy - The neuron: Structure of the neuron, types of Neurons; The Peripheral Nervous system: Structure and function The Skeletal Nervous system-structure and function; The Autonomic Nervous System-Structure & function The Central Nervous System: Spinal cord - structure and function The Brain - hindbrain, midbrain & forebrain.

UNIT III Neurotransmitters

Neural Impulse: Neural impulse Cycle: membrane potential, resting potential, action potential; conduction across the length of a neuron and conduction across the synapse; Neurotransmitters and the nervous system - acetylcholine, dopamine, norepinephrine & GABA.

UNIT IV Hormones and Behaviour

Hormones and Behaviour-Main endocrine glands, their hormone products and principal effects of the hormones

UNIT V The Biology of Emotions

The Biology of Emotions, Learning & Memory Emotional behaviour - Visceral factors in emotional behaviour, Autonomic nervous system & emotions; Brain mechanisms Learning & Memory: Various types of memory, brain damage & Impairments of implicit memory; brain damage & experiments Of explicit memory; The story of H.M: a man with hippocampal Damage; role of hippocampus, amygdala and frontal cortex.

Pedagogical Method:

Lecture, PPT, Group discussion, activity and exposure visits.

TEXT BOOK

1.Kalat, James. W.,(2003) **Physiological Psychology**, Brooks/Cole Publishers

REFERENCE BOOKS

2. Morgan (l965): **Physiological Psychology**, International student edition, McGraw Hill Series

3. Rosenweig, Breedlov, Leiman(2002): **Biological Psychology**, 3rd edition, Sinaven Associates, Inc

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1 Knowledge	**K2 Understand**	**K3 Apply**	**K4 Analyze**	**K5 Evaluate**	**K6 Create**
CO1	**1**					
CO2		**2**				
CO3				**4**		
CO4				**4**		
CO5					**5**	

Mean : 3.2

B.Sc. PSYCHOLOGY	PART III MAJOR: SUPPORTIVE PAPER-1	5 Hrs Per week
Semester - I	INTRODUCTION TO SOCIOLOGY	Credit 4: MARKS:60
Code: PSY 1407		

This course aims to develop the understanding among learners about the social perspectives. This course will develop knowledge about social principles among the learners.

At the end of this course, the students will be able to:

CO1: Identify the characteristic of society and its intuitional relevance.

CO2: Classify the types of social process for societal development.

CO3: Compare and contrast the types of social institution for socialization process.

CO4: Identify the consequences of social stratification in the Indian society through caste, class, race etc.

CO5: Demonstrate the models of social control and analyze the factors for social change

UNIT I Introduction

Sociology: Definition, Meaning, Characteristics and Concept. Society, Community, Social group, Associations, and Institution: Definition, Meaning, Characteristics, Types.

UNIT-II Social Processes

Social Processes - Meaning, Types -Co-operation, Competition, Conflict, Accommodation and Assimilation. Concept and meaning of culture, civilization, customs, folkways and mores.

UNIT-III Social Institutions

Social Institutions – Meaning, Primary & Secondary Institution, and Functions. Socialization – Definition and functions. Agencies of Socialization.

UNIT-IV Social Stratification

Social stratification - concept, and forms. Concept of Caste, Class, and Race. Caste System inIndia.

UNIT-V Social Control

Social Control-, Definition, Concept, agents of Social Control. Social Change – Definition, concept, process, factors for Social Change.

PedagogicalMethod:

Lecture, PPT, Groupdiscussion, activityandexposure visits.

TEXT BOOKS:

1. Shankar Rao (2011) Principles of sociology, Tata Macraw Hill, New Delhi.
2. Mangal(PD), (2011)Sociology of Social Stratification, Centrum press, New Delhi

REFERENCE BOOKS:

4. Haralambos&Holborn (2013), Sociology : Themes and Perspectives 8th Edition. Collins UK
5. Ashok Walekar, (2012), Encyclopaedia of Sociology and Social Work –I, ABD Publishers
6. Ashok Walekar, (2012), Encyclopaedia of Sociology and Social Work –II, ABD Publishers.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1 Knowledge	K2 Understand	K3 Apply	K4 Analyze	K5 Evaluate	K6 Create
CO1		**2**				
CO2				**4**		
CO3					**5**	
CO4		**2**				
CO5			**3**			

Mean : 3.2

B.Sc. PSYCHOLOGY	PART IV :Non Major Elective (NME) PAPER-1	3 Hrs Per week
Semester - I	PSYCHOLOGY IN DAILY LIFE	Credit 2:
Code: PSY 1201		MARKS:30

This course aims to develop the skills among the learner's daily life. This course will develop knowledge and they learners will apply it in their life situations.

At the end of this course, the students will be able to:

CO1: Identify the Importance of Psychology in Daily Practice.

CO2: Distinguish the stages of human development

CO3: Relate personality and learning in daily life.

CO4: Apply behaviour medication techniques.

CO5: Interpret the application of psychology in various fields.

UNIT –I Introduction

Psychology - Meaning, Definition, Scope. Branches of Psychology. Importance of Psychology in Daily Practice.

UNIT -IIDevelopmental Psychology

Developmental Psychology: Conception, Pregnancy – Child growth & development. Importance of prenatal development. Developmental tasks in each stage: Infancy to old age.

UNIT –IIIPersonality and Learning

Personality – Definition, Types of personality, Introduction to Theories of Personality. Learning and remembering: Meaning of learning - Types of learning, Learning Theories:Conditioning theory, operant conditioning theory.

UNIT –IV Memory and Behaviour

Memory –Meaning, Types, Factors influencing of memory.Behavior: Meaning, Types of behavior, factors influencing behavior.Behavior modification: Definition and techniques.

UNIT –V Intelligence and Motivation

Intelligence: Meaning and definition of intelligence. Motivation - Meaning, Types ofmotives. Introduction to psychological testing, Frustration - sources of frustration,Defense mechanisms – Meaning and types. Application of Psychology in various fields (Family, Educational settings, Industry).

PedagogicalMethod:

Lecture, PPT, Groupdiscussion, activityandexposure visits.

TEXT BOOK:

1. Morgan, Clifford (1986), **Introduction of Psychology**, New Delhi, Tata McGrawHill

REFERENCE BOOK:

2. Barron, Robert, A (2000), **Psychology 5th Edition**, Allyn& Bacon
3. Hurlock, Elizabeth, (2002), **Development Psychology**, New York, McGraw Hill.
4. Hilgard& Atkinson, (1998), **Introduction to Psychology**, New York, HCB & Word.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1 Knowledge	**K2 Understand**	**K3 Apply**	**K4 Analyze**	**K5 Evaluate**	**K6 Create**
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4				**4**		
CO5					**5**	

Mean score : 3

B.Sc. PSYCHOLOGY	PART IV : LIFE SKILL I	3 Hrs Per week
Semester – I	LIFE SKILL EDUCATION	Credit 2:
Code: PSY 1203		MARKS:30

This course aims to develop the life skills among the learners through education. This course will guide the learners to understand the social, emotional and personal skills required for leading the life successfully.

At the end of this course, the students will be able to:

CO1: State the importance of understanding self.

CO2: Discuss ways to nurturing relationship

CO3: Practice creative and critical thinking

CO4: Understand the emotions; identify the stressor and coping mechanism.

CO5: Develop potentials to solve problems of daily life through effective decisions.

UNIT - I Introduction

Life skills: importance, category of skills. Self-awareness: concept of self, self-awareness-Johari window, concept of ideal and real self, inferiority complex.

UNIT - II Relationship Skills

Relationship management: importance, expectations, conflicts, nurturing relationship.Communication:objectives,passive,aggressive and assertive communication.

UNIT - III Thinking skills

Empathy: concept of empathy, importance, development of empathy. Thinking skills: creative and critical thinking, strategies to develop these skills.

UNIT - IV Coping skills

Coping skills: understanding emotions and stress, strategies to manage emotions and stresseffectively. Stress Management techniques.

UNIT - V Problem solving skills

Problem solving: concept of problem, problem analysis, problem solving techniques. Decisionmaking: problems in making decisions, decision making techniques.

PedagogicalMethod:

Lecture, PPT, Groupdiscussion, activityandexposurevisits.

Text book:

1. WHO Report (1997), **Life Skill Education Guidelines**

Reference books:

2. Centre for Field Assistance and Applied Research (2001), **Life Skills Manual,** Washington,Peace Corps.
3. RGNIYD, **Life Skill Education Manual**.

Mapping of Course Outcomes (Cos) with Bloom's Taxonomy (K1 to K6)

	K1 Knowledge	K2 Understand	K3 Apply	K4 Analyze	K5 Evaluate	K6 Create
CO1	**1**					
CO2		**2**				
CO3			**3**			
CO4			**3**			
CO5						**6**

Mean score : 3

Value Added Courses

PSY 121V **Problem Solving** **2 Hrs/2 Credits**

Problem solving is one of the important skills listed in top ten life skills, career skills, employability skills and soft skills. It helps the psychology students to solve the problem in their life, academic and in their counseling process in effective manner. This course aims at enabling first year undergraduate psychology students, who are expected to develop skills to solve their day to day problems.

At the end of the course, students will be able to

i. Know the problems and its types,
ii. Understand its characteristics,
iii. Explore various problem-solving strategies,
iv. Apply an effective intervention technique, and
v. Analyze the models of problem solving.

Unit 1	Problem, Problem Solving, types of problem	(6)
Unit 2	Characteristics of Problem	(6)
Unit 3	Steps involved in Problem Solving	(6)
Unit 4	Problem Solving Strategies	(6)
Unit 5	Problem Solving Approaches and Models	(6)

Methodology of teaching-learning
Lecture, Discussion, Brain storming, Worksheets, Case Study

References
-------- (2005). The OCR Guide toProblem Solving. *Oxford Cambridge and RSA*.
------- (-----). *Training Module on Problem Solving. United Nation*: Economic and Social Commission for Asia and Pacific.
------- (2017). *Problem Solving and Decision Making*. Optima Train: USA.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PSY 122V **Stress Management** **2 Hrs/2 Crs**

Stress Management is one of the important skills listed in top ten life skills, career skills, employability skills and soft skills. It helps the psychology students to manage their stress in their life, academic and in their counseling process. This course aims at enabling first year undergraduate psychology students, who are expected to develop skills to manage their stresseffectively.

At the end of the course, students will be able to
i. Know stress and its impact,
ii. Understand various types of stress,
iii. Explore various stress management strategies,
iv. Apply effective stress management techniques, and
v. Analyze various stress management approaches.

Unit 1	Stress, Stress Management and Stressors	(6)
Unit 2	Characteristics of Stress and Types of Stress	(6)
Unit 3	Various Stress management techniques/ strategies	(6)
Unit 4	Positive and Negative Stress coping	(6)
Unit 5	Stress management Approaches and Models	(6)

Methodology of teaching-learning
Lecture, Discussion, Brain storming, Worksheets, Case Study

References
1. US Army HOOAH 4 Health (….). Introduction to Stress Management. Personal Development Track.
2. Marguerite Ponder, C.B.T. and David R. Steinman, Ph.D(….). Strategies forStress Management. Retrieved from www.uncw.edu/counseling
3. H L Card(2002). Effective Stress Management. Published by Department of Work and Pension
4. Goldberger, L, Breznitz, S (Eds): The Handbook of Stress, Free Press, New York, 1993

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PSY221V **Self-Awareness** **2 Hrs/2 Cr**

Self-Awareness is one of the important skills listed in top ten life skills, career skills, employability skills and soft skills. It helps the psychology students to understand their self to excel in their life, academic and counseling process. This course aims at enabling second year undergraduate psychology students, who are expected to develop skills to understand their selfeffectively.

At the end of the course, students will be able to

vi. Know self and its components,
vii. Understand importance of self,
viii. Explore various modes of understanding self,
ix. Apply effective strategies to improve self, and
x. Analyze various self-understanding approaches.

Unit 1	Self and its components	(6)
Unit 2	Characteristics of ideal and real Self and its importance	(6)
Unit 3	Various modes of understanding self	(6)
Unit 4	Activities of understanding self	(6)
Unit 5	Self AwarenessApproaches and Models	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. International Labour Organization (2017). Self-Awareness and Identity training Module.
2. Marlis Huebner (2018). Increasing self-Awareness - Workbook. Craft1 life
3. -------- (2012). Developing Self Awareness
4. Berg, Laura E. (2007). Development Through the Lifespan (Fourth Edition), pp. 361-427. Boston, MA: Pearson Education, Inc

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PSY222V **Empathy** **2 Hrs/2 Crs**

Empathy is one of the important skills required for a successful psychologist. It helps the psychology students to understand their emotions and others, it also helps in managing emotions of self and others. This course aims at enabling second year undergraduate psychology students, who are expected to develop skills to understand and manage emotions effectively.

At the end of the course, students will be able to

xi. Know empathy and its traits,
xii. Understand various factors of empathy,
xiii. Explore various strategies to develop the empathetic skills,
xiv. Apply effective empathetic skills andtechniques, and
xv. Analyze various approaches in empathy process.

Unit 1	Empathy and traits of Empathy	(6)
Unit 2	Types of Empathy and factors of Empathy	(6)
Unit 3	Various techniques/ strategies to develop empathy	(6)
Unit 4	Effective empathetic skills and techniques	(6)
Unit 5	Approaches and Models in empathy	(6)

Methodology of teaching-learning
Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. John Shuford (2008). Understanding Empathy. The Transformer: USA
2. Roman Krznaric (2007). Empathy- the arts of Living. The Blackbird: UK
3. Leadinspire (2015). How to increase your empathy skill?
4. Edwin Rutsch (2013). Increasing Empathy. The Center for Building a Culture of Empathy and Compassion

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PSY321V **Emotional Intelligence** **2 Hrs/2 Credits**

Emotional Intelligence is one of the important skills required for the psychology students to understand the emotions of clients in counselling setting. It helps the psychology students to prepare their emotional intelligence skills. This course aims at enabling third year undergraduate psychology students, who are expected to develop skills emotional intelligence.

At the end of the course, students will be able to

xvi. Know emotions and emotional intelligence,
xvii. Understand various components of emotional intelligence,
xviii. Explore various factors of emotional intelligence,
xix. Apply effective techniques to nurture emotional intelligence, and
xx. Analyze various approaches in emotional intelligence.

Unit 1	Emotion and Emotional Intelligence, importance	(6)
Unit 2	Characteristics and components of Emotional intelligence	(6)
Unit 3	Various factors of emotional intelligence	(6)
Unit 4	Strategies and techniques of emotional intelligence	(6)
Unit 5	Emotional Intelligence Approaches and Models	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. ------- (2014). Understanding emotional intelligence Retrieved from The Center for Building a Culture of Empathy and Compassion.
2. Annamaria Di Fabio (2011). Emotional Intelligence – New Perspectives and Applications. InTech: Crotia
3. Olivier Serrat (2009). Understanding andDeveloping Emotional Intelligence. Retrieved from www.adb.org/knowledgesolutions
4. Williams, Daniel (1994). Leadership for the 21st Century: Life Insurance Leadership Study. Boston: HayGroup.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

PSY322V **Resilience** **2 Hrs/2 Crs**

Resilience is one of the important skills for the psychology students to perform better in the field of human understand and counselling. It helps the psychology students to nurture the skill of resilience in self and the clients in future. This course aims at enabling third year undergraduate psychology students, who are expected to develop skills of Resilience.

At the end of the course, students will be able to

xxi. Know Resilience and its importance,
xxii. Understand various factors of resilience,
xxiii. Explore strategies of resilience,
xxiv. Apply effective resilience strategies, and
xxv. Analyze various approaches in Resilience.

Unit 1	Resilience, meaning traits and importance	(6)
Unit 2	Factors of Resilience and its types	(6)
Unit 3	Resilience Strategies and Techniques	(6)
Unit 4	Effective resilience strategies for school children	(6)
Unit 5	Approaches and Models of Resilience	(6)

Methodology of teaching-learning

Lecture, Discussion, Brain storming, Worksheets, Case Study

References

1. Bouncing Back Workbook Building Skills that Strengthen Resilience www.northerntrust.hscni.net
2. The Road to Resilience – American Psychological Association
3. Resilience at mind www.mind.org.uk.il
4. Thomaes, S., Reijntjes, A., Orobio de Castro, B., & Bushman, B. (2009). Reality Bites- or Does It? Realistic Self-Views Buffer Negative Mood Following Social Threat Psychological Science DOI: 10.1111/j.1467-9280.2009.02395.x
5. "Resilience - a key skill for education and job" project partners, 2014. Klaus Linde-Leimer, Thomas Wenzel."Guidelines". Link: http://www.resilience-project.eu.

Mapping of Course Outcomes with Bloom's Taxonomy

	K1	K2	K3	K4	K5	K6
CO1	3	3	3			
CO2		3	3	3		
CO3		3	3		3	
CO4			3	3	3	
CO5				3	3	3

Mean: 4.5

UNDERGRADUATE DEPARTMENT OF VISUAL COMMUNICATION

Program for B.Sc. Visual Communication (SF) – CBCS – 2020

Sem	Part	Course Code	Course Title	Hr/Wk	Cr.	Marks
1	I	XXX xxxx	TAM/FRE/HIN	3	2	30
1	II	ENS 1201	Conversational Skills	3	2	30
s1	III C	BVC 1521	Introduction to Visual Communication (T)	5	5	75
1	III C	BVC 1421	Visual Literacy (T)	4	4	60
1	III C	BVC 1423	Drawing (P)	4	4	60
1	III S	BVC 1425	Advertising and Public Relations (T)	5	4	60
1	IV NME	BVC 1225	Camera Handling Techniques	3	2	30
1	IV LS I	BVC 1227	Design for Print I	3	2	30
			Total	**30**	**25**	**375**
2	I	XXX xxxx	TAM/FRE/HIN	3	2	30
2	II	ENS 1202	Reading &Writing Skills	3	2	30
2	III C	BVC 1428	Graphic Art	4	4	75
2	III C	BVC 1532	Fundamentals of Photography (T)	5	5	60
2	III C	BVC 1432	Fiction and Film	4	4	60
2	III S	BVC 1426	Media Management	5	4	60
2	IV NME	BVC 1226	Commercial Photography	3	2	30
2	IV LS II	BVC 1228	Design for Print II	3	2	30
2	V	XXX xxxx	Ext. Activity NSS/NCC/PED/SLP		1	15
			Total	**30**	**25+1**	**390**
3	I	XXX xxxx	TAM/FRE/HIN	3	2	30
3	II	ENS 1202	Study Skills	3	2	30
3	III C	BVC 2523	Theatre and Cinema	5	5	75
3	III C	BVC 2531	Film Studies (T)	5	5	75
3	III C	BVC 2537	Introduction to Sound	5	5	75
3	III C	BVC 2439	Media Production (P)	5	4	60
3	III S	BVC 2431	Screen Writing (P)	4	4	60
			Total	**30**	**27**	**405**
4	I	XXX xxxx	TAM/FRE/HIN	3	2	30
4	II	ENS 2202	Career Skills	3	2	30
4	III C	BVC 2432	Audio Production	4	4	60
4	III C	BVC 2532	Theories of Communication (T)	5	5	75
4	III C	BVC 2536	Video Editing(P)	5	5	75
4	III C	BVC 2538	Animation Techniques (P)	5	5	75
4	III S	BVC 2534	Cinematography	5	5	75
4	V	XXX xxxx	Ext. Activity NSS/NCC/PED/SLP		1	15
			Total	**30**	**28+1**	**435**

Sem	Part	Course Code	Course Title	Hr/Wk	Cr.	Marks
5	III C	BVC 3621	Television Production (T)	6	6	90
5	III C	BVC 3529	Visual Analysis (T)	6	6	90
5	III C	BVC 3631	Media Laws	6	6	90
5	IV LS III	BVC 3225	Practical Theatre (P)	3	2	30
5	IV	BVC 3200	Environmental studies (T)	4	2	30
5	IV	HVS 3200	Human Value Development	4	2	30
			Total	**29**	**24**	**360**
6	III C	BVC 3902	Pre - Internship	9	9	135
6	III C	BVC 3904	Internship	10	9	135
6	III C	BVC 3906	Post Internship	9	9	135
6	IV LS	BVC 3226	Art from Anything	3	2	30
			Total	**31**	**29**	**435**

Supportive

Sem	Part	Course Code	Course Title	Hr/Wk	Cr.	Marks
1	III	BVC 1425	Advertising and Public Relations (T)	5	4	60
2	III	BVC 1426	Media Management	5	4	60
3	III	BVC 2431	Screen Writing	5	4	60
4	III	BVC 2534	Cinematography	5	5	75

Courses offered to Non – Major students by the Department of Visual Communication (UG)

Non-Major Elective

Sem	Part	Course Code	Course Title	Hr/Wk	Cr.	Marks
1	IV NME	BVC 1225	Camera Handling Techniques	3	2	30
2	IV NME	BVC 1226	Commercial Photography	3	2	30

Life Skill Courses

Sem	Part	Course Code	Course Title	Hr/Wk	Cr.	Marks
1	IV LS I	BVC 1227	Design for Print I	3	2	30
2	IV LS II	BVC 1228	Design for Print II	3	2	30
5	IV LS III	BVC 3225	Practical Theatre (P)	3	2	30

Value Added Course Syllabus

Sem	Course Code	Course Title	Hr / Wk	Cr.
I	BVC121V	Content Writing	2	2
II	BVC122V	Brochure Designing	2	2
III	BVC221V	Anchoring (VJ/RJ)	2	2
IV	BVC222V	Management of YouTube Channel	2	2
V	BVC321V	Audio Podcasting	2	2
VI	BVC322V	Digital Painting	2	2
		Total	**12**	**12**

BVC 1225 **Camera Handling Techniques** **3 Hours/ 2 Credits**

This course is aimed at introducing the basic concepts of Camera. It is also aimed at concentrating on the parts, types and its usages in various fields of photography. In addition, it is aimed at providing the current concepts of camera angles, shots and use of filters in the field of photography.

At the end of the course the students will be able to:

i. Recognize the basic concepts of camera, working and usage of camera

ii. Explain the usage of camera filters, angles and light meter

iii. Classify the different types of shots and its usage

iv. Compare the effects of shutter speed, aperture, ISO and depth of focus in photographs

v. Evaluate and develop digital photographs

Unit I

Introduction to camera: Eye and Camera - Parts of Camera - on film - Handling the camera – Components of camera – Types of camera: Digital, SLR, DSLR and Camcorders - Lens – Types of lenses - filters – bellows - converters **8 Hrs**

Unit II

Focusing - Aperture - Shutter speed - ISO - Depth of field - Depth of focus – Exposure – light meter – Types of metering modes - Working with different modes in camera - Camera filters - Color correction filter - Color composition filters **8 Hrs**

Unit III

Shots - Subjective angles - Objective angles - Point of view angles - Close-up - Extreme close-up - Close shot - TV close - Mid shot - Mid long shot - Long shot - Full shot - Fixing a master shot and Cut shots - Over the shoulder shot - Imaginary line - Shot continuity 7 **Hrs**

Unit IV

Lens - Materialize a shot - Choosing angle - Deciding the depth of field due to lens - Macro lens - Macro zoom - Angle of coverage - Height of the camera - Eye level - Low angle - High angle - Top angle - Bird eye view - Point of view - Warms view - Camera angle for mood - Camera angle for emotion **7 Hrs**

Unit V

Imaging Techniques - Color correction – HSL – Levels and curves – Image manipulation – Photo Journalism **7 Hrs**

Evaluation Pattern:

Students should submit digital photos for continuous internal assessment of 75 marks. The marks obtained out of 75 in internal assessment and the marks obtained out of 25 in external examination will be added up.

Text Books:

1. Dennis P. Curtin (2011), The Textbook of digital photography, Third edition.
2. Michael Freeman (2007), The Photographer's Eye: Composition and Design for Better Digital Photos (2nd Ed), Focal Press.

Reference Books:

1. Liz Wells, 2015, Photography: A Critical Introduction, Routledge Publisher, London

2. Ian Farrell, 2014, Complete Guide to Digital Photography, Quercus Publishing, United Kingdom

3.Chris Gatcum, 2015, The Complete Book of Photography: The Essential Guide to Taking Better Photos, AE Publications, United Kingdom

4. Kenneth Kobre & Betsy Brill, 2004, Photojournalism: The Professionals' Approach, Volume I, Focal Press, Waltham, Massachusetts Volume

5. Eisman, Dugan, and Grey, 2010, Real World Digital Photography, Pearson/Prentice Hall, New Jersey

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 1227 **Design for Print I** **3 Hours / 2 Credits**

This course is designed to provide hands-on experience in Photoshop. It is also designed to focus on the creation of logo, layout and page design by using Photoshop. It is as well designed to provide the applied concepts in guidelines and process of photo manipulation.

At the end of the course the students will be able to:

i.Recognize the functional concepts of Photoshop and its tools

ii. Classify the methods of filling colors and inserting pictures and shapes

iii. Use designs and patterns to create presentations

iv. Analyze the web gallery in Photoshop

v. Create animations and presentations in Photoshop

Unit I
Photoshop – Introduction - File menu - Tools - Drawing lines &shapes **8 Hrs**

Unit II
Inserting picture and shapes - Filling colors - Text effects - Working with layers - Filters **7Hrs**

Unit III
Creating design patterns - Photoshop presentations - Static and Dynamic presentation **7 Hrs**

Unit IV
Web and Web Gallery using internet explorer in photoshop **7 Hrs**

Unit V
Creating animations using image - Creating animations and presentations - Tips and tricks in Photoshop **8 Hrs**

Evaluation Pattern:

Students should submit digital photos for continuous internal assessment of 75 marks. The marks obtained out of 75 in internal assessment and the marks obtained out of 25 in external examination will be added up.

Text Books:

1. Adobe Photoshop CC Classroom in a Book (2019 Release)
2. Glyn Dewis (2014). The Photoshop Workbook: Professional Retouching and Compositing Tips, Tricks, and Techniques, Peachpit Press.

Reference Books:

1. Andrew Faulkner and Conrad Chavez, 2018, Adobe Photoshop CC Classroom in a Book, Adobe Publisher, California
2. Jeff Carlson, 2017, Adobe Photoshop Elements 13 Classroom in a Book, First Edition, Adobe Press, California
3. Cheryl Brumbaugh and Duncan, My Photoshop Elements 13 (My...) First Edition, Kindle Edition, Que Publishing
4. Glyn Dewis, 2015, The Photoshop Workbook Professional Retouching and Compositing Tips, Tricks, and Techniques, Peach pit Press
5. Barbara Obermeier and Ted Padova,2019, Photoshop Elements 2020 For Dummies For Dummies, First Edition, Adobe Publisher, California

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 1226 **Commercial Photography** **3 Hours/ 2 Credits**

This course aims to introduce the basic concepts of photography. It also aims to focus on the parts of camera, use of filters, use of lights and the usage of camera in various fields of photography. In addition, it aims to provide the contemporary concepts of the responsibility of photographer in product photography and wedding photography.

At the end of the course the students will be able to:

i. Recognize the applied concepts of product photography

ii. Explain the importance and usage of photography in advertising

iii. Apply photography in scientific filed

iv. Compare the effects of fine art photography and digital photography

v. Evaluate and develop digital photographs by using software

Unit I

Product Photography – Overview - significance – Role in promotion of products - Categorization of products – Lighting Equipments – Types of lighting units – Accessories – Digital Lights - Study of Concepts – Props – Backgrounds – Models – equipment **7 Hrs**

Unit II

Photography in Advertising – Relationship of Coordination – Working Schedules - Equipment and techniques - Planning - Stage setting – Modeling - Make-up - Uses and importance of medium - Format and large format cameras - Model release - Property release **8 Hrs**

Unit III

Scientific application - Ultra Violet photography - Infrared Photography – Forensic Photography - Aerial Photography – Astro Photography - Medical & Bio Medical Photography – Underwater Photography – Close up Photography - Micro and Macro photography **7 Hrs**

Unit IV

Fine art photography – Overview - Painting and Photography Relations – Aesthetics of Fine Art photography – Light – Shade – Objects– Shape – Form – Line – Texture – Pattern - Exploring concepts Abstract – Still life – Nude – Portraiture – Character portraiture – Candid - Fine art photography - Commercial considerations - Fine Art and Computer Graphics – New form of Fine Art photography – Digital Photography - Portraiture Indoor and outdoor **8 Hrs**

Unit V

Photo journalism - Snap shots - News papers - Weekly news magazine. - Eye witness - Methods and techniques - Politics and realism - Spot news - Photo feature - Photo sequence **7 Hrs**

Evaluation Pattern:

Students should submit digital photos for continuous internal assessment of 75 marks. The marks obtained out of 75 in internal assessment and the marks obtained out of 25 in external examination will be added up.

Text Books:

1. Selina Maitreya (2007), How to Succeed in Commercial Photography: Insights from a Leading Consultant, Allworth Press
2. Scott Kelby (2011), Light It, Shoot It, Retouch It: Learn Step by Step How to Go from Empty Studio to Finished Image, Rocky Nook Press

Reference Books:

1. DSLR for Beginners, 2015, Well Being Publishing House, Kindle Edition
2. Al Judge, 2014, Understanding DSLR Lenses, Subtle Vision Media, Kindle Edition
3. Al Judge, 2013, The Art of Photography, Subtle Vision Media, Kindle Edition
4. Al Judge, 2014, Mastering Digital Cameras, Subtle Vision Media, Second Edition
5. Scott Kelby, 2013, The Digital Photography, Second Edition, Peach pit Press: USA
6. Rick Sammons, 2004, Complete guide to Digital Photography, W.W. Norton & Company Inc.,

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 1228 **Design for Print II** **3 Hours / 2 Credits**

This course aims to provide hands on experience in CorelDraw. It also aims to focus on the applications of dots, lines, shapes and composition in CorelDraw. In addition, it aims to provide hands on experience in creating logo, layout, advertisements and visiting cards with CorelDraw.

At the end of the course the students will be able to:

i. Recognize the functional concepts of CorelDraw and its tools

ii. Classify the drawing tools and inserting pictures, shapes, tables and objects

iii. Use special effects and patterns to create presentations

iv. Analyze the color shades and shadows in CorelDraw

v. Create business cards, pamphlets and banners in CorelDraw

Unit I
Corel draw – Introduction – Menu - Tools – Layers **7 Hrs**

Unit II
Drawing – Lines - Shapes - Inserting pictures – Objects – Tables – Templates **7 Hrs**

Unit III
Adding special effects - Exporting drawings - Outlining and filling objects - Inserting symbols and Clip arts **7 Hrs**

Unit IV
Working in Corel draw presentation – Adjusting the position - Resizing – Positioning – Merging - Color shades and Shadows working with advanced effects - Special interactive effects **8 Hrs**

Unit V
Short cut keys in Corel draw – Creating business cards – Pamphlets – Banners - News papers - Books **8 Hrs**

Evaluation Pattern:
Students should submit digital photos for continuous internal assessment of 75 marks. The marks obtained out of 75 in internal assessment and the marks obtained out of 25 in external examination will be added up.

Text Books:

1. Gary David Bouton (2014), CorelDraw X8: The Official Guide Book, McGraw-Hill Education; 12 edition
2. Satish M. Geetha Jain (2018), Corel Draw Training Guide.

Reference Books:

1. Gary David Bouton, 2014, CorelDRAW X7: The Official Guide, Eleventh Edition, McGraw Hill Education, United States
2. Daniel Gary & Gary David Bouton,1995, Coreldraw! 6, First Edition, New Riders Pub, Sage, India
3. Peter Schiessl, 2018, CorelDraw 2018 Build-Up Volume, Independently Published
4. Shane Hunt, 1997, Coreldraw 8 F/X: Inventive Techniques & Outrageous Effects, Ventana Pr,
5. Steve Schwartz, 2002, CorelDRAW 11 for Windows, First Edition, Peach pit Press, United States

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 2531 **Film Studies** **5 Hours / 5 Credits**

This course is designed to introduce the applied concepts of films. It is also designed to focus the developments of world cinema, Tamil cinema and ISM in cinema. In addition, it is designed to provide the contemporary concepts of narrative structure, film genre and film appreciation.

At the end of the course the students will be able to:

i. Recognize applied concepts of film studies

ii. Describe impacts of cultural movement in cinema

iii. Compare narrative structure of Tamil and World cinemas

iv. Evaluate trends of Tamil and World cinemas

v. Perform film appreciation, criticism and analysis of Tamil cinema

Unit I

Introduction to world cinema - History of world cinema - Lumiere Brothers - Thomas Alwa Edison - Cinematograph - Kinetoscope - The Birth of Nation - Pudovkin - Kulasev effect - D.W. Griffith **12 Hrs**

Unit II

Introduction to Tamil cinema - First talkie movie in Tamil - Samikannu Vincent - Nataraja Mudhaliyar - Directors of 80's Tamil cinema - K. Balachander - Mahendran - Bharathiraja - Manirathnam – Balumahendra **15 Hrs**

Unit III

ISM in cinema - Realism - Surrealism - German Expressionalism - French impressionism and soviet montage - Italian neo realism - French new wave - Modernism – Postmodernism **15 Hrs**

Unit - IV

Narrative structure - Linear narrative structure - Non linear narrative structure - Time and space in cinema - Film genre - Historical - Periodical - Horror - Action - Documentary - Music - War - Sci-Fi **15 Hrs**

Unit - V

Film Appreciation - Film Criticism - Film Analysis - Film Critics - Roles and Responsibility - CBFC - Types of Audiences **10 Hrs**

Evaluation Pattern:

End of semester exams will be conducted for100 marks.

Text Books:

1. M.K. Raghavendra (2017), Beyond Bollywood: The Cinemas of South India, Harper Collins.
2. Ashish Rajyadhaksha (2012), Indian Cinema in the Time of Celluloid from Bollywood to the Emergency, Tulika Publishers

Reference Books:

1. Jill Nelmes, 2011, Introduction to Film Studies, Routledge, New Delhi, India
2. Annette Kuhn & Guy Westwell, 2012, A Dictionary of Film Studies, Oxford University Press, Oxford, United Kingdom
3. Ahmed Omar, Studying Indian Cinema, Penguin, Auteur Publishing
4. Andre Bazin, 2004, What is Cinema? First Edition, University of California Press, USA
5. David Bordwell, 2007, Poetics of Cinema, First Edition, Routledge

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	2			
CO 3				3		
CO 4					4	
CO 5						5

Mean: 3.4

BVC 2538 **Animation Techniques** **5 Hours/ 5 Credits**

This course intends to provide practical experience in 2D and 3D animation. It also intends to focus on the applications of animation with reference to creating story board, editing symbols and developing frame by frame animation. In addition, it intends to provide the applied concepts of web banner creation, icons creation and app creation

At the end of the course the students will be able to:

i. Recognize practical concepts of 2D and 3D Animation

ii. Explain tools, techniques and types of animation

iii. Employ software Adobe Flash and Maya for frame by frame animation and Modeling

iv. Apply and evaluate with web color and web pages for web banner creation

v. Develop icons and app

Unit I

Introduction to Animation - Computer animation - Principles of Animation - Animation Production - Animation tools and techniques - Computer animation production tasks - Introduction to Maya - Modeling - Tools for Modeling - Create Basic Modeling - Poly modeling **15 Hrs**

Unit II

Types of animation- Introduction to 2d animation - Creating Story Board - Overview of Adobe Flash - Explore the panels - Creating and editing the symbols - Writing a basic Action Script - Shading - Ramp shader and Ocean shader - 2d and 3d textures for UV mapping **15 Hrs**

Unit III

Frame by frame animation - Motion tweening - Shape tweening - Creating a mask - Creating a button - Motion guide and motion guide path - Application of Maya - Lights and Shadows - Texturing and lighting **13 Hrs**

Unit IV

Introduction to Interactive Multimedia - About Internet - Basic HTML Scripting - Web colors - Developing interactive web pages - Web banner creation **12 Hrs**

Unit V

Icons and app creation (logo) - Text more on flash - Create a glowing text - Jumping letters - Converting Flash file into MOV file - Introduction Fluids – Fields - Soft and Rigid Bodies - Effects - Rigging Basics **12 Hrs**

Project Outline:

- 2D Product Ad
- Portfolio
- Web designing (Front Page)

Evaluation Pattern:
Students should maintain two records. One record should be maintained for class work and another record should be maintained for homework. On the basis of presentation in records, the continuous internal assessment will be carried out for 25 marks. Practical exams will be conducted for 75 marks. The obtained marks will be added up.

Text Book:

1. Richard Williams (2009). The Animator's Survival Kit: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet Animators. Faber Publishing.

Reference Books:

1. Satish Jain, 2016, Adobe Flash Professional CS6 Training Guide (First Edition), BPB Publications, New Delhi, India
2. DT Editorial Service, 2016, Animation 2D Digital: Advanced. 3G E-Learning (First Edition), Dream tech Press - Books & Education solutions, New Delhi, India
3. DT Editorial Service, 2016, HTML5 Black Book (Second Edition), Dream tech Press - Books & Education solutions, New Delhi, India

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					4	
CO 5						5

Mean: 3.8

BVC 3631 **Media Laws** **6 Hours/ 6 Credits**

This course intends to introduce the basic concepts of media laws and ethics. It also intends to focus on the usage of acts related to book, press, and telegraphy, copy right, official secrets and indecent representation of women prohibition, Indian Penal Code and press council. In addition, it intends to provide the current concepts not only on code of ethics of Radio, TV and Cinema but also on impact of new media, cyber crimes and cyber laws.

At the end of the course the students will be able to:

i. Recognize the basic concepts of laws and ethics of media

ii. Explain the fundamental rights and important acts

iii. Use the code of ethics of different media

iv. Analyze the ethics in advertising and ethics of public relations

v. Evaluate the ethical codes of new media and plan for their implementation

Unit I
Indian Constitution - Fundamental Rights - Right to Information - Freedom of Press - Contempt of Court - Defamation - Libel and Slander **15 Hrs**

Unit II
Press and Registration of Books Act - Indian Telegraphy Act - Copy right Act - Official Secrets Act - Indecent Representation of Women (Prohibition) Act - Indian Penal Code - Press Council **20 Hrs**

Unit III
Ethics of Advertising & Public Relations - Ethics in Advertising - ASCI (Advertising Standards council of India) Code - Ethics of Public Relations **15 Hrs**

Unit IV
Code of ethics of Radio and TV and Cinema - Chanda Committee - Verghese Committee - Ethics of Broadcasting - CBFC - Film Censorship – Prasar Bharathi – Vividh Bharathi - Joshi Committee - Broadcast Regulation Bill (2007) - Cable TV Act **18 Hrs**

Unit V
Cyber laws - Impact of Internet and Web - Plagiarism - Obscenity and Indecency - Social Networking - Cyber crime **14 Hrs**

Evaluation Pattern:
End of semester exams will be conducted for 100 marks.

Text Book:

1. Neelamalar, 2010, Media Law and Ethics, PHI Learning Private Limited, New Delhi
2. Paranjoy Guha Thakurta, Media Ethics, 2012, Oxford University Press, New Delhi

Reference Books:

1. Yashada, Right to Information Act 2005, 2006, Tata McGraw- Hill Publishing Company Limited, New Delhi
2. Shweta Jaswal Vikram Singh Jaswal, Cyber Crime and Information Technology Act 2000, 2014, Oxford University Press, New Delhi
3. Kant Mani, A Practical Approach to Cyber Laws, 2017, Kamal Publishers, New Delhi

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 3902 **Pre - Internship** **10 Hours/ 9 Credits**

This Pre internship intends to provide hands on experience in print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience to create script, edit shots, design layout and take photos in different fields.

At the end of the course the students will be able to:

i. Recognize the basic concepts of internship

ii. Explain the importance of internship

iii. Implement skills in different platform

iv. Analyze the gap between laboratory and land

v. Evaluate a course of action in media and apply creativity

The Internship training takes the students to the next level of growth in their career giving them a chance to exhibit their talents. As the internship enacts as a platform for employment, the students get opportunities not only to continue their career but also to work of their own choice. Before attending the Internship, the student has to submit a small report regarding his /her field of interest.

Evaluation Pattern:

The work will be assessed by both internal and external examiners for 75 marks. Subsequently, a vice voce will be conducted by the panel for 25 marks. The obtained marks shall be added up

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 3904 **Internship** **10 Hours/ 9 Credits**

This internship intends to provide hands on experience in print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience to create script, edit shots, design layout and take photos in different fields.

At the end of the course the students will be able to:

i. Recognize the basic concepts of internship

ii. Explain the importance of internship

iii. Implement skills in different platform

iv. Analyze the gap between laboratory and land

v. Evaluate a course of action in media and apply creativity

The Internship training takes the students to the next level of growth in their career giving them a chance to exhibit their talents. As the internship enacts as a platform for employment, the students get opportunities not only to continue their career but also to work of their own choice.

The internship period is for a minimum of period of 300 hours. As soon as the internship is over, the acquired knowledge, experience and creativity of the students will be assessed so as to give a clear picture of where they stand in the growth ladder.

Evaluation Pattern:

The work will be assessed by both internal and external examiners for 75 marks. Subsequently, a vice voce will be conducted by the panel for 25 marks. The obtained marks shall be added up

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 3906 **Post Internship** **10 Hours/ 9 Credits**

This Post internship intends to provide hands on experience in print, electronic and new media. It also intends to focus on the applications of the role of editor, cinematographer, camera man, and script writer and production manager. In addition, it intends to provide hands on experience to create script, edit shots, design layout and take photos in different fields.

At the end of the course the students will be able to:

i. Recognize the basic concepts of internship

ii. Explain the importance of internship

iii. Implement skills in different platform

iv. Analyze the gap between laboratory and land

v. Evaluate a course of action in media and apply creativity

The Internship training takes the students to the next level of growth in their career giving them a chance to exhibit their talents. As the internship enacts as a platform for employment, the students get opportunities not only to continue their career but also to work of their own choice.

The internship period is for a minimum of period of 300 hours. As soon as the internship is over, the acquired knowledge, experience and creativity of the students will be assessed so as to give a clear picture of where they stand in the growth ladder.

Evaluation Pattern:

The work will be assessed by both internal and external examiners for 75 marks. Subsequently, a vice voce will be conducted by the panel for 25 marks. The obtained marks shall be added up

Bloom's Taxonomy	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					4	
CO 5						5

Mean: 3.8

Value Added Courses

BVC 121V **CONTENT WRITING** **2 Hours /2 Credits**

Content writing is a highly skilled area and merging to be a global profession. The course will enable the students to refine their writing skills for the web and understand the industry's demands. The strategy behind selling the content is also the order of the day and will aid the students in understanding the needs.

At the end of the course the students will be able to**:**

i. Recognize the basic concepts of content writing
ii. Explain the different styles of writing required for the web
iii. Understand the social and the new media
iv. Analyse the aspects of content writing
v. Evaluate the different types of content and its writing technique

Unit 1: What is content- Content writing- Qualities of a good content writer-Researching before writing **6 Hrs**

Unit 2: Difference among corporate writing, article and sales writing- Attention grabbing headline and introduction- Strategies to market your content **6 Hrs**

Unit 3: Common mistakes while writing- Choosing topics - Importance of social media for writers. **6 Hrs**

Unit 4: Types of content related jobs- Legal aspects of content writing- SEO guidelines**6 Hrs**

Unit 5: Content in Twitter- Content in FB- Content in YouTube- Content in Blog- Content in Instagram **6 Hrs**

Reference Books:

1. Joseph Robinson (2020). Content Writing- Step by Step. Audio Book. Charlie Creative Lab. ASIN B087D3SQG2
2. Ann Handley (2014). Everybody Writes: Your Go-To Guide to Creating Ridiculously Good Content. Wiley Publisher. ASIN: B00LMB5P0G
3. Tushar Mangl (2016). The Ultimate Guide to Content Writing: Everything you need to know about content writing. ASIN: B01M00UOIQ
4. Roy Peter Clark (2008) Writing Tools: 55 Essential Strategies for Every Writer. Little, Brown Spark. ISBN-10 : 9780316014991, ISBN-13 : 978-0316014991

BVC 22

Bloom's Taxonomy						
	K1	K2	K3	K4	K5	K6
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 122V BROCHURE DESIGN 2 Hours/2 Credits

In this course you will be able to learn about designing a brochure using corel draw. It also aims to concentrate on the usage of typography, image resolution and color modes in design.

At the end of the course the students will be able to:

i. To learn the functioning of Corel Draw
ii. To learn designing of brochures using Corel Draw
iii. To adopt the techniques of designing for different documents
iv. To understand the play of colors and elements
v. To create designs for brochures

Unit 1:
Introduction to Brochure Design – Creating brochure – Working with text – Working with layers. **6 Hrs**

Unit 2:
Enhancing the brochure design – Inserting logo – Applying stroke – Aligning objects and elements. **6 Hrs**

Unit 3:
Applying effect – Text effect - Drop shadow – Paragraph alignment – Working with shapes – artistic brush. **6 Hrs**

Unit 4:
Designing Professional Brochure – Brochure: Menu card – Beauty Parlour – Institution – Furniture showroom **6 Hrs**

Unit 5:
Basics of printing – Exporting for print – Comparing output. **6 Hrs**

Reference Books:

1. Erich Gamma and Richard Helm and Ralph Johnson and John Vlissidess (2015). Design Patterns: Elements of Reusable Object-Oriented Software. Pearson India. ISBN 9789332555402
2. CorelDraw x8 learn graphics designing techniques a beginner's guide, (2018) by Mark Myers, McGraw Hill education ltd, CA.
3. Corel Draw X8: The Official Guide, (2018) By Garry David Bouton, McGraw Hill education ltd, CA.

BVC 24

Bloom's Taxonomy						
	K1	K2	K3	K4	K5	K6 Creating
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 221V ANCHORING (VJ/RJ) 2Hours/ 2 Credits

This course enhances the students to learn the creative and professional skills of becoming Radio Jockey and Video Jockey. This course also gives an eye on different perspectives on Radio and Video speaking.

At the end of the course, the students will be able to

i. Understand the basic techniques of sound and develop the basic skills required for Radio Jockey
ii. Compute the knowledge for audio script and to know about application of advertisement strategy for audio production
iii. Identify the knowledge in the basics of music
iv. Validate and develop the professional skills in video anchoring
v. Explore the career opportunities in both video and radio anchoring

Unit 1:

Basics of sound – Overview of recording studio: Acoustics, Console controlling techniques - Microphone techniques and its usage - Breathing techniques - warm up exercise for voice – Voice Improvisation – Voice modulation **6 Hrs**

Unit 2:

Script for various radio programs – Dubbing – Advertisement in Radio – Spot Advertisement – Sponsored Advertisement – Studio Autocue Reading and recording the voice.

6 Hrs

Unit 3:

Basics of Music: Sound – Melody – Harmony – Rhythm – Texture – Structure – Expression – Understanding music theory – Role of RJ in FM Vs AM

6 Hrs

Unit 4:

Video Anchoring techniques – Skills required for Video Jockey – Pre production process for various programs – Crowd Organizing techniques – Organizing Live Shows

6 Hrs

Unit 5:

Career opportunities as Video Jockey and Radio Jockey **6 Hrs**

Reference Books:

1. Earl Hinz (2016), The Complete Book of Anchoring and Mooring, Cornell Maritime Press

2. Sanjay Gaur (2009), Radio Jockey and TV anchoring, Gaurav Book Centre

3. Simran Kohli (2005), The Radio Jockey HandBook, Fusion Books

4. Neelamalar (2017), Radio Programme Production, PHI Learning Pvt. Ltd.,

5. D-Fuse (2006), VJ: Audio-Visual Art and VJ Culture, Laurence King Publishing

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 222V MANAGEMENT OF YOUTUBE CHANNEL 2 Hours/2 Credits

This course is aimed at teaching students to create videos and choosing content. The students will learn how to post videos in YouTube channel with titles, descriptions, and tags.

At the end of the course the students will be able to:

i. To Create successful YouTube channel
ii. To Make high-quality videos on a budget
iii. Create clickable thumbnails that get more views
iv. To create varied content
v. Understanding the marketing aspects of the channel

Unit 1:
Introduction to YouTube interface – Creating a Google account – Creating an YouTube channel
6 Hrs

Unit 2:
Video Resolutions – Lighting – Composition – Choice of content – Show planning
6 Hrs

Unit 3:
Interviews – Scripted content – Basic interview skills – Basic editing skills
6 Hrs

Unit 4:
Uploading video – Playlist – Inserting cards in videos –Tags and title
6 Hrs

Unit 5:
YT studio – Monetization – Placing ads and automatic ads – Skip able and non-skippable ads
6 Hrs

Reference Books:

1. Sean Cannell (2018). YouTube Secrets: The Ultimate Guide to Growing Your Following and Making, Benji Travis, Lioncrest publications, London

2. Ann Eckhart (2019). How to Start a YouTube Channel for Fun and Profit, Amazon digital services LLC – KDP print, USA.

3. Will Eagle (2019). Youtube Marketing for Dummies. Will Eagle. ISBN 9781119541349

BVC 28

Bloom's Taxonomy						
	K1	K2	K3	K4	K5	K6
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 321V AUDIO PODCASTING 2 Hours/2 Credits

This course is aimed at teaching students to create Audio Podcasting. The students will learn audio recording, editing and manipulation, the student will also be familiarized with podcasting platforms like iTunes, Spotify and google play.

At the end of the course the students will be able to:

i. To start, grow, and monetize podcast
ii. To setup equipment that is needed to get started
iii. To record, edit and export a high-quality podcast
iv. To analyse different audio techniques
v. To create content for the medium

Unit 1:
Introduction to podcasting – creating a iTunes, Spotify and google play account **6 Hrs**

Unit 2:
Audio recording setups – Microphone for podcasting – basic sound recording. **6 Hrs**

Unit 3:
Interviews audio recording – audio manipulation – basic audio effects. **6 Hrs**

Unit 4:
Uploading audio – recording jingles – adding music **6 Hrs**

Unit 5:
Social media sharing – recording shows and mixing. **6 Hrs**

Reference Books:

1. Martin Spinelli, Lance Dann (2019). Podcasting. Bloomsbury Academic. ISBN 9781501328688
2. Salvador Briggman (2018). Podcasting for Beginners: Start, Grow and Monetize Your Podcast, Amazon digital services LLC – KDP print, USA.
3. Jessica Abel (2019). Out on the Wire: The Storytelling Secrets of the New Masters of Radio, By, Broadway books USA.

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

BVC 322V **Digital Painting** **2 Hours/ 2 Credits**

The course aims to enhance the students' skills in the drawing profession and it also gives the wide knowledge to blend the conventional method of drawing with digital mode.

At the end of the course the students will be able to:

i. Understand the tools usage in the digital painting software and apply the techniques for the drawing
ii. Analyse and interpret the concepts of interface
iii. Incorporate the basic concepts of paintings and the application of digital brush for drawing purpose
iv. Develop the knowledge of color sense and know about its application for the software
v. Creating the images by using vector tools

Unit 1:
Introduction: Downloading and installing using a graphic tablet – External Resources
6 Hrs

Unit 2:
User Interface – Interface basics – Manipulating the Canvas – Toolbox
6 Hrs

Unit 3:
Painting fundamentals – Preset Brushes – Importing Brushes – Brush Smoothing and dynamic brush – Gradients and patterns – Layers
6 Hrs

Unit 4:
Working with Color – Color management – Selecting Colors – Color profiles – Soft Proofing – Raw Format
6 Hrs

Unit 5:
Vector tools: Understanding vector objects – Creating Vector objects – Calligraphy Tool – Text Tool – Vector Gradients and patterns **6 Hrs**

Reference Books:

1. Carlyn Beccia (2012), Digital Painting for Complete Beginner, Watson-Guptill
2. 3d Total (2009), Digital Painting Techniques: Practical Techniques of Digital Art Masters (Digital Art Masters Series), 1st Edition, Routledge
3. Allen Williams (2020), Sketching from the imagination: Creatures and Monsters, 3D Total Publishing, ISBN -10: 978-1-909414-87-7
4. Nykolai Aleksander & Richard Tilbury (2012), Beginner's Guide to Digital Painting in Photoshop, 3D Total Publishing, Slp Edition
5. Alison Jardine (2020), Make Great Art on your Ipad: Draw, Paint& Share: Tool, Tips and tricks for using Adobe Photoshop Sketch, Procreate, Art Rage and many more, Ilex Press

Bloom's Taxonomy						
	K1	K2	K3	K4	K5	K6
CO1	1					
CO 2		2	3			
CO 3				4		
CO 4					5	
CO 5						5

Mean: 4

UNDERGRADUATE DEPARTMENT OF FOOD SCIENCE & NUTRITION

w.e.f. 2020-2021

Sem	Part	Course No.	Course title	Hrs	Credits	Marks
I	**I**	XXX 0000	Tamil/French/Hindi	3	2	30
I	**II**	ENS 1201	Conversational Skills	3	2	30
I	**III-C**	FSN 1511/1531	Basics of Food Science	5	5	75
I	**III-C**	FSN 1413	Lab in Food Science	4	4	60
I	**III-C**	FSN 1415/1435	Fundamentals of Nutrition	4	4	60
I	**III-S**	FSN 1401	Human Physiology	5	4	60
I	**IV-E**	FSN 1211	Basic Nutrition	3	2	30
I	**IV-LS**	FSN1203	Ethnic foods	3	2	30
I	**V**	XXX 0000	Extension Activity (NSS/SLP/PED)			
			Total	**30**	**25**	**375**
II	**I**	XXX 0000	Tamil/French/Hindi	3	2	30
II	**II**	ENS 1202	Reading & Writing Skills	3	2	30
II	**III-C**	FSN 1512	Nutritional Biochemistry	5	5	75
II	**III-C**	FSN 1414	Lab in Nutritional Biochemistry	4	4	60
II	**III-C**	FSN 1416/1432	Food Microbiology	4	4	60
II	**III-S**	FSN 1402	Dietetics	5	4	60
II	**IV-E**	FSN 1212	Diet and Disease	3	2	30
II	**IV-LS**	FSN 1204	First aid	3	2	30
II	**V**	XXX 0000	Extension Activity (NSS/SLP/PED)		1	
			Total	**30**	**25+1**	**375/390**
III	**I**	XXX 0000	Tamil/French/Hindi	3	2	30
III	**II**	ENS 2201	Study Skills	3	2	30

Sem	Part	Course No.	Course title	Hrs	Credits	Marks
III	**III-C**	FSN 2517/2531	Food Chemistry	5	5	75
III	**III-C**	FSN 2519	Food Processing	5	5	75
III	**III-C**	FSN 2411	Lab in Food Processing	4	4	60
III	**III-C**	FSN 2513/2535	Food Service Management	5	5	75
III	**III-S**	FSN 2403/2433	Human development	5	4	60
III	**V**	XXX 0000	Extension Activity –NSS/SLP/PED			
			Total	**30**	**27**	**405**
IV	I	XXX 0000	Tamil/French/Hindi	3	2	30
IV	II	ENS 2202	Career Skills	3	2	30
IV	III-C	FSN 2510	Therapeutic Nutrition-I	5	5	75
IV	III-C	FSN 2412	Lab in Therapeutic Nutrition-I	4	4	60
IV	III-C	FSN2514/2534	Food Preservation	5	5	75
IV	III-C	FSN2516/2536	Food packaging	5	5	75
IV	III-S	FSN 2404	Functional foods and Nutraceuticals	5	4	60
IV	V	XXX 0000	Extension Activity -NSS/SLP/PED	-	1	15
			Total	**30**	**27+1**	**405/420**
V	III-C	FSN 3615	Therapeutic Nutrition – II	6	6	90
V	III-C	FSN 3517	Lab in Therapeutic Nutrition– II	5	5	75
V	III-C	FSN 3619	Food Biotechnology	6	6	90
V	III-C	FSN 3621	Baking and Confectionary	6	6	90
V	IV-LS	FSN 3203	Obesity Management	3	2	30
V	ES	FSN 3200	Environmental Studies	4	2	30
			Total	**30**	**27**	**405**
VI	III-C	FSN 3618	Food safety and Quality control	6	6	90
VI	III-C	FSN 3520	Mini Project	5	5	75
VI	III-C	FSN 3622	Health and Fitness	6	6	90
VI	III-C	FSN 3626	Public Health Nutrition	6	6	90
VI	IV-LS	FSN 3206	Sports nutrition	3	2	30
VI	V-VE	HVS XXXX	Human Value Development	4	2	30
			Total	**30**	**27**	**405**
				180	**158+2**	**2370/2400**

C- Core Courses ***S- Supportive Courses***
LS- Life Skill **NME- Non- Major Elective**
VE- Value Education **ES- Environmental Studies**

Courses offered by the Department of Food sciences to Non-Major Students Part -III

Supportive

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	FSN 1404	Human Physiology	**5**	**4**	**60**
II	FSN 1402	Human Nutrition	**5**	**4**	**60**
III	FSN 2433	Human Development	**5**	**4**	**60**
IV	FSN 2404	Functional foods and Nutraceuticals	**5**	**4**	**60**
Total			**20**	**12**	**240**

Part- IV Life skill course

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	FSN 1203	Ethnic foods	**3**	**2**	**30**
II	FSN 1204	First aid	**3**	**2**	**30**
V	FSN 3203	Obesity Management	**3**	**2**	**30**
VI	FSN 3206	Sports nutrition	**3**	**2**	**30**
Total			**12**	**8**	**120**

Part IV Non-Major Electives

SEM	Course No.	Course Title	Hrs.	Cr	Marks
I	FSN 1211	Basic Nutrition	**3**	**2**	**30**
II	FSN 1212	Diet and Disease	**3**	**2**	**30**
Total			**6**	**4**	**60**

Value Added courses

SEM	Course No.	Course Title	Hrs.	Cr
I	FSN 121V	Techniques in mushroom and spirulinacultivation	**2**	**2**
III	FSN 221V	Food adulteration and additives	**2**	**2**
V	FSN 321V	Organic and terrace Farming	**2**	**2**
Total			**6**	**6**

Program Specific Outcomes (PSOs)

At the end of the UG Food Science & Nutrition program, the student will be able to:

1. Apply the knowledge of food science & nutrition to appreciate in significant the healthy living and enhance to suit the contempory Indian situations.
2. Develop and test the theoretical aspects for applications in food processing
3. Developing the quality enrichment shelf life and value addition
4. Appreciate the chemistry underlying the properties of various food components in such a way that issue of malnutrition and hunger is addressed.
5. Describe techniques that can be used to monitor quality of raw ingredients and final products
6. Demonstrate food processing and preservation skills and innovate new strategies to upgrade the existing procedures.
7. Apply the contextual knowledge of food science & nutrition to function effectively as an individual or a leader in multidisciplinary environments
8. Explicitly communicate and exchange ideas in developing nutritious & healthy products to fill the avoid in malnutrition in Tamilnadu context
9. Solve complex problems and acquire analytical skills using latest techniques, tools to find out the solution to risks and maladies face.
10. Acquire ability to showcase competent to take up careers in academics, research and to become entrepreneur in local & global context

Mapping of Programme Specific Outcomes (PSOs) with Programme Outcomes (POs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PSO 1	✔	✔			✔				✔	✔
PSO 2	✔	✔			✔	✔				
PSO 3	✔			✔	✔		✔			✔
PSO 4	✔	✔			✔	✔			✔	✔
PSO 5	✔									
PSO 6	✔	✔			✔	✔			✔	✔
PSO 7	✔	✔		✔	✔				✔	✔
PSO 8		✔		✔	✔	✔			✔	✔
PSO 9	✔	✔		✔	✔	✔	✔		✔	✔
PSO 10	✔	✔		✔		✔	✔	✔		

Mapping of Courses with Programme Specific Outcomes (PSOs)

Course Title	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
FSN 1511 / 1531	✔		✔		✔			✔		✔
FSN 1413		✔	✔			✔				✔
FSN 1415 / 1435	✔		✔				✔	✔		
FSN 1401	✔						✔	✔	✔	✔
FSN 1211	✔		✔		✔			✔		✔
FSN 1203	✔		✔		✔			✔		✔
FSN 1512	✔	✔	✔	✔			✔	✔		✔
FSN 1414	✔	✔	✔	✔			✔			✔
FSN1416 /1432	✔	✔	✔		✔		✔		✔	✔
FSN 1402	✔						✔	✔	✔	✔
FSN 1212	✔		✔		✔	✔		✔		✔
FSN 1204	✔		✔		✔	✔		✔		✔
FSN 2517 / 2531	✔			✔		✔	✔			
FSN2519 / 2533	✔			✔		✔	✔	✔		
FSN 2411		✔	✔			✔				✔
FSN 2513 /2535						✔	✔	✔		
FSN 2403 / 2433	✔							✔		✔
FSN 2510	✔						✔			✔
FSN 2412	✔		✔			✔	✔			✔
FSN2514 / 2534	✔			✔		✔	✔	✔		
FSN 2516 /2536	✔		✔			✔				
FSN 2404	✔	✔							✔	✔
FSN 3615	✔						✔			✔
FSN 3517	✔	✔	✔			✔	✔			✔
FSN 3619			✔				✔		✔	✔
FSN 3621	✔		✔		✔			✔		✔
FSN 3203	✔		✔		✔			✔	✔	
FSN 3200			✔		✔			✔	✔	
FSN 3618	✔						✔			✔
FSN 3520	✔	✔	✔				✔		✔	✔
FSN 3622	✔						✔			✔
FSN 3624	✔		✔				✔	✔		✔
FSN 3204	✔		✔		✔			✔	✔	

FSN1203 Ethnic Foods (3hrs/wk) (2cr)

(Life Skill Course)

This course deals with the nutritional, social, cultural, economic and health effects of traditional foods.

Upon completion of this course the student will be able to:

- Understand the historical perspective of nutrient requirements.
- Learn to critically evaluate the methodology and derivation of requirements for specific macronutrients.
- Appreciate importance of nutrition immunity interactions and their implications.
- Learn various measures for enhancing nutritional quality of diets.
- Stay updated with emerging concepts in nutrition.

UNIT-I Traditional food style: History–Concept and Principles of Traditional Foods–Benefits andnutritional content of Traditional Foods.

UNIT-II Traditionally fermented foods: Unsweetened yogurt, kefir, dahi, lassi, shrikhand, miso, kimchi,kombucha, tempeh, pickles and sauerkraut – processing methods, nutritional benefits and therapeutic uses

UNIT-III Healthy aspects of traditionally foods: National health benefits - impacts of consumingtraditional foods.

UNIT-IV Traditional methods of cooking and preservation: Introduction - cooking techniques -conventional cooking - dry cooking - wet cooking - thermal processing – effect of time and temperature - equipments.

UNIT-V Traditionally fermented fruits and vegetables: Cucumber, onion, olives, carrot, caper berries,pickled garlic - safety and regulations.

Text book:

1. Kristbergsson K and Oliveira J (2016) Traditional foods: General and Consumer Aspects. Springer, New York.

References:

1. Pathak YV, Handbook of nutraceuticals Volume 2, CRC Press 2011.
2. Prakash V and Belloso OM (2015) Regulating safety of traditional and ethnic foods. AcademicPress, Elsevier, USA.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2	3			
CO 2		2		4		6
CO 3		2				
CO 4	1		3			
CO 5	1			4		6

Mean =3.09

FSN 1416/1432 Food Microbiology (4hrs/wk) (4cr)

The goal of teaching this course to students is to gain knowledge about the role of micro-organisms in health and disease, understand the role of micro-organisms in spoilage of various foods and its role in relation to food and food preservation.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Acquire, discover, and apply the theories and principles of food microbiology in practical, real-world situations and problems.
ii. Discuss on classification of micro-organisms and its characteristics.
iii. Evaluate the different factors responsible for the microbial growth.
iv. Analyze and describe the characteristics of important pathogens and spoilage microorganisms in foods.
v. Compare food borne infection and food intoxication.

Unit1:Introduction to food microbiology (10 hours)

Definition to Food Microbiology- Scope of food microbiology-History- Role of microbiologist in food industries.

Unit 2:Overview of Microorganisms (12 hours)

An introduction to microbial world: Bacteria, Fungi, Yeast, Viruses Importance and significance of microorganisms in food science. Micro-organisms importance in food - Factors affecting the growth of micro organisms in food - Intrinsic and Extrinsic parameters that affect microbial growth.

Unit3:Contamination and spoilage of foods (14 hours)

Principles of food spoilage -microbiological, physical and biological factors - contamination, preservation and spoilage of cereal and cereal products, baked products, Fruits and vegetables and their products, Fleshy food, Milk and Milk products.

Unit 4: Food Spoilage and Preservation (12 hours)

Definition, sources of contamination and microorganisms involved in spoilages of various foods: Milk, Bread, Canned food, Vegetables and fruits, Fruit juices, Meat, Eggs and Fish Physical and chemical means used in destruction of microbes: Definition of sterilization and disinfection, Thermal- role of heat, pasteurization, Non-thermal- filtration and radiation in sterilization, use of chemical agents-alcohol, halogens and detergents

Unit5:Fermentation Technology (12 hours)

Fermentation process-. Dairy products (cheese and yoghurt) and traditional Indian fermented foods and their health benefits. Fermented Beverages- wine, beer, toddy and vodka.

Textbook:

1. Frazier WC and West off DC (2013) Food Microbiology. Fifth Edition, McGraw Hill Education (India) Pt. Ltd., New Delhi.

References:

1. Banwart GJ (1989) Basic Food Microbiology. Second Edition, Chapman and Hall, New York.
2. Pelczar MJ, Chan ECS and Kreigh NR (2000) Microbiology. Eighth Edition, Tata McGraw Hill,New Delhi.
3. Willey UM, Sherwood LM and WoolvertonCJ(2011) Prescott's Microbiology. Eighth Edition, Mc Graw-Hill International.
4. Adams MR and Moss MO (1991) Food Microbiology. The Royal society and chemistry,Cambridge.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2		4		
CO 2		2		4		
CO 3		2		3	5	
CO 4		2	4		5	
CO 5		2	4		5	

Mean = 3.38

FSN1204 First Aid (3 hrs/wk) (2 cr)

This course has been designed to train the general public to a basic standard of first aid, to impart a wide spectrum of knowledge spanning the basic principles of immediate action to be taken in emergency situation and consolidating such knowledge through the discussion and hand on practice of numerous common scenarious.

Upon completion of this course, the student will be able to:

I. Assess an emergency situation quickly and calmly.
ii.Product him/herself, bystanders and casualties from danger.
iii. Obtain medical aid and call an ambulance when necessary.
iv. Deal with other major condition mainly bleeding, shocking and other emergency
v. Assess the condition of all casualties and identify the need to immediate care.

Unit 1: Introduction to First Aid (7hours)

General Principles-body structure and function-Positioning of casualty- unconscious casualty-resuscitation-bleeding; management of shock, burns and scalds and accidents caused by electrical

Unit 2: Managing an incident (5 hours)

Action at an emergency- making an area safe-giving emergency help and assisting the emergency services

Unit 3: Fire(7 hours)

The Elements of fire- leaving a burning building-clothing on fire-smoke and fumes. Electrical incidents: High voltage -low voltage current and lightning.

Unit 4:Environmental and Medical Emergencies (5hours)

Bites and stings-Temperature related emergencies and poison emergencies. Medical: breathing problems-choking -allergic reaction-stroke- shock and fainting

Unit 5: Final First aid safety skill and CPR (6 hours)

Removing Gloves, proper use of personal protective equipment- proper technique on application of bandage and splint- how to stop bleeding – application of wound dressing

Textbook:

1.M.F.Hazinki,J.P .Nolan ,et al.2015 international consensus on first Aid science with treatment recommendations. Circulation 2015:suppl.t

References:

2. IFRC international first aid guide for field workers 2011.
3.Indian red cross society -Belgian red cross flander. Indian first aid guidelines 2014.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2		4		
CO 2				4	5	6
CO 3		2		4		
CO 4			3		5	
CO 5	1				5	

Mean = 3. 72

FSN 3626 Public Health Nutrition (6hrs/wk) (6cr)

The course is designed to enable the students to understand the importance of nutrition in national progress and the significance of assessment of nutritional status. The course also aims to recognize the solutions to overcome problems of malnutrition in the community and the role of national and international agencies in this area. Discuss the unifying concepts of public health nutrition, particularly with relevance to health promotion and disease prevention efforts, and the most current and controversial issues in the field.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Identify suitable methods for resolve nutrition related problems in community.
ii. Evaluate nutritional status of the community.
iii. Analyze maternal and child health care programs.
iv. Assess immunization and its effective actions.
v. Outline the various agencies in uplifting the nutritional status and their roles.

Unit 1: Health and Nutrition Education (16 hours)

Components and principles of health education, Methodology-individual, group and mass methods, Aids used for health and nutrition education. Steps in planning of Community nutrition program

Unit 2: Methods of assessing nutritional status (22 hours)

Sampling techniques, Identifications of risk groups, Direct assessment- anthropometric, clinical and biochemical estimation, Indirect assessment- Diet surveys, Food balance sheet, ecological parameters and vital statistics.

Unit 3: Improvement of nutrition of a community (20 hours)
Primary health care system with special reference to maternal & child health care through Balwadies, Anganwadies, crèche and Janani Shishu Suraksha Karyakaram (JSSK), JANANI SURAKSHA YOJANA (JSY), Indian Newborn Action plan.
Methods to improve nutritional quality of food - fortification and nutrient supplementations

Unit 4: Immunization (18 hours)
Immunization and its importance, Classification, specific and non-specific immunity- Immunoglobulin, Cellular and hormonal, immune response, Immunization active and passive immunization schedule, Immunizing agents, Hazards of immunization.

Unit 5: Regional, National and International agencies in uplifting the nutritional status

Objectives, functions and responsibilities- WHO, UNICEF, CARE, ICMR. Various nutrition related welfare programmes, ICDS, TINP, MDM, SNP,WNP, ANP, BNP NNAPP, NGCP, RGSEAG.

Textbooks:

1. Bamji, M.S, Rao, N.P and Reddy, V. (2003), Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi. (Unit III)
2. Dandiya, P.C, and Zafer, Z.Y.(2003) Health education and community pharmacy, Vallabh Prakashan Printers, New Delhi. (Unit I)
3. Gibney, M.J, Margetts, B.M, Kearney, J.M and Arab, L. (2005). Public Health Nutrition, Blackwell Publishing, USA. (Unit II)
4. Park. K, (2005) Park's Textbook of Preventive and Social Medicine, 18th edition, BanarsidasBhanot Publishers, Jabalpur. (Unit IV and Unit V)

References:

1. Srilakshmi, B. (2004) Nutrition Science, New Age International Pvt. Ltd, New Delhi
2. Ramachandran, L. and Dharmalingam, T. (2005) Health Education, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Khader, V. (2003) Foods,Nutrition and Health, Kalyani Publishers, New Delhi.
4. Reddy, R.S. (1998) Nutrition Education, Commonwealth Publishers, New Delhi.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1		2		4	5	
CO 2		2	3		5	6
CO 3		2	3	4		6
CO 4		2	3	4	5	
CO 5		2		4	5	

Mean = 4.27

FSN 3206 Sport Nutrition (3hrs/wk) (2cr)

This course provides the Learners a complete knowledge to understand the Science of Exercise that will have an improved physiological understanding of how your body responds to exercise. It will give you the knowledge and skills you need in order to achieve your sports nutrition and athletic performance goals.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Explain the body's adaptation to exercise and understand the physiology of exercise.

ii. Compile the importance of nutrition and its impact on sport performance.

iii. Critique the physical activity and its importance in athlete's diet.

iv. Outline the effect of Ergogenic aids, nutaceuticals and herbal diuretics in sports nutrition.

v. Comprehensive understanding of how hydration status effects performance and exact recommended requirement of fluid pre, during, and post-exercise.

Unit 1: Introduction to Exercise (7 hours)

Definition – Types of Exercise - Physiology of Exercise - Fuels for Exercise - Acute Adaptations to Exercise (Cardiovascular Responses, Pulmonary System Adaptations, Hormonal Responses to Exercise, Immunological Adjustments)

Unit 2:Introduction to Sports Nutrition (5 hours)

Definition and scope of Sports Nutrition - Diet and Performance - Importance of Sports Nutrition

Unit 3:Physical activity (7hours)

Measuring Physical activity - Types of Competition/ event/ sport - Athletics - Track & Field - Team Sports - Individual Sports

Unit 4: Ergogenic Aids (5hours)

Definition, Benefits & Side effects- Anti doping agency - list of banned drugs/substances - Nutritional Ergogenic Aids

Unit 5: Dehydration & Performance (6 hours)

Proper Pre-Hydration, Rehydration / fluid replacement - Electrolytes - Role of electrolytes in Muscular contraction- Electrolyte loss & exercise - Maintaining / Restoring electrolyte Balance - Sports &Energy drinks

Textbook:

1. Richard B. Kreider, 2019. Essentials of Exercise & Sport Nutrition: Science to PracticeKindle Edition.Lulu publishing services.

References:

2. Heather Mangieri ,2017.Fueling Young Athletes, Versa Press, United states of America.
3. O'Halloran, P and Bhogal, G (Eds). Exercise Medicine for Students: A one-stop resource for the knowledge and promotion of physical activity.

Bloom's Taxonomy	**K1 Remembering**	**K2 Understanding**	**K3 Applying**	**K4 Analyzing**	**K5 Evaluating**	**K6 Creating**
CO 1	1	2	3			
CO2	1	2	3			
CO 3		2	3		5	
CO 4		2	3		5	
CO 5		2			5	

Mean = 3.0

FSN 121V Techniques in Mushroom and Spirulina Cultivation (2 hrs/wk) (2cr)

This course aims to provide the learners a complete knowledge to understand the Spirulina is a less known but potentially interesting opportunity for increases production in the region. Science of Exercise that will have a potential with respect to the divarication of the artisanal fishing sector and enhancement of regional trade and food security.

Course Outcomes:

Upon completion of this course, the student will be able to:

i. Explain the edible and non-edible of mushroom cultivation.
ii. Compile the importance of nutrition and its impact on sport performance.
iii. Critique the precaution in mushroom cultivation, taken while selecting the area, spawn preparation, spawn run, during cropping harvesting.
iv. Outline the effect of spirulina biochemical composition amino acids and unsaturated fatty acids.
v. Comprehensive understanding importance of light and pH in spirulina cultivation, harvesting drying and packing.

Unit 1: Introduction to Mushroom (7hrs)

Edible and non-edible mushroom-historical account, most commonly cultivated mushroom in the world, distribution and production in various countries.

Unit 2: Production of mushroom (5hrs)

Cultivation of button, oyster and paddy strew mushroom -raising a pure culture-spawn preparation and mass cultivation – harvest pests and diseases in mushroom

Unit 3:Economics of mushroom cultivation (7hrs) precautions in mushroom cultivation-precaution to be taken while selecting the area, spawn preparation, spawn run, during cropping harvesting etc.

Mushroom recipes (western and Indian recipes, pickles, powder and jams etc.

Unit 4: Introduction to SCP Production (5hrs) Historical use and rediscovery of spirulina importance-morphology, taxonomy and habitat of spirulina biochemical composition amino acids – unsaturated fatty acids minerals and vitamins. Human health benefits of spirulina.

Unit 5: Natural production (5hrs)

Laboratory cultivation -small scale commercial production -commercial and mass cultivation-importance of light and pH in spirulina cultivation – harvesting, drying and packing.

References:

1. Biswas S., Datta M and Ngachan S.V 2012 Mushroom: A manual for cultivation.
2. Selvendran D (2015) Large scale algal biomass (spirulina)production in India. In: D. D(Ed.)Algal Biorefinery .An integrated approach, springer.
3. Zadrazil.FandGrabbe. k (1983) Edible mushroom, Biotechnology Vol.3 Weinheim: Verlag chemie, berlin.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2				
CO 2		2		4		
CO 3			3	4	5	
CO 4		2			5	
CO 5		2		4	5	

Mean =3.45

FSN 221V Food Adulteration and Additives (2 hrs/wk) (2cr)

This course aims to introduce various Food additives and Food adulterants. This paper provides understating on techniques and methods of detecting the adulterants in the food product.

Course Outcomes:

Upon completion of the course, the students will be able to:

i. Understand various areas of Food Safety & Quality Assurance.

ii. Grasp knowledge of the adulteration of food products.

iii. Comprehend food quality managements systems.

iv. Apprehend the Food additives

v. Conceive the concept of adulteration in food products.

Unit 1: Introduction to food additives (5hrs)

Food additives - Definition, types and functions, permissible limits and safety aspects.

Unit 2: Food additives (5hrs)

Acid, bases, buffer systems, chelating agent, antioxidant, antimicrobial agent, sweeteners, fat replacers and Masticatory substances.

Unit 3: Functionality of food additives (7hrs)

Regulatory and legal aspects, sensory properties of foods objectives of additives, functional classification of additives, additives of natural origin, synthetic additives. Health and safety aspects of food additives. Present status of various food additives. Controversial food additives Saccharin, history, function, controversy status, aspartame, nitrite and nitrate compounds, nitrosamines.

Unit 4: Food adulteration (6hrs)

definition, reasons for food adulteration, methods of adulteration, and methods of detection.

Unit 5: Types of adulterants (6hrs)

Common adulterants for foods like milk and milk products, honey, wheat flours, edible oils, cereals, condiments (whole and ground) pulses, coffee, tea, confectionery, baking powder, non-alcoholic beverages, vinegar, besan and curry powder

Textbook

1. Branen, A.L., Davidson PM &Salminen S. 2001. Food Additives. 2nd Ed. Marcel Dekker.

Textbook

1. Gerorge, A.B. 2006. Encyclopedia of Food and Color Additives. Vol. III. CRC Press.
2. Gerorge, A.B. 2004. Fenaroli's Handbook of Flavor Ingredients. 5th Ed. CRC Press.
3. Madhavi, D.L., Deshpande, S.S &Salunkhe, D.K. 2006. Food Antioxidants: Technological, toxicological and Health Perspective. Marcel Dekker
4. Nakai S &Modler HW. 2000. Food Proteins. Processing Applications. Wiley VCH.

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1		2		4		
CO2		2		4		
CO 3		2		4	5	
CO 4		2	3		5	6
CO 5		2	3		5	6

Mean = 3.66

FSN 321V Organic and Terrace Farming (2hrs/wk) (2cr)

This course aims to impart knowledge in organic production practices and to improve farm sustainability in the environment.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Discuss the scope & nature of organic farming in present world.

ii. Identify appropriate organic management systems for different organic farms.

iii. Analyze the role of living organisms and decomposing organic matter in maintaining an appropriate soil condition for successful organic farming

iv. Bring out the appropriate weed, pest & disease management practices for plant production

v. Gain an in-depth knowledge on the concepts of organic farming through field visit.

Unit 1: Introduction to Organic farming (5 hrs)

Scope, Nature, History of organic farming, Types of organic farming: Pure organic farming, Integrated organic farming, Advantages and disadvantages of organic farming.

Unit 2: Integrated Farm Management systems (6 hrs)

Objectives of Integrated farming system, Rotation design, cash crops, managing waste etc., Advantages of Integrated farming system.

Unit 3: Organic soil Management & Crop nutrition (8 hrs)

Building soil fertility, Role of organic matter & Humus, Nutrient sources: Composting, mulching, green manuring, cover crops, organic fertilizers.

Unit 4: Terrace Farming (6 hrs)

Soil preparation and maintenance, Natural ways of Pest Management, Watering and plant management.

Unit 5: Field visit (5 hrs)

Visit to organic farmers fields, report writing.

Textbook

1. Palaniappan, S.P. Annadurai, K. (2018) Organic farming: Theory and Practice, Scientific publishers, ISBN: 9788172335380

2. Bansal &Mamta (1889) Basics of Organic farming, CBS publication, ISBN: 9789386478351

References:

1. Zaman, A (2019) Integrated farming systems & agricultural sustainability, New India publishing agency-Nipa, ISBN: 9387973727

2. Sarath Chandran, Unni, M.R & Sabu Thomas (2018) Organic farming, Global perspectives & Methods, Woodhead publishing, ISBN: 0128132728

Bloom's Taxonomy	K1 Remembering	K2 Understanding	K3 Applying	K4 Analyzing	K5 Evaluating	K6 Creating
CO 1	1	2		4		
CO2	1	2		4		
CO 3		2		4	5	
CO 4	1	2	3		5	6
CO 5			3	4	5	6

Mean=3.33