

BOARD OF STUDIES

B.Sc (INFORMATION TECHNOLOGY)

07th July 2022



Since 1881

DEPARTMENT OF INFORMATION TECHNOLOGY

THE AMERICAN COLLEGE

An Autonomous institution affiliated to The Madurai Kamaraj University
Re-accredited (2nd cycle) by NAAC with Grade “A” CGPA-3.46 on A 4-points scale

Madurai – 625 002.

PROGRAM / COURSE FRAME FOR
B.Sc INFORMATION TECHNOLOGY DEPARTMENT
CHOICE BASED CREDIT SYSTEM
With effect from the Academic Year 2022-2023

B.Sc INFORMATION TECHNOLOGY
Degree Program
CHOICE BASED CREDIT SYSTEM
With effect from Academic Year 2022-2023

Vision:

The Bachelor of Information Technology is an innovative program based on a number of core courses in IT. Upon graduation, the students will be able to understand the impact of technological change and also appreciate the current usage of IT in business and industry. Further, the students will be exposed to the current trends in computing which will enable them to become leaders in the IT field.

Mission

The B.Sc IT program will:

- Prepare students to function effectively in a dynamic technological era.
- Promote the development of computer-related skills for immediate application to other curricular areas.
- Enable to have sound knowledge of the theory behind the core subjects like, computer architecture, operating systems, data structures, data bases, computer networks .
- Equip to possess sound skills in selected procedural and object oriented programming languages, designing databases and managing them, software engineering and web-based applications
- Facilitate the development and application of problem-solving skills in students.

ELIGIBILITY

Candidate who seeks admission to the B.Sc Information Technology Program should have passed the Higher secondary examinations of Govt. of Tamil Nadu or CBSE or ICSE or any other examinations recognized as equivalent there to by the Madurai Kamaraj University with Mathematics as one of the subjects.

DURATION OF THE PROGRAM

Duration of the program shall be for a period of three years spanning six semesters. Each semester should have 90 instructional days (fifteen weeks) with 5 hours of instruction per day 5-days a week system.

PROGRAM / COURSE FRAME FOR B.Sc INFORMATION TECHNOLOGY

**DEPARTMENT OF INFORMATION TECHNOLOGY
CHOICE BASED CREDIT SYSTEM**

Sem	Part	Course No.	Course Title	Hrs	Credits	Marks
1	I	TAM/FR E/HIN	Language	3	2	30
1	II	ENS 1201	Conversational Skills	3	2	30
1	IIIC	BIT 1501	C Programming	5	5	75
1	IIIC	BIT 1403	C Programming Lab	4	4	60
1	IIIC	BIT 1405	Principles of IT	4	4	60
1	IIIS	BIT 1407	Digital Principles and Applications	5	4	60
1	IVNME - I	BIT 1211	Digital Commerce	3	2	30
1	IVLS - I	BIT 1203	HTML 5	2+1	2	30
Total				30	25	375
2	I	TAM/FR E/HIN	Language	3	2	30
2	II	ENS 1202	Reading & Writing Skills	3	2	30
2	IIIC	BIT 1502	C++ Programming	5	5	75
2	IIIC	BIT 1404	C++ Programming Lab	4	4	60
2	IIIC	BIT 1406	Data Structures using C (TL)	4 (2+2)	4	60
2	IIIS	MAS xxxx	Statistics	5	4	60
2	IVNME- II	BIT 1212	Cyber crime and IT security	3	2	30
2	IVLS- II	BIT 1214	Data Analysis using Excel	2+1	2	30
2	V		PED/NSS/SLP		1	15
Total				30	26	390

3	I	TAM/FR E/HIN	Language	3	2	30
3	II	ENS 2201	Study Skills	3	2	30
3	IIIC	BIT 2501	SAD	5 (3+2)	5	75
3	IIIC	BIT 2513	Concepts of Data Science	5 (4+1)	5	75
3	IIIC	BIT 2505	Java Programming	5	5	75
3	IIIC	BIT 2407	Java Programming Lab	4	4	60
3	IIIS	MAS xxxx	Operational Research	5	4	60
Total				30	27	405
4	I	TAM/FR E/HIN	Language	3	2	30
4	II	ENG 2202	Career Skills	3	2	30
4	IIIC	BIT 2502	Operating System	5 (3+2)	5	75
4	IIIC	BIT 2504	Computer Networks	5	5	75
4	IIIC	BIT 2506	Relational Database Management Systems	5	5	75
4	IIIC	BIT 2408	Relational Database Management Systems Lab	4	4	60
4	IIIS	BIT 2412	R-Language	5 (3+2)	4	60
4	V		PED/NSS/SLP		1	15
Total				30	28	420
5	IIIC	BIT 3601	Web Programming (TL)	6(3+3)	6	90
5	IIIC	BIT 3613	Python Programming	6 (3+3)	6	90
5	IIIC	BIT 3605	Software Engineering	6	6	90
5	IIIC	BIT 3507	Enterprise Resource Planning	5	5	75
5	IVLS– III	BIT 3211	Extensible Markup Language	2+1	2	30
5	IV VE	VAL	Value Education	4	2	30
Total				30	27	405

6	IIC	BIT 3602	.NET Programming (TL)	6 (3+3)	6	90
6	IIC	BIT 3604	S/W Development Lab	6	6	90
6	IIC	BIT 3606	Data Mining & Data Warehousing	6	6	90
6	IIC	BIT 3508	Mobile Technologies	5	5	75
6	IVEVS	BIT 3200	Environmental Studies	4	2	30
6	IVLS - 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

Course Offered to Non-Major Students by the Department of Information Technology

Part IV Non-Major Electives

Sem	Course No.	Course Title	Hours	Credits	Marks
1	BIT1211	Digital Commerce	3	2	30
2	BIT 1212	Cyber Crime & IT security	3	2	30
		Total	6	4	60

Part IV Life Skill Courses

Sem	Course No.	Course Title	Hours	Credits	Marks
1	BIT 1203	HTML 5	2+1	2	30
2	BIT 1214	Data Analysis using Excel	2+1	2	30
5	BIT 3211	Extensible Markup Language	2+1	2	30
6	BIT 3210	Cloud Computing	3	2	30
		Total	12	8	120

Value Added Courses

Sem	Course No.	Course Title	Hours	Credits
I	BIT 121V	Office Automation	2	2
II	BIT 122V	Illustrator	2	2
III	BIT 221V	Web designing using Dreamweaver	2	2
IV	BIT 222V	Automated Testing using Selenium	2	2
V	BIT 321V	Animation using open source Tool	2	2
VI	BIT 322V	Quantitative Aptitude and Reasoning	2	2
		Total	12	12

List of Massive Open Online Courses (MOOC)

S.No	Course Name	Type	Duration	Credit Points	Level	Coordinator
1	Artificial Intelligence: Search Methods For Problem solving	Elective	12 Weeks	3	Undergraduate	Swayam – IIT- Madras
2	Embedded System Design With ARM	Elective	8 Weeks	2	Undergraduate	Swayam – IIT- Kharagpur
3	Introduction To Machine Learning - KGP	Elective	8 Weeks	2	Undergraduate	Swayam – IIT- Kharagpur
4	Computer Graphics	Core	8 Weeks	2	Undergraduate	Swayam – IIT - Guwahati
5	Social Networks	Core	12 Weeks	3	Undergraduate	Swayam – IIT- Ropar

Program Specific Outcomes (B.Sc. Information Technology)

PSO	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
PSO-1	Acquire the basic fundamental domain knowledge for developing effective Information Technology solutions.
PSO-2	Develop the logical thinking to apply algorithmic principles and Information Technology theories in the modeling and design of computer-aided systems.
PSO-3	Attain holistic knowledge in Business Mathematics and Information Technology.
PSO-4	Create IT professionals through training in programming languages.
PSO-5	Inculcate the professional, ethical, legal knowledge on security and social issues with social responsibility.
PSO-6	Excel in the capability for self-learning to allow for life-long learning.
PSO-7	Adapt the technological changes and State of the art tools with necessary updated skill set.
PSO-8	Gain sound knowledge of design and development in the construction of software systems of dynamic requirements
PSO-9	Develop leadership qualities, good communication on teams to accomplish shared IT design and evaluation or implementation goals through projects.
PSO-10	Empower with analytical mind and critical thinking for employability and entrepreneurship skills.

Mapping of PSOs with courses

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
BIT 1501	✓	✓		✓			✓	✓		✓
BIT 1403	✓	✓		✓	✓			✓		✓
BIT 1405	✓		✓		✓	✓	✓			✓
BIT 1407	✓		✓		✓		✓	✓		✓
BIT 1211	✓				✓	✓	✓		✓	✓
BIT 1203	✓		✓	✓			✓	✓		✓
BIT 1502	✓	✓		✓		✓		✓	✓	
BIT 1404	✓	✓		✓		✓			✓	✓
BIT 1406	✓	✓		✓						
BIT 1212	✓		✓		✓	✓			✓	✓
BIT 1214	✓	✓				✓	✓	✓		✓
BIT 2501	✓	✓		✓	✓			✓		✓
BIT 2513	✓	✓					✓	✓	✓	✓
BIT 2505	✓	✓		✓			✓	✓		✓
BIT 2407	✓	✓		✓			✓	✓		✓
BIT 2502	✓	✓	✓			✓	✓		✓	✓
BIT 2504	✓	✓	✓		✓			✓		✓
BIT 2506	✓	✓		✓		✓		✓		✓
BIT 2408	✓	✓		✓		✓		✓		✓
BIT 2412	✓		✓		✓	✓	✓		✓	
BIT 3601	✓			✓			✓	✓	✓	✓
BIT 3613	✓			✓			✓	✓	✓	✓
BIT 3605	✓	✓	✓			✓	✓		✓	✓

BIT 3507	✓		✓		✓	✓	✓	✓		✓
BIT 3211	✓		✓		✓	✓	✓	✓		✓
BIT 3602	✓	✓		✓		✓		✓		✓
BIT 3604		✓				✓	✓			✓
BIT 3606	✓	✓	✓			✓			✓	✓
BIT 3508	✓		✓	✓			✓		✓	✓
BIT 3200	✓	✓		✓		✓	✓		✓	
BIT 3210	✓		✓	✓		✓	✓	✓		✓

Programme Outcomes (Pos) for Undergraduates

Undergraduate programme are expected to have developed in undergraduates the following graduate attributes:

1. *Cognitive Ability*: Capacity to register, remember and recall ideas and add knowledge in the relevant discipline.
2. *Reflective Skills*: Ability to apply knowledge and solve problems in similar but unknown disciplinary contexts.
3. *Communicative Competence*: Ability to communicate in one's mother tongue and in English discipline-specific complex ideas and life experiences.
4. *Aptitude for Higher Studies*: To be proactive in demonstrating general aptitude to evaluate the circumstances and come up with an interest to progress further in career by opting for post studies or through entrepreneurial initiatives at offing in the multidisciplinary and trans-disciplinary contexts.
5. *Employability Capacity*: Ability to serve the nation as school teachers, responsible staff and officers in various private and public sectors to find suitable meaning for the education they have pursued here.
6. *Action Research Aptitude*: Skills to undertake action research as independent projects on the themes and issues concerning life and work moving ahead with techno-savvy and eco-friendly approaches.
7. *Quest for Lifelong Learning*: Skills to learn lifelong independent of academia transcending the space and time barriers.
8. *Study Abroad*: Ability to pursue higher studies in a global context of multilingual, multicultural, multiethnic and multiracial communities without compromising the values and ethos cherished and nurtured in love with the motherland.
9. *Citizenry Attributes*: Be responsible citizens with democratic bent of mind, probity in public life, moral uprightness, and commitment for social uplift of the marginalised, the poor, the destitute, and the needy.
10. *Civic Responsibility*: Capacity to respect human values, to exhibit religious tolerance, and to practice politics of difference and dissent.

Mapping of PSOs with 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		✓	✓	✓	✓		✓	✓		✓

Preamble:

The objective of the course is to understand algorithms and programs. It also enables the students to solve problems through logical thinking and learn programming using C.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Acquire the basic knowledge of C programming language and develop simple applications in C using basic constructs.
- ii. Develop in depth knowledge in arrays and strings. Design and implement applications using arrays and strings.
- iii. Implement programming skills using C functions and pointers.
- iv. Acquire the knowledge of structure and union and write simple programs.
- v. Develop simple applications using sequential and random access files.

Unit 1: Introduction to C**(14hrs)**

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.

Unit 2: Arrays and Strings**(13hrs)**

Arrays – Declaring Arrays – Accessing array elements – Initializing Arrays – Types of Arrays – Strings – String Library Functions.

Unit 3: Functions and Pointers**(17hrs)**

Functions – Function Prototyping – Return statement – Nested functions – Types of function//ns – Recursion – Storage classes – Command line arguments – Pointer – Initialization of Pointers – Pointer Arithmetic – Pointers and Arrays – Pointers to Functions – Pointers to Pointers – Passing values to functions – Passing arrays to functions – Memory allocation.

Unit 4: Structures and Union**(16hrs)**

Structures – Declaration – Definition – Initialization – Nested Structures – Array of Structures – Structures and functions – Structures and pointers – Unions.

Unit 5: Files**(15hrs)**

Files – fscanf() and fprintf() – Character I/O from files – String I/O from files – Error Handling during I/O – Random Access – The Preprocessor.

Text book:

Balagurusamy.E, **Programming in ANSI C**, Sixth Edition, Tata McGraw Hill-2012.

Unit 1: page no (5-13) and (90 – 118)

Unit 2: Operating System Concepts page no (19 - 23) and (105 - 129)

Unit 3: Operating System Concepts page no (203 - 222), 261 - 276) and (322 –338) Unit 4:
Operating System Concepts page no (351 - 382)

Unit 5: Operating System Concepts page no (470 - 477) and (503 – 525)

References:

1. Pandiyaraja P, **Programming in C**, Vijay Nicole Imprint Private Limited, 2005.
2. Kanetkar Y, **Let us C**, BPB publications, 2014,
3. AshokN.Kamthane, **Programming in C** , Pearson Education, 2012.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.8

BIT 1403

C PROGRAMMING LAB

4hrs/4cr

Preamble:

The aim of this lab course is to enable students to acquire problem Solving skill using computers and facilitate them to learn basic principles of programming so as to write programs using C.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Understand basic structure of C Programming. Build a simple program using control and looping statements.
- ii. Acquire programming skills by executing programs using arrays and string
- iii. Design and develop programs in c using functions and pointers.

- iv. Implement the structure concepts in C Programs.
- v. Develop simple file applications in C

Lab Component

1. C operators
2. If structure
3. Loops and GOTO
4. Arrays
5. Functions
6. Recursion
7. String Handling
8. String handling library function
9. Call by value and Call by reference
10. Pointers
11. Memory allocation
12. Structures
13. unions, Bitfield , Typedef and enumerated data type
14. File operations and file functions
15. Random file and command line argument

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.8

BIT1405 PRINCIPLES OF INFORMATION TECHNOLOGY (TL) 4Hrs/4Cr

Preamble:

The course aims to develop understanding and appreciation in a broader perspective the application of the information technology. The course attempts to equip the students to compete in the present world with computer knowledge.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Acquire the basic knowledge about IT
- ii. Analyze the types of database and memory
- iii. Understand the types of network and various techniques in database management
- iv. Acquire the skills in word processing, presentation tools and spreadsheets.
- v. Obtain the basic knowledge on libreoffice.

Unit 1: Introduction to IT (12 hrs)

Introduction to the internet and other emerging technologies – types of computers – advantages and limitations – components of computer – software - systems software – applications software – other expert systems.

Unit 2: Database structure (14 hrs)

Types of database structures – comparison between the structures – Database types and manners of data storage – data access control software – database management methods and techniques – data dictionary – data processing: techniques in data processing – online, batch mode, processing software tools

Unit 3: Telecommunication and networking (10 hrs)

Types of network structures – LAN/ WAN/ SAN – advantages and limitations – data transmission methods – data storage – retrieval and database management – storage techniques – access control methods and best policies depending upon frequency of access and volumes.

Unit 4: Office productivity tools (12 hrs)

Word processing– Presentation tools - Electronic spreadsheets.

Unit 5: Office productivity tools (12 hrs)

Libre Office

Text book:

1. Alexis Leon & Mathew Leon, **Fundamentals of information technology**, Tata McGraw Hill, 2002

Unit 1: Fundamentals of IT page no (1-10), (20-34) and (111-166)

Unit 2: Fundamentals of IT page no (223-232) and (265-273)

Unit 3: Fundamentals of IT page no (288-300)

Unit 4: Word Processing with word, Keith Brindley, Page no(1-84), Presentation with MS powerpoint, Abdulkadhir Page No (1-16) & Next generation Excel page no(1-20)

Unit 5: Use Libreoffice Calc a beginners guide – Thomas ecclestone – page no (1-50)

References:

1. Ravindranath H, **Infrastructure for information technology**, McMillan, 2003
2. Andrew S Tenenbaum, Albert S. Woodhull, **Operating Systems**, Prentice Hall, 2002
3. Dennis P Curtin Kim Foley Kyanansen, Cathleen Morin, **Information technology – The breaking wave**, TataMcGraw Hill, 2002

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.2

BIT 1407 DIGITAL PRINCIPLES AND APPLICATIONS 5 hrs/4cr

Preamble:

This course enables the students to understand the basic concepts of digital logic and the design of basic logic circuits. It also helps the student to learn combinational and sequential circuits.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Perform conversion and arithmetic calculations in binary, decimal and hexadecimal number systems.
- ii. Gain knowledge on the application of digital principles using gates, solve Boolean 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 (12 hrs)

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 (18 hrs)

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 (15 hrs)

Combinational Logic Circuits: Implementation, Universal property of NAND and NOR gates, Half adder, Full adder, Parallel binary adder, Decoders, BCD to 7-segment decoder, Encoders, Multiplexer and Demultiplexers, Parity generators and Checkers.

Unit 4: Sequential Logic Circuits**(16 hrs)**

Sequential Logic Circuits: SR Latches, 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**(14 hrs)**

Shift register: serial in - serial out, serial in - parallel out, parallel in - serial out, parallel in parallel out configurations. Ring counter, Johnson's counter

Text book:

1. Thomas L. Floyd & RP Jain, **Digital Fundamentals**-, 10th Edition,
Pearson Edition Morris Mano, Digital logic and computer design –PHL

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 Books:

1. P. Malvino, Digital Principles and Applications- McGraw Hill Int Editions (Fourth Edition)

2. R. P. Jain, Modern Digital Electronics- Tata McGraw Hill Pub. Company (Third Edition)

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.1

The subject starts with 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.

At the end of this course, the 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.

Text Book:

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

Preamble:

The course enables the students to understand a core technology markup language of the Internet used for structuring and presenting content for the WWW.

Course Outcomes:

Upon completion of this course students will be able to

- i. Gain the fundamental knowledge of HTML5 language.
- ii. Get the knowledge of forms in HTML
- iii. Acquire the practical skills of embedded audio and video files.
- iv. Obtain the basic knowledge in CSS3
- v. Acquire the practical knowledge of applying canvas.

Unit 1: Intro to HTML5**(9 hrs)**

HTML5 Templates –Semantics –Changes to Existing Features Form Controls – Validating HTML5 Documents

Unit 2: HTML Forms**(10 hrs)**

Dependable tools in our toolbox - New Elements - Form Attributes – New Form Input Types – New Form Controls – Changes to Existing

Unit 3: Audio & Video**(9 hrs)**

Current State of play - markup – audio - Encoding Video files - Creating Custom Controls – Accessible Media

Unit 4: CSS3**(8 hrs)**

Introduction to css3 – css3 selectors – css3 colors – Rounded corners – Drop Shadows – CSS3 Transforms and Transitions

Unit 5: Canvas**(9 hrs)**

Creating canvas element – drawing on the canvas – canvas coordinates – draw shape by create path - manipulate images –SVG - drag and drop

Text book:

1. Teach Yourself VISUALLY HTML5, Mike Wooldridge - 2011.

Unit 1: Teach Yourself VISUALLY HTML5 page no (29-40)

Unit 2: Teach Yourself VISUALLY HTML5 page no (396-440)

Unit 3: Teach Yourself VISUALLY HTML5 page no (662-687)

Unit 4: Teach Yourself VISUALLY HTML5 page no (185-195)

Unit 5: Teach Yourself VISUALLY HTML5 page no (599-650)

References:

1. Alexis Goldstein, Louis Lazaris, and Estelle, HTML5 & CSS3 for the Real World, Weyl - SitePoint Pty. Ltd.
2. Christopher Schmitt and Kyle Simpson, HTML5 Cookbook, O'Reilly Media, Inc
Mark Pilgrim , HTML5: Up and Running , O'Reilly Media, Inc

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

BIT 1502

C ++ PROGRAMMING

5 hrs/5cr

Preamble:

To gain the basic knowledge of object oriented programming concepts and to understand the detailed idea of C++ streams, templates and error handling concepts of C++ programming.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Outline the basic concepts of object oriented programming.
- ii. Describe the constructor, destructor and overloading concepts.
- iii. Understand the role of inheritance in building reusable code. Discuss polymorphism and virtual base class in program development.
- iv. Apply and demonstrate the uses of C++ streams, console I/O operations

and Error handling functions.

- v. Learn how to fix the errors in the program using an exception handling mechanism. Build simple programs using templates.

Unit 1: Introduction to OOPs concepts (12hrs)

Introduction to OOP – Object oriented paradigm – OOPs Features – Applications of OOP – Classes and Objects – Accessing class members – Defining member function – Passing objects as arguments – Returning objects from functions – Friend Function – Static data member - Static member functions - Inline Function - Function Overloading.

Unit 2: Constructor and Overloading (13hrs)

Constructor and Destructor functions – Types of Constructors – Characteristics of Constructor and Destructor - Operator overloading – Overloading unary and binary operators – Overloading with friend function – Rules for overloading operator

Unit 3: Inheritance (18hrs)

Inheritance - Types of Inheritance - Advantages and Disadvantages of Inheritance – Polymorphism - Virtual Function - Pure Virtual Functions – Virtual Base Class – The this pointer – New and Delete Operator

Unit 4: C++ Streams (17hrs)

C++ Streams – Unformatted I/O Operations – Formatted Console I/O Operations - I/O Manipulators – File Handling – Error Handling Function - EOF – File Modes – Command line argument.

Unit 5: Exceptions and Template (15hrs)

Exception Handling – List of Exceptions – Handling Uncaught Exceptions – Templates – Class Templates - Function Templates - Member function Templates - Class Templates and Inheritance.

Text book:

1. Balagurusamy.E, **Object Oriented Programming with ++**, 6th Edition, Tata McGraw Hill – 2012.
Unit 1: page no (5-13) and (90 – 118)
Unit 2: page no (129 - 142) and (152 - 167)
Unit 3: page no (179 - 206) and (238 - 248)
Unit 4: page no (257 - 280) and (287 - 313)

References:

1. Venugopal.K.R, Rajkumar, Ravishankar.T, **Mastering C++**, Tata McGraw Hill,2003.
2. Ashok N.Kamthane, **Object Oriented Programming with ANSI & Turbo C++**, Pearson Education, 2012.
3. Bjarne Stroustrup, **The C++ Programmers Reference**, 3rd Edition, Addison Wesley,2000.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.7

BIT 1404

C++ PROGRAMMING LAB

4hrs/4cr

Preamble:

To enable the students to understand the concepts of Object Oriented Programming, the syntax of statements in C++ language and help to acquire the programming skills in C++.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Understand the basic structure of a C++ Program.
- ii. Develop programming skills by writing programs using constructors and overloading concepts.
- iii. Apply the inheritance and polymorphism concepts in writing C++ programs
- iv. Write C++ Programs using console I/O functions.
- v. Develop simple programs using templates and handle the exceptions.

Lab Component

1. C++ environment

2. Functions
3. Classes and objects
4. Friend functions
5. Constructor and Destructor
6. Operator Overloading
7. Type conversion
8. Inheritance
9. Pointers
10. Files
11. Templates
12. Exception Handling

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.7

BIT 1406

DATA STRUCTURES USING C (TL)

4(2+2) hrs/4 cr

Preamble:

The aim of the course is to enable the students to build simple and complex data structures. Students are trained to develop algorithms and write programs for the user defined data types such as Structures, Stacks, Queues, Lists and Trees. Also this course gives an in-depth knowledge on Sorting, & Searching.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Acquire knowledge on implementation of array and stack to execute the instructions.
- ii. Understand the types and applications of queue data structure.
- iii. Implement linked list in real time problem solving.
- iv. Gain knowledge on various types of trees, tree traversals and variable length code generation.

- v. Develop real time algorithms to search and sort the data.

Unit 1: Arrays and Stack (12 hrs)

Arrays – Strings – Stacks – Operations on stack –Representation of Stacks using Array and Linked list - infix - prefix and Post fix notations - Evaluation of Post fix - infix- prefix expression- Applications of stacks

Unit 2: Queues (12 hrs)

Operations on queue -Representation of queue using array and linked list –Circular Queue – Operation on Circular queue - Representation of Circular queue using array and linked list

Unit 3: Linked List (11 hrs)

Operations on linked list- Single Linked List- Operation on Single linked list - Double Linked list – Operations on Double Linked List

Unit 4: Trees (13 hrs)

Binary tree – Traversal of a Binary tree – Applications of Binary Tree Binary Search Tree- Operations on Binary search tree – Applications of Binary search tree

Unit 5: Sorting and Searching (12 hrs)

Bubble sort - Quick sort - Merge sort. **Search** – Linear Search – Binary Search

Text book:

1. Seymour Lipschutz, **Data structures with C**, Tata McGraw-Hill Education, 2011

Unit 1: Page No (3.1 -4.84) & (6.1-6.44)

Unit 2: Page No (6.50 -6.125)

Unit 3: Page No (5.1- 5.83)

Unit 4: Page No (7.1 -7.49)

Unit 5: Page No (9.1 -9.56)

References:

1. Balagurusamy.E, **Data structures using C**, Tata McGraw-Hill Publishing Company Ltd, 2013
2. Krishnamoorthy,**Data structures using C**, Tata McGraw-Hill Publishing Company Ltd, 2010
3. Aaron M. Tenenbaum, Y. Langsam, M. J. Augenstein, **Data Structures Using C**,Pearson Education,2009
4. A.A.Puntambekar, **Data Structures using C**, Technical Publications, 2009.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.4

BIT1212

CYBER CRIME & IT SECURITY

3 hrs/2 Cr

Preamble:

This course enables 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.

Course Outcomes:

Upon completion of this course students will be able to:

- Gain the knowledge of basic concepts of cyber security and its problems.
- Acquire the depth knowledge in various threats in cyber crime.
- Understanding the various principles of security.
- Obtain the various securities in the database.
- 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

29

(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

Text book:

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 (2+1) hrs/2 Cr

The aim of the course is to develop the skill and knowledge in MS Excel. Students will be able to create professional looking Spreadsheets, charts and calculation. It also deals with various formula functions. It also focuses on reports and PivotTable generation in high speed and accuracy. This course intends to familiarize students with various Data analysis technique.

At the end of this course, the students 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 (9 hrs)

Regression analysis - Classification techniques- Clustering- Association rules analysis

Text book:

1. Excel 2019 Bible by Michael Alexander, Richard Kusleika, John Walkenbach

Unit 1: Excel 2019 Bible Page no: 3 – 60 & 142 - 198

Unit 2: Excel 2019 Bible Page no: 205 – 240 & 273 - 308

Unit 3: Excel 2019 Bible Page no: 443 - 490

Unit 4: Excel 2019 Bible Page no: 577 - 620

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

BIT2501 SYSTEM ANALYSIS AND DESIGN 5(3+2) hrs/5 cr

Preamble:

The objective of the course is to outline the importance of System analysis and Design and highlight the various phases in Analysis and Design.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Define and develop the life cycle concepts used in software development.
- ii. Analyze using basic tools of system in software development
- iii. Study and implement the design principles.
- iv. Design and implement the OO model.
- v. Illuminate the software Development phase activities used in software development

Unit 1: Information systems concepts (12hrs)

Business information systems, information system levels - operational, lower, middle, top management- the system development life cycle concepts-Life cycle activities- life cycle flow chart, task, management review, baseline specifications, role of system analyst.

Unit 2: Basic tool of system analysis (15hrs)

Forms design - basic parts of form, style and types of form, principles of form design, Tools for structure analysis and design- Types of basic charts, decision tables, decision trees, structured English, data flow diagram, data dictionary, system flow charts, flow charting symbols

Unit 3: Study phase (14hrs)

Fact finding techniques, fact analysis techniques, steps in feasibility analysis, Design phase: Design phase activities, structure design, input design, output design

Unit 4: Object Orientated Technology (18hrs)

Development and OO Modeling, History, Modeling Concepts: Modeling design

Technique, Three models, Class Model, State model and Interaction model, Relation of Class and State models. Interaction Modeling: Use case Models, sequence models, activity models, Class design.

Unit 5: Development phase

(16hrs)

Development phase activities, bottom up and top down computer program development, training- programmer, operator, user training – conversion-change over plan- PERT- steps in computer program development- structured programming-development phase report.

Text books:

- 1) Kendall, **System Analysis And Design**, 9th edition, 2013
- 2) Grady Booch, James Rumbaugh, Ivar Jacobson, **The Unified Modeling Language User Guide**, Pearson Education, 2nd edition, 2005

Unit 1: System Analysis and Design page no: (2 – 10)

Unit 2: System Analysis and Design page no: (181- 185) (210 – 221) & (235 –248)

Unit 3: System Analysis and Design page no: (293 – 32) & (335 –340)

Unit 4: System Analysis and Design page no: (30 – 38) & (269 – 274)

Unit 5: System Analysis and Design page no: (463 –470)

References:

- 1) Marvin Gore & John Stubbe, **Elements Of System Analysis**, Galgotia Book Source, 4e, 1998
- 2) Michael Blaha and James Rumbaugh, **Oriented Modeling and Design with UML**, 2nd edition, 2005

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

The objective of this course is to understand the basics of Data science. It also enables the student to solve problems through logical thinking and learn programming concepts in Data Science. It will enhance student's skills in math, statistics and programming. It also deals with various tools which are used for a variety of data-related tasks, ranging from extracting and cleaning data, to subjecting data to algorithmic analysis via statistical methods or machine learning.

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

- i. Acquire the basic knowledge of Data Science and its concepts.
- ii. Develop in depth knowledge in Data Science Process.
- iii. Understand the concept of Data Visualization with Support Vector Machine.
- iv. Implement the concept of Classification in the field of Data Science.
- v. Develop simple applications using Excel and data analysis using KNIME.

Unit 1: Introduction to Data Science**(15 hrs)**

Introduction – Life Cycle of Data Science - AI, Machine Learning and Data Science – What is Data Science – Case of Data Science – Data Science Classification – Data Science Algorithms.

Unit 2: Data Science Process**(15 hrs)**

Introduction – Data Science Process - Prior Knowledge – Data Preparation – Modeling – Applications – Knowledge.

Unit 3: Data Exploration**(13 hrs)**

Introduction - Objective of Data Exploration – Datasets – Type of Data - Data Visualization

Unit 4: Classification**(12 hrs)**

Introduction - Classification – Decision Trees – Rule Induction – Support Vector Machines.

Unit 5: Computing for Data Science:**(20 hrs)**

Data Analysis using Excel - quick retrieval of data - reformat and summarize data using pivot table - automating Excel task using Macros - KNIME for advanced data analysis - KNIME workbench - Data analysis using KNIME - time series analysis and auto regressive modeling.

Textbook:

1. Dr. M. Davamani Christofer, “Concepts of Data Science using R”, Kanthaga Pookal Pathipagam, First Edition 2021, ISBN: 978-93-80368-41-2.
2. Lillian Pierson, “Data science for Dummies”, John wiley & sons, Inc., 2015.

Unit 1: Page no: 7 - 18

Unit 2: Page no: 19 - 32

Unit 3: Page no: 33 - 40

Unit 4: Page no: 40 - 46

Unit 5: Page no: 255 – 266 (Text Book - 2)

References:

1. Vijay Kotu, Bala Deshpande, “Data Science Concepts and Practice” Second Edition, Morgan Kaufmann Publishers, 2019
2. John D. Kelleher and Brendan Tierney, “Data Science”, First Edition, The MIT Press, London, 2018.

Mapping Course Outcome with Bloom’s Taxonomy

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

~~Mean~~ Mean = 3.2

Preamble:

The objective of this course is to train the students in core java and make them develop programs to the industry standard.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Obtain basic knowledge on the principles of object oriented programming.
- ii. Understand constructor, method overloading, static function concepts and develop programs.
- iii. Demonstrate the uses of inheritance, abstract class and interface
- iv. Acquire knowledge to create packages, identify and fix errors in the code and achieve faster execution of code by multithreaded programming.
- v. Understand applets and database connectivity to develop window based applications.

Unit 1: Introduction to OOPs**(15 hrs)**

Object oriented Programming concepts - Java features - JVM- Data types – variables - Operators – Control statements -Strings - Arrays - Classes – Objects

Unit 2: Methods and Constructors**(14hrs)**

Constructors – this keyword – Garbage Collection - Method Overloading – Overloading constructors - Recursion – Access control - Static Function – Command line arguments

Unit 3: Inheritance and interface**(14 hrs)**

Inheritance – Member access and inheritance - Multilevel inheritance – Hierarchical inheritance – Method Overriding – Abstract class - Interfaces- Implementing interfaces – Nested interfaces

Unit 4: Packages, Exceptions and Threads**(15hrs)**

Creating and using packages – Access protection –importing packages- - Exception handling – Built in Exceptions- User defined Exceptions- Multithreading – Thread model - The Life cycle of a Thread - Synchronizing Threads

Unit 5: Applets and Database connectivity

(17hrs)

Overview of I/O Streams- Applets - Life cycle of applet- AWT - Event handling - JDBC architecture-Establishing database connectivity.

Text book:

1. Balagurusamy, **Programming with Java 4e A Primer**, Tata McGraw Hill edition, 2014
Unit 1: page no (1-9) & (23-131)
Unit 2: page no 42 & (133-138)
Unit 3: page no (139-152) & (180-189)
Unit 4: page no s (190 -249)
Unit 5: Java 2 The Complete Reference, page no (628-684)

References:

1. Patrick Naughton and Herbert Schildt, **Java 2 The Complete Reference**, Tata Mc Graw Hill Publications, 7th edition, 2012
2. Kathy Sierra and Bert Bates, **Head First Java**, O'Reilly Media, Inc., 2nd Edition, 2005
3. Arnold, Ken & Gosling, James, **The Java Programming language**, Addison Wesley, 4th Edition, 2005

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

Preamble:

The Objective of the 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.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Develop simple java programs to demonstrate OOPs concepts.
- ii. Construct programs using constructor, method overloading and static function.
- iii. Examine reusability through inheritance, abstract class and interface concept in real time application development
- iv. Develop packages and understand how to fix errors using exception handling.
- v. Construct window based applications using Applet and achieve database connectivity using JDBC.

Lab Components

1. Working with Array and flow control statement
2. Demonstrate the concept of command line arguments
3. Implementation of Single inheritance
4. Implementation of Multilevel inheritance
5. String Manipulation using Char Array.
6. Calculation of Student Total Mark using Interface
7. Implementing Thread based applications & Exception Handling.
8. File copy program
9. Checking Minimum Bank Balance using User defined exception
10. Database Creation for storing e-mail addresses and manipulation.
11. Creation of applet and passing parameter to applet
12. Calculation of Electricity bill using JDBC and Applet
13. Creation of Employee pay bill using JDBC and Swings
14. Login form using JDBC

15. Working with Dialogs and Menu control
16. Working with Panel and Layout control
17. Incorporating Graphics concept
18. Working with colors and Fonts

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 4.2

BIT2502

OPERATING SYSTEM (TL)

5(3+2) hrs/5cr

Preamble:

This course enables the students to understand the basic operating system concepts. It highlights the goals and services of the OS and covers scheduling, memory management, paging and segmentation. It facilitates the students to write simple shell script programs in UNIX.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Describe the structure of the UNIX operating system and its commands.
- ii. Describe the fundamental concepts of the operating system. Understand the process management components of the Operating System.
- iii. Analyze CPU scheduling, synchronization concepts and discuss the methods to manage / avoid deadlocks.
- iv. Compare different types of memory management techniques that are used in Operating Systems.
- v. Recognize the uses of paging, segmentation and file system mechanisms.

Unit 1: Introduction to UNIX

(12hrs)

Salient Features of Unix-Unix System Organization-Unix File system- Unix commands- File related commands-Directory Related Commands-Simple Shell Programming

Unit 2: Introduction to OS

(17hrs)

Views- Goals - OS Structure - Components - Services – Types of OS – OS for PC - OS for Hand held devices – Mobile OS – Network OS - system calls - System Structure - Process Management –Process -Process Scheduling – Operations on processes - Cooperating Process – Inter Process Communication - Threads.

Unit3: CPU Scheduling

(16hrs)

CPU Schedulers - Scheduling Criteria - Scheduling Algorithms -Process Synchronization - Critical Section Problem – Semaphores – Deadlocks - Characterization -Methods for Handling Deadlocks - Deadlock Prevention – Avoidance - Detection - Recovery.

Unit 4:Memory Management

(15hrs)

Introduction- Address Binding - Dynamic Loading and Linking – Overlays -Logical and Physical Address Space – swapping - Contiguous Allocation - Internal & External fragmentation - Non- Contiguous Allocation.

Unit 5: Paging and Segmentation Schemes

(15hrs)

Virtual memory - Demand Paging - File System: Introduction - File Concepts - File System Structures- Access Methods - Directory Structures – Protection-Disk Schedule-Disk Scheduling Algorithm.

Text books:

1. Yashavant P. Kanetkar, **Unix Shell Programming**, BPB Publications,2003
2. Silberschatz Abraham, Galvin and Gagne, **Operating System Concepts**, Wiley India Pvt., Ltd, 9th Edition, 2013.

Unit 1: page no (5-15) and (21 – 92) Unit 2: Operating System Concepts page no (19 - 23) and (105 - 129) Unit 3: Operating System Concepts page no (203 - 222), (261 - 276) and (322 – 338) Unit 4: Operating System Concepts page no (351 - 382) Unit 5: Operating System Concepts page no (470 - 477) and (503 – 525)

References:

1. NaliniVengatasubramaniyan,ViladimirGetov,StephanSteglich,**MobileWireless**

Middleware, Operating system and Applications, Springer Heidelberg
Dordrecht London New York, 2011

2. William Stallings, **Operating Systems: Internal and Design Principles**, Pearson Education-2014.
3. Michael Palmer, Michael Walters, **Guide to Operating Systems**, Cengage Learning, 2011
4. Pramod Chandra P, Bhatt, **An Introduction to Operating Systems: Concepts and Practice**, PHI Learning Pvt., Ltd, 2010

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

BIT2504

COMPUTER NETWORKS

5 hrs/5 cr

Preamble:

The objective of the course is to facilitate the students to understand various issues in establishing networks and the importance of various architectures and protocols in computer networks.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Classify the types of networks and topologies and uses of networks
- ii. Describe the functions of each layer in OSI and TCP/IP model.
- iii. Summarize the analog and digital data communication
- iv. Illustrate the functions of data link layer and explain the hardware components
- v. Elucidate the functions of Network layer and routing algorithms and discuss cryptography and network security.

Unit 1: Introduction

(15 hrs)

Introduction to Computer Communications and Networking Technologies-Uses of Computer Networks, Network Devices - Nodes, and Hosts- Types of Computer Networks and their Topologies.

Unit 2: Network Software

(15 hrs)

Network Design issues and Protocols, Connection-Oriented and Connectionless Services, Network Applications and Application Protocols, Network Architecture and the OSI Reference Model, TCP/IP reference model.

Unit 3: Analog and Digital Communications Concepts

(15 hrs)

Representing Data as Analog Signals, Representing Data as Digital Signals, Digital Carrier Systems, Guided and Wireless Transmission Media, Switching and Multiplexing.

Unit 4: Data Link Layer

(15 hrs)

Framing, Flow Control, Error Control, Error Detection and Correction, Media Access Control: Random Access Protocols, Token Passing Protocols, Token Ring - Introduction to LAN technologies: Ethernet, switched Ethernet, VLAN, fast Ethernet, gigabit Ethernet, token ring - Wireless LANs, Bluetooth, Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways

Unit 5: Network Layer and Routing Concepts

(15 hrs)

Virtual Circuits and Datagrams- Routing Algorithms - Congestion Control Algorithms – Internetworking. Network Security Issues: Security threats - Encryption Methods – Authentication - Symmetric Key Algorithms- Public Key Algorithms.

Text book:

1. Andrew S. Tanenbaum, **Computer Networks**, Pearson Education, 2011.

Unit 1:Computer Networks page no: (3 –28)

Unit 2: Computer Networks page no: (33 – 39) & (41 –53)

Unit 3: Computer Networks page no: (95 –115)

Unit 4: Computer Networks page no: (197 – 214)(277 -297)(320 -326)(332 – 335)&(340 -342)

Unit 5: Computer Networks page no: (362 – 385) & (392 –403)

References:

1. Michael A.Gallo,William M.Hancock, **Computer Communications and Networking Technologies**, CENGAGE Learning, 2001.
2. Behrouz A Forouzan, **Data Communications and Networking**, McGraw Hill, 2012.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 4.8

BIT2506 RELATIONAL DATABASE MANAGEMENT SYSTEM 5 hrs/5 cr

Preamble:

This course enables the students to understand the basic Database concepts and RDBMS concepts using Oracle SQL and PL/SQL. It helps the students to acquire sound knowledge in Oracle.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Obtain basic knowledge on database, relational database, data Models and ER model.
- ii. Understand the normalization and denormalization concepts to organize the data.
- iii. Familiarize structure query language, SQL queries, sub-queries, operators and views.
- iv. Discuss PL/SQL concepts, handle loops, control statements and cursors.
- v. Analyze the uses of sub programming, exception handling and triggers to built programs.

Unit 1: Introduction to database

(15hrs)

File systems versus Database systems – Database System - DBMS Architecture – Advantages of a DBMS – Describing and Storing Data in a DBMS – Queries in a DBMS – Database users and Administrator- Data Models.

Relational Model: Structure of Relational Databases – Database Design – ER Model – Overview of the Design Process – The Entity-relationship Model – Integrity Constraints over Relations – Enforcing Integrity Constraints – Entity Relationship Diagrams.

Unit 2: Data Normalization

(11hrs)

Pitfalls in Relational Database Design – Decomposition – Functional Dependencies – Normalization – First Normal Form – Second Normal Form – Third Normal Form – Boyce-Codd Normal Form – Fourth Normal Form – Fifth Normal Form – Denormalization.

Unit 3: Structured Query Language

(17hrs)

Basic Structure of SQL Queries - Working with Tables – DDL-DML-DCL-TCL- Set Operations – Restricting Data with WHERE clause - Aggregate Functions - Null Values - Nested Sub Queries – Views.

Unit 4: PL/SQL

(17hrs)

A Programming Language: Fundamentals – Block Structure – Comments – Data Types - Declaration – Assignment operation - Printing – Arithmetic Operators - Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables.

Unit 5: Exceptions

(15hrs)

Types of Exceptions - PL/SQL Composite Data Types: Records – Tables – Arrays - Named Blocks: Procedures – Functions – Packages –Triggers – Data Dictionary Views.

Text books:

1. Alexis Leon and Matthews Leon, **Essentials of Database Management System**, McGraw Hill Education India Private Limited, 2008
2. Riktesh Srivastava, **Relational Database Management System**, New

Age International Pvt Ltd Publishers,2015

3. Ivan Bayross,**SQL, PL/SQL: The Programming Language of Oracle**,
BPB, 2010

Unit 1: Essentials of Database Management System, Page No (1-77) & (91-102)

Unit 2: Essentials of Database Management System, Page No (104-125)

Unit 3: Essentials of Database Management System, Page No (157 - 229)

Unit 4: SQL, PL/SQL: The Programming Language of Oracle, Page No (338 - 375)

Unit 5: SQL, PL/SQL: The Programming Language of Oracle, Page No (404 - 438)

References:

1. Nilesh Shah, **Database Management Systems using Oracle**, Pearson Education,2015.
2. Arun Majumdar & Pritimoy Bhattacharya, **Database Management systems**,
TMHpublications,2007.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.9

BIT2408

RDBMS LAB

4 hrs/4 cr

Preamble:

The Objective of the course is to train the students able to work on the basic Oracle commands and to develop real life problems using PL/SQL.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Design and create databases with the help of ER Diagram and data models.
- ii. Remove inconsistent and redundant data using normalization concepts.
- iii. Write SQL statements, queries, sub-queries, join and views.
- iv. Construct programs using PL/SQL concepts, loops, control statements and

cursors.

- v. Build programs using functions, procedures, exception handling and triggers.

1. Creating database tables.
2. Modify the table, Rename and Drop the table.
3. Modify the column Name, data type, Rename and Drop the column.
4. Practical Based on Data Manipulation.
5. Practical Based on Using following clauses
Simple select clause, Accessing
specific data with Where,
Ordered By,
Distinct and Group By
6. Practical Based on Aggregate Functions.
7. Practical Based on implementing all String functions.
8. Practical Based on implementing Date and Time Functions.
9. Implement Nested Queries & JOIN operation.
10. Practical Based on performing different operations on a view.
11. PL/SQL programs using triggers.
12. PL/SQL programs using cursors.
13. PL/SQL programs using Functions & procedures in PL/SQL.
14. Make Database connectivity with front end tools.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

The course aims at teaching the essentials of R and trains the students to develop applications in R. The course covers practical issues in statistical computing which includes programming in R, reading data into R, accessing R packages, writing R functions, debugging, and organizing and commenting R code. It also enables the students to get an overview of big data and various Technologies for Handling Big Data.

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

- i. Acquire the basic knowledge on the fundamentals of R.
- ii. Understand Variables and managing data concepts.
- iii. Apply Simple functions and basic plotting symbols.
- iv. Learn to know, how to use Graphic tools.
- v. Gain knowledge on Big data and apply analytics to it.

Unit 1: Introduction**(11 hrs)**

What is R - Downloading and Installing R – An Initial Impression - Script Code - The Art of Programming - Documenting Script Code - Graphing Facilities in R - Editors - Help Files and Newsgroups - Packages - Packages Included with the Base Installation - Packages Not Included with the Base - Installation - General Issues in R Quitting R and setting the Working Directory - Getting Data into R - First Steps in R - Importing Data.

Unit 2: Accessing Variables and Managing Subsets**(13 hrs)**

Accessing Variables from a Data Frame - The str Function - The Data Argument in a Function - The \$ Sign – The attach function – Accessing subsets of data – Sorting the data – Combining two datasets with a common identifier – Exporting data - Combining Data Using a Matrix - Combining Data - Frame Function - Combining Data Using the list Function - Importing Data - Importing Excel Data - Accessing Data from Other Statistical Packages.

Unit 3: Simple Functions**(13 hrs)**

The tapply Function - Calculating the Mean Per Transect - Calculating the Mean Per Transect more efficiently - The sapply and lapply Functions - The summary Function - The table Function - An Introduction to Basic Plotting Tools - The plot Function -

Symbols, Colours, and Sizes - Changing Plotting Characters - Changing the Colour of Plotting Symbols - Altering the Size of Plotting Symbols - Adding a Smoothing Line – Loops – Functions – If Statements.

Unit 4: Graphic Tools

(11 hrs)

The Pie Chart - Pie Chart Showing Avian Influenza Data - The par Function - Bar Chart and Strip Chart - Box plot – Boxplots showing the Owl Data – Cleveland Dotplots – The Generic plot function – More options for plot function – Adding extra points, Text and Lines – The Pair plot – Panel Function – The Coplot – Combining types of plot.

Unit 5: Big Data Analytics

(12 hrs)

Getting an overview of Big Data: Introduction to Big Data - Structuring Big Data - Types of Data - Elements of Big Data - Big Data Analytics - Advantages of Big Data Analytics. Introducing Technologies for Handling Big Data: Distributed and Parallel Computing for Big Data - Cloud Computing and Big Data - Features of Cloud Computing - Cloud Deployment Models.

Textbook:

1. JD Long, Paul Teeto, “R Cookbook: Proven Recipes for Data Analysis, Statistics, and Graphics”, Second Edition, 2019.
2. Zuur, Alain, Ieno, Elena N., Meesters, Erik, “A Beginner's Guide to R”, Springer- Verlag New York, 2009.
3. Seema Acharya, Subhasni Chellappan, “BIG DATA and ANALYTICS”, Wiley publications, 2016.

Unit 1: Page no: 1 -123

Unit 2: Page no: 27 - 52

Unit 3: Page no: 127 - 168

Unit 4: Page no: 263 - 331

Unit 5: Page no: 17 - 54 (Text Book - 3)

References:

1. Dr. M. Davamani Christofer, “Concepts of Data Science using R”, Kanthaga Pookal Pathipagam, First Edition 2021, ISBN: 978-93-80368-41-2.
2. Parmar, Onkar, "R integrated with Symphony", Platform Computing Corporation, 2013
3. Norman Matloff, “The Art of R Programming: A Tour of Statistical Software Design”, No starch press, 2011.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.8

BIT3601

WEB PROGRAMMING

TL (3+3)Hrs / 6Cr

Preamble:

The objective of this course is to gain the knowledge of creating dynamic web pages using HTML5, CSS3, JavaScripts, PHP and MySQL.

Course Outcomes:

Upon completion of this course students will be able to:

- Gain the fundamental knowledge of HTML.
- Apply the concepts of CSS3.
- Develop an in- depth knowledge in JavaScript.
- Gain the fundamental knowledge in PHP
- Gain the basic knowledge in connecting MySql and PHP.

Unit 1: HTML

(18 hrs)

Basics of HTML, formatting and fonts, commenting code, color, hyperlink, lists, tables, images, forms, XHTML, Meta tags, Character entities, frames and frame sets, Browser architecture and Web site structure. Overview and features of HTML5

Unit 2: Style Sheets

(18 hrs)

Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2, Overview and features of CSS3.

Unit 3: JavaScript

(18 hrs)

Client side scripting with JavaScript, variables, functions, conditions, loops and repetition, Pop up boxes, Advance JavaScript: Javascript and objects, JavaScript own objects, DHTML : Combining HTML, CSS and Javascript, Events and buttons.

Unit 4: PHP

(18 hrs)

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.

Unit 5: PHP & MySQL

(18 hrs)

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, PHP my admin and database bugs –Report generation.

Text Books:

1. **HTML 5**, Black Book, Dreamtech Press, 2nd edition, 2016
2. **PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies**, Steve Suehring, Janet Valade, John Wiley and Sons, Inc, 2013.

Unit 1: HTML 5, Black Book page no (31-205)

Unit 2: HTML 5, Black Book page no(465-602)

Unit 3: HTML 5, Black Book page no(265-386)

Unit 4: PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies
(page no : 150-200)

Unit 5: PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies
(page no : 250-350)

References:

1. Web Technologies, Black Book , Dreamtech Press, edition 2010
2. Web Design , Joel Sklar, Cengage Learning, 6th edition, 2015
3. Developing Web Applications in PHP and AJAX, Harwani, McGrawHill, 2010.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

BIT3613

PYTHON PROGRAMMING 6 (3+3) Hrs /6Cr

Preamble:

The main aim of the course is to teach the essentials of Python and train the students to develop applications in Python.

Course Outcomes:

Upon completion of this course students will be able to:

- Acquire the basic knowledge on the fundamentals of python.
- Understand tuples, list, set and dictionary concepts.
- Write programs using functions, strings and date.
- Demonstrate the creation of package and module. Learn to know, how to fix errors in the code and to read and write files in Python
- Gain knowledge on OOPS in Python and develop simple programs.

Unit 1: Introduction to Python

(15hrs)

Python overview - comments – Identifiers – Reserved keywords – data types – Understanding Python variables - Python basic Operators - statements and expressions – python blocks – Boolean expressions- control statements – iteration statements input/output with print and input functions - Python program flow control statements.

Unit 2: Tuples, List and Dictionaries

(15hrs)

Create tuple – accessing tuple – tuple assignment – tuple as return value – Basic tuple operators and functions – List - insert and access elements – delete elements from list – Built in list operators and functions – returning a list from a function – Dictionaries – Sets.

Unit 3: Function, Strings and Date & Time

(20hrs)

Built in Functions – User defined Functions – Python Recursive Function – Strings –String slices - String formatting operator and functions - String handling functions – Ticks – calendar module – time module - Powerful Lamda function in python.

Unit 4: Files, Exception and Packages

(20hrs)

Text files–Opening and closing file –File handling functions - Exception handling – user defined exceptions - assertions in python- Understanding Packages.

Unit 5: Python Object Oriented Programming

(20hrs)

Class, Object and Instances - Class attributes - Constructor and Destructors - Data Encapsulation - Inheritance-Method Overloading and Overriding- MySQL Database connectivity – Introduction to GUI programming.

Text Books:

1. Ashok Namdev kamthane, Amit amthane, “**Programming and problem solving with python**” McGraw hill2017.
2. Jeeva Jose, P.Sojan Lal,”**Introduction to Computing & Problem Solving with PYTHON** “Khanna publication, 2016.

Unit1: Programming and problem solving with python, page no (1.1 -5.7)

Unit 2: Programming and problem solving with python, page no (8.1-9.3.6) and (11.1 – 11.3.13)

Unit 3: Programming and problem solving with python, page no (6.1 –7.8.9)

Unit 4: Introduction to Computing & Problem Solving with PYTHON, page no (149 -204) and (233-244)

Unit 5: Introduction to Computing & Problem Solving with PYTHON, page no (206-232) and (264 -272)

References:

1. Balagurusamy, “**Introduction to Computing & Problem Solving Using Python**”, Mc Graw Hill Education, 2016.
2. Allen Downey, Jeffrey Elkner, Chris Meyers, “**How to think like a computer scientist : learning with Python**”, 2012
3. R. Nageswara Rao, **Core Python Programming**, Dreamtech Press, 2016

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.8

BIT3605

SOFTWARE ENGINEERING

6 Hrs / 6 Cr

Preamble:

The aim of the course is to train the students to understand the basic software engineering concepts and make them to analyze, estimate & design new software with quality standards.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Get insight on planning the software development process.
- ii. Process SRS and perform requirement engineering in software development.
- iii. Develop strategies to initiate, plan, execute, monitor and control the software design.
- iv. Create test plans to verify and validate a system.
- v. Apply project management tools and techniques for process development.

Unit 1: Introduction to Software Engineering (16hrs)

Software Characteristics - size factors - Factors influencing quality and productivity – Planning a Software Project- Defining the problem, Goals & Requirements - Developing a solution strategy – Planning the Development Process – Planning an Organization Structure–Project Structure – Project Team Structure - Software Cost Estimation.

Unit 2: Software Requirements and Specifications (18hrs)

Value of a good SRS - Requirements Specification - Formal Specification Techniques – Requirement Engineering Requirements Documents – Requirements Elicitation – Requirements Analysis and Negotiation – Requirements Validation – Requirements Management.

Unit 3: Fundamentals Design concepts (20hrs)

Modules and modularization Criteria- Design Notations –Design techniques – Detailed Design Consideration Real time and distributed system design –Test plan- Milestones walkthrough and inspection –Design guidelines.

Unit 4: Coding (19hrs)

Programming Practice – Top-down and Bottom-up - structured programming – Information Hiding – Programming style-Verification and validation Techniques - Quality assurance - Unit testing and Debugging – System testing – Formal Verification.

Unit 5: Software Maintenance (17hrs)

Issues in Maintenance – Enhancing maintainability during development - Configuration management – Source code metrics – Other maintenance tools and Techniques.

Text Books:

1. Richard Fairley, “**Software Engineering**” Tata Mcgraw Hill 2012 Edition.
2. Roger S Pressman, “**Software Engineering A Practitioner Approach**”

McGrawHill, 7th Edition, 2010.

Unit 1:	Software Engineering Concepts	page no: (5 – 20) (30 – 60) (64 – 80)
Unit 2:	Software Engineering Concepts	page no: (88 -110)
Unit 3:	Software Engineering Concepts	page no: (138 – 188)
Unit 4:	Software Engineering Concepts	page no: (267 - 305)
Unit 5:	Software Engineering Concepts	page no: (311 – 327)

References:

1. Ian Sommerville, “Requirements Engineering”, John Wiley, 1998.
2. Stephen R. Schach, “Object Oriented and Classical Software Engineering”, Tata McGraw Hill 5th Edition.
3. Watts S. Humphrey, “A Discipline for Software Engineering”, Pearson Education, 2001.
4. Boriz and Beizer, “Software Testing Techniques”, DreamTech, 2nd Edition –2000.

Mapping Course Outcome with Bloom’s Taxonomy

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

Mean = 4

BIT3507 ENTERPRISE RESOURCE PLANNING 5Hrs / 5Cr

Preamble:

The aim of this course is to understand the business process of an enterprise and ERP project management cycle. It also helps students to learn business modules and the ERP market. It also deals with emerging trends in ERP.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Analyze the concept of resource planning and its related technologies.

- ii. Understand, Design and implement ERP methodologies.
- iii. Discuss different business modules available in an ERP package and the features of the business modules.
- iv. Analyze the ERP market, various vendors and their ERP product. Compare vendors and their ERP packages.
- v. Outline the Enterprise Application Integration and the trends in ERP

Unit 1: RP and technology

(15hrs)

Introduction – Related Technologies – Business Intelligence – E-Commerce and E- Business – Business Process Reengineering – Data Warehousing – Data Mining – OLAP – Product life Cycle management – SCM –CRM.

Unit 2: ERP implementation methodology

(18hrs)

Implementation Challenges – Strategies – Life Cycle – Pre-implementation Tasks – Requirements Definition – Methodologies – Package selection – Project Teams – Process Definitions – Vendors and Consultants – Data Migration – Project management– Post Implementation Activities.

Unit 3: Business modules in ERP

(17hrs)

Operation and Maintenance – Performance – Maximizing the ERP System – Business Modules– Finance–Manufacturing–Human Resources–Plant Maintenance–Materials Management– Quality management – Marketing – Sales, Distribution and service.

Unit 4: ERP market

(14hrs)

Marketplace – Dynamics – SAP AG – Oracle – PeopleSoft – JD Edwards – QAD Inc – SSA Global – Lawson Software – Epicor –Intuitive.

Unit 5: Trends in ERP

(11hrs)

Enterprise Application Integration – ERP and E-Business – ERP II – Total quality management– Future Directions – Trends in ERP.

Text Books:

1. Alexis Leon, “**ERP DEMYSTIFIED**”, Tata McGraw Hill, Second Edition, 2008.
 2. Mary Sumner, “Enterprise Resource Planning”, Pearson Education, 2007.
- Unit 1: ERP DEMYSTIFIED page no (24 - 49) and (93 –193)
- Unit 2: ERP DEMYSTIFIED ⁵⁷page no (235 - 359) and (385 - 407)

Unit 3: ERP DEMYSTIFIED page no (457 -512)

Unit 4: ERP DEMYSTIFIED page no (513 -536)

Unit 5: ERP DEMYSTIFIED page no (542 -582)

References:

1. Jim Mazzullo,"SAP R/3 for Everyone", Pearson, 2007.
2. Enterprise Resource Planning Paperback – 26 Sep 2007by Alexis Leon 2nd edition. 2nd edition.
3. Biao Fu, "SAP BW: A Step-by-Step Guide", First Edition, Pearson Education, 2003

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

BIT 3211

XML (Extensible Markup Language)

3Hrs / 2Cr

The objective of this course is to gain the knowledge of creating dynamic web pages using XML.

Upon completion of this course students will be able to:

- i. Gain the fundamental knowledge of HTML and XML.
- ii. Apply the concepts of XML.
- iii. Develop an in- depth knowledge in SOAP.
- iv. Gain the fundamental knowledge in Web services.
- v. Gain the basic knowledge in applications of XML.

Unit 1: HTML and XML (9 hrs)

HTML Introduction - HTML Elements. Introduction: XML - The Need for XML - Structured Data and Formatting - Advantages of XML – SGML – XML and HTML - World Wide Web Consortium (W3C) - Specifications and Grammars.

Unit 2: XML Documents (8 hrs)

XML Applications and Tools - Creating and Viewing XML Documents - Transforming XML Documents - XML Document Syntax - Validating XML Documents with DTDs - XML Namespaces.

Unit 3: XML and SOAP (9 hrs)

Validating XML Documents with Schemas - Introduction to Simple Object Access Protocol (SOAP) - SOAP's Use of XML and Schemas - Elements of a SOAP Message.

Unit 4: Introduction to Web Services (8 hrs)

Architecture and Advantages of Web Services - Purpose of Web Services Description Language (WSDL) - WSDL Elements - Creating and Examining WSDL Files - ebXML Specifications - ebXML Registry and Repository.

Unit 5: XML applications (11hrs)

B2B Scenarios - e-business system involved: delivery, sales, cross company communication - replacement for EDI - the document as the application - XML and relational databases – XML & dynamic Web publishing - benefits of XML schemas.

Text Books:

1. DT Editorial Service, HTML 5, Black Book, Dreamtech Press, 2nd edition, 2016.
2. Jon Duckett, Beginning XML, Wrox publisher, 5th edition Joe Fawcett, 2012.
3. Elliotte Rusty Harold, XML1.1 Bible published by John Wiley & Sons, 3rd Edition, 2010.

References:

1. Lucinda Dykes and Ed Tittel, XML for dummies, 4th Edition by Lucinda Dyces, 2005.
2. B.M.Harwani, Developing Web Applications in PHP and AJAX, McGrawHill, 2010.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

BIT3602

.NET Programming TL 6 (3+3)Hrs / 6 Cr

Preamble:

The main aim of the course is to provide in depth knowledge about .NET framework, VB.Net, ASP.NET and ADO.NET. It also equips the students to develop window applications and dynamic web applications.

Course Outcomes:

Upon completion of this course students will be able to:

- To understand the dot net framework and its features
- Explore the features of IDE and build window based applications using forms, controls, events, procedures and functions
- Understand exception handling, delegates and inheritance concepts and write programs on console application.
- Create database connectivity programs using ADO.NET.
- Gain knowledge on ASP.NET and design simple, dynamic web pages.

Unit 1: Introduction

(18hrs)

Introduction to .NET-Evolution -.net platform-advantages of .net-working of .net- .basic architecture of net framework-common language runtime- architecture of CLR-features of CLR - common language specification-unified programming classes- metadata –assembly-MSIL-Just In Time compiler-class loader-verifier- security in .net.

Unit 2:VB.NET

(20hrs)

Visual studio .net IDE-Window based applications-Data types-operators- Event handling - loading and showing forms -adding controls-working with simple controls-adding menus-menus-advanced windows applications-creating MDI application.

Unit 3:VB.NET Programming concepts

(18hrs)

Introduction to console application- Procedures-OOPs in VB.net- class- object-inheritance-polymorphism-inheritance-my base class keyword-my class keyword-abstract base class-exception handling-delegates.

Unit 4:ADO.NET

(14hrs)

Overview of ADO.NET architecture-ADO.NET Component model- managed provider in ADO.net – advantages of ADO.net - data access using ADO.NET - ADO.net data form wizard.

Unit 5:ASP.NET

(20hrs)

Features of ASP.net - ASP.net page life cycle-using common web controls - creating simple web applications - create web applications using database connectivity - Web services.

Text Book:

1. **Visual Basic 2008 Programming Black Book**, Kogent Solutions Inc, Published by Dreamtech Press, Platinum Edition

Unit 1: page no (1-20)

Unit 2: page no (30-72) and (186-453)

Unit 3: page no (78-178)

Unit 4: page no (1121-1168)

Unit 5: page no (722 -766) and (1213-1235)

References:

1. Nitini pandey yesh singhal, mridula pairhar “Visual studio.net programming”, Wiley- Dream tech India (p)Ltd,2002.
2. Steven holzner, “Visual basic .net black book”, coriolis group book,2009.
3. Professional Visual Studio 2015 (WROX), Wiley, 2015
4. Nikhil Kothari, Vandana datye “Developing Microsoft ASP.NET Server controls and components” Tata Mcgraw Hill publishing company limited, 2002.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 4

BIT3604 SOFTWARE DEVELOPMENT LAB 6 Hrs /6 Cr

Preamble:

The main objective of this software development lab is to improve the acquired technical skills of the student by giving required lab practices. It supports them to work efficiently in the latest technologies. It improves the student's problem solving ability.

Course Outcomes:

- i. Acquire practical knowledge within the chosen area of information technology for project development.
- ii. Identify, analyze, formulate and handle projects with a comprehensive and systematic approach.
- iii. Apply knowledge of computing and information technologies to produce effective designs and solutions for specific computer-based problems.
- iv. Effectively communicate during project development and present results for the area of interest.
- v. Perform test to achieve specific computer based outcomes

Based on case study of the following lab components need to be done by students

1. Planning a problem
2. Analyzing the problem
3. Requirement analysis
4. Designing prototype.
5. Table Design
6. Data Flow diagram/ UML diagrams

7. Coding
8. Testing.
9. Implementation.
10. Maintenance.

Suggested case study topics:

Student may take any one of the topics listed below but not necessarily limited to

1. Client/server application
2. Network security
3. Embedded system
4. Image processing
5. Data mining
6. Distributed networks
7. Software engineering
8. Internet of things
9. Mobile applications.
10. Cloud Computing.
11. Web application development

Evaluation pattern:

It adopts the evaluation pattern of a lab course of our college which contains 75% marks allotment for the continuous assessment using project reviews and 25% marks allotment for final report submission.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

Preamble:

This course enables the student to understand the basic concepts of data mining and warehousing and various methodologies in it.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Understand the basic principles and concepts and of data mining and data warehousing.
- ii. Identify the need for data pre-processing and various steps involved in it.
- iii. Categorize the methodologies and algorithms used in data mining. Familiar with association rule mining techniques and constraint based association mining.
- iv. Identify the usages of Decision tree Algorithm, Bayesian Classification, Back Propagation techniques in classification analysis
- v. Outline the applications and trends in Data mining. Compare various Mining Techniques such as Web mining, Sequence mining, Spatial mining etc.,

Unit 1: Introduction to DM & DW**(13hrs)**

Data Mining versus KDD - Data Mining & Goals – Stages of the Data Mining Process - Types of Databases – Data warehouse – Multidimensional data model –DW Architecture - OLAP operations – From Data Warehousing to Data Mining.

Unit 2: Data Preprocessing**(19hrs)**

Data Preprocessing - Why Preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization and generating concept hierarchies.

Unit 3: Data mining Task and Association rules**(22hrs)**

Data Mining tasks - Architecture of Data mining system - Data mining primitives – Data mining query language. Market Basket Analysis - Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules.

Unit 4: Classification and Prediction

(19hrs)

Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.

Unit 5: Advance Data Mining

(17hrs)

Applications and trends in Data Mining- Social Impacts of Data Mining - Introduction to Advanced Topics: Web Mining, Spatial Mining and Temporal Mining

Text Book:

1.”Data Mining: Concepts and Techniques” Book by Jiawei Han, editor
Micheline Kamber, 2012.

Unit 1: page no (5-15) and (126 – 148)

Unit 2: page no (83 - 119)

Unit 3: page no (243 - 300)

Unit 4: page no (327 - 354), (398 - 405) and (415 – 421)

Unit 5: page no (607 - 624)

References:

1. Shawkat Ali A B M, Saleh A. Wasimi, “Data Mining: Methods and Techniques, Third Indian Reprint, Cengage Learning, 2010.
2. Soman K. P., ShyamDiwakar, Ajay V. “Insight into Data Mining Theory and Practice”, Fifth Printing, PHI Learning, 2011.

Mapping Course Outcome with Bloom’s Taxonomy

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

Mean = 3.5

Preamble:

This course enables the student to learn the basics of wireless voice and data communication technologies along with Android Application Development.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Grasp the concepts and features of Wireless transmission and compare various media of accessing wireless devices.
- ii. Describe the components and functionalities of a mobile network.
- iii. Understand the applications of e-commerce and m-commerce
- iv. Acquire the basic knowledge of architecture of various mobile OS and compare hybrid and native applications.
- v. Obtain the knowledge of applying IOT in various fields.

Unit 1: Wireless Technology**(17hrs)**

Introduction – Wireless transmission – Frequencies for radio transmission – MAC – SDMA – FDMA – TDMA – CDMA – GSM.

Unit 2: Mobile Technology**(14hrs)**

Evolution of Mobile Technology, Lte, VoLte, wifi, Lifi,, Bluetooth, NFC, Mobile Operating System. Sensors used in Mobile devices, GPS and GeoFencing.

Unit 3: Mobility Management**(14hrs)**

Call Handoff and Roaming (national and international) Mobile Commerce Services: Base Services Platform, Mobile Commerce Services for Consumers, Mobile Commerce Services for Businesses. Case Study: ecommerce application.

Unit 4: Mobile OS Architecture**(15hrs)**

Android OS and its architecture, IOS and its architecture, IDE used for app development in android and ios, Application data management, publishing the app to play store / app store. Native application, Hybrid application, comparison of native and hybrid approach.

Unit 5: Internet of Things

(15hrs)

IOT overview, applications, potential & challenges, and architecture, Arduino and Raspberry Pi architecture. Case study: Control of a smart home.

Text Books:

1. **Wireless Communications & Networks**, Second Edition, William Stallings by Pearson, 2005.
2. **M-Commerce: Technologies, Services, and Business Models** by Norman Sadeh, September 2002
3. **Android Application Development Black Book**, Pradeep Kothari, dreamtech press, 2014
4. **Internet of Things: A Hands-On Approach** Paperback – 2015 by Arsheep Bahga (Author), Vijay Madisetti (Author)

Unit 1: Introduction to Wireless and mobile systems page no (132-141) & page no (151-165)

Unit 2: **Wireless Communications & Networks** page no (421-477), Introduction to Wireless and mobile systems page no (377-385), page no (305-310)

Unit 3: Introduction to Wireless and mobile systems page no (220-232) **M-Commerce: Technologies, Services, and Business Models** page no (159-181)

Unit 4: **PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies** (page no: 150-200)

Unit 5: **PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies** (page no: 250-350)

References:

1. **Android Programming for Beginners**, Book by John Horton, December 2015
2. **Dharma Prakash Agarwal, Qing and An Zeng**, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
3. **Jochen Schiller**, "Mobile Communications", PHI/Pearson Education, Second Edition, 2003.

Mapping Course Outcome with Bloom's Taxonomy

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
CO1	1					
CO2			3			

CO3				4		
CO4		2	3			6
CO5		2			5	6

Mean = 3.5

BIT3200

ENVIRONMENTAL STUDIES

4 Hrs / 2 Crs

Preamble:

The objective of this course is to create awareness about environmental pollution and how to manage and dispose of Solid wastes and E-wastes.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Understand, analyze the scope of environmental studies
- ii. Analyze Functions of biodiversity
- iii. Compare various types of natural resource
- iv. Acquire knowledge on environmental pollution.
- v. Develop a solid waste management technique

Unit 1: Introduction to environment and environmental studies (10hrs)

Introduction to environment – components – nature of environment - need of awareness – reasons for environmental problems – anthropocentric and eco centric views. Environmental studies - multidisciplinary nature – scope and aim – sustainable development.

Unit 2: Ecosystem and Biodiversity (12hrs)

Ecosystem – structure – functions – simplified ecosystem models (food chain and food webs and their types, energy flow) - forest – grassland – pond –ecosystems – ecological succession - ecological pyramids. Biodiversity – definition – types – species – genetic and ecosystem diversities- values of biodiversity – threats to biodiversity – conservation of biodiversity – endemism – biodiversity hotspots – Indian biodiversity

Unit 3: Natural resources (12hrs)

Natural resources – definition – types – forest resources – uses –deforestation- reasons - effects – water resources – dams – effects of dams - food resources – modern agriculture– ill effects - energy resources- types – hydel –nuclear – solar –wind and biomass energy – world scenario – Indian scenario. Population and environment – reasons for over exploitation of resources – population –demography – population curves⁶⁸ – population explosion – effects – consumerism –

effects –urbanization – reasons and effects- role of an individual.

Unit 4: Environmental Pollution

(12hrs)

Pollution – definition – types – air pollution – causes and effects – effects of CO₂ – CO – NO_x – SO_x – particulates – control of air pollution – water pollution – causes – effects –remedies – soil pollution

Unit 5: Solid Waste Management

(14hrs)

Solid waste management - Household, Hospital, Insecticide, pesticide, fungicide, Biomedical, Animal and human excreta, E – waste – ill effects of e-waste - Effects of Solid Waste: Groundwater pollution, Increase in infecting agents in soil, Soil quality deterioration, On human health, Disposal of Solid Waste – Solid Waste Management: Open dumping, Landfilling, Incineration, Re – use, reclamation, recycle, Composting.

Text Book:

1. Perspective in Environmental Studies – Anubha Kaushik, C.P.Kaushik

Unit 1: Environmental Studies page no: (1 – 4)

Unit 2: Environmental Studies page no: (65 – 100)

Unit 3: Environmental Studies page no: (5 –55)

Unit 4: Environmental Studies page no: (123 –142)

Unit 5: Environmental Studies page no: (145 –160)

References:

1. Environmental Studies - Sanjay Kumar Batra, Kanchan Batra, Harpreet Kaur &Parul Pant – 2nd Edition 2016
2. Environmental Studies: From Crisis to Cure, R. Rajagopalan, 3rd edition 2015

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.5

Preamble:

The aim of this course is to introduce the broad perspective of cloud architecture and model. To understand the concept of Virtualization and the design of cloud Services. It also helps the students to learn cloud programming models.

Course Outcomes:

Upon completion of this course students will be able to:

- i. Understand Cloud Computing models and architecture of Cloud Computing.
- ii. Describe the importance of virtualization along with their technologies.
- iii. Summarize various architectural designs and technologies.
- iv. Analyze the components of open stack, open nebula, Aneka & Hadoop Cloud platform and understand Map Reduce and Amazon web Service.
- v. Understand the importance of the security in the Cloud applications

Unit 1: Cloud architecture and model**(7hrs)**

Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models: -Public, Private and hybrid Cloud – Cloud Services: IaaS, PaaS, SaaS.

Unit 2: Virtualization**(10hrs)**

Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data- center Automation.

Unit 3: Cloud infrastructure**(9hrs)**

Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development, Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment, Global Exchange of Cloud Resources.

Unit 4: Programming model**(13hrs)**

Parallel and Distributed Programming Paradigms – MapReduce, Twister and Iterative MapReduce – Hadoop Library from Apache⁷⁰ Mapping Applications - Programming Support-

Unit 5: Security in the cloud

(6hrs)

Security Overview – Cloud Security Challenges and Risks – Software-as-a-Service Security – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security – Identity Management and Access Control – Autonomic Security.

Text Book:

1. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, “**Distributed and Cloud Computing, From Parallel Processing to the Internet of Things**”, Morgan Kaufmann Publishers, 2012.

Unit 1: Distributed and Cloud Computing page no: (13– 35) & (191 – 205)

Unit 2: Distributed and Cloud Computing page no: (129 -178)

Unit 3: Distributed and Cloud Computing page no: (218 – 220) (225 – 227) & (234 – 248)

Unit 4: Distributed and Cloud Computing page no: (343 -369) & (387 – 394)

Unit 5: Distributed and Cloud Computing page no: (398 -405)

References:

1. John W. Rittinghouse and James F. Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
2. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009
3. Kumar Saurabh, “Cloud Computing – insights into New-Era Infrastructure”, Wiley India, 2011.

Mapping Course Outcome with Bloom’s Taxonomy

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

Mean = 3.5

Preamble:

The aim of the course is to develop 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.

Course Outcomes:

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.

Text Book:

1. MS office - S.S. Shrivastava, Laxmi Publications; First edition 2015
2. Microsoft office 365, All-in-one - Peter Weverka For Dummies; 1 edition May 29, 2019
3. Microsoft Office 2007 Bible - John Walkenbach, Herb Tyson, Faith Wempen, Cary N. Prague, Michael R. Groh, Peter G. 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****Preamble:**

The objective of the course is to enable the students to understand a core technology markup language of the Internet used for structuring and presenting content for the WWW using dream weaver.

Course outcome:

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.

Text book:

1. Macromedia Dreamweaver MX fast & easy web development – Annesha Bakharia- edition – 2012

Reference book:

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

Preamble:

The aim of the course is to develop the skill and knowledge in 3D modeling and animation and equip the students to create simple games and animated movies.

Course outcome:

Upon the completion of this course students will be able to

- Obtain basic knowledge on Multimedia concepts and applications, 3D concepts and animation.
- Understand the fundamental concepts in Blender and create objects.
- Design their own models using sculpting tools.
- Create skeleton models for animation.
- 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.

Text Book:

1. 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

BIT122V**ILLUSTRATOR****2hrs/ 2 cr**

This course enables the students to apply skills in the combination of creation, modification and formatting of raster and vector objects and type of elements to create design work.

Upon completion of this course students will be able to:

- i. Identify the capabilities and functions of drawing, transformation and shape tools in Adobe Illustrator
- ii. Demonstrate skills in the use of vector specific capabilities for typesetting

- iii. Show efficient planning and file organization techniques
- iv. Apply conceptual planning techniques in the development of graphic design pieces
- v. Demonstrate working with color shapes and objects.

Unit 1: Introduction to Illustrator

Getting Started with Illustrator- CMYK vs RGB -Art Boards-Creating Your First Document- Exploring the Interface / Navigation - Overview of the Tools – Panels – Menus - Working with Layers - Working with Objects.

Unit 2 : Using the Tools

Selection Tools - Shape Tools - Pen Tool - Using Brushes and Custom Brushes - Pencil Tool
-Shaper Tool - Creating Paths - Line Tools - Eraser Tools.

Unit 3: Adding color and Stroke

Color artwork - Swatches - Gradients - Recolor artwork- Drawing - Trace drawing - Creating shape vectors- Compounding vectors - Create and edit shapes - Colouring - Adding type.

Unit 4: Edit Artwork and paths

Isometric in Illustrator- Masking in Illustrator -Transform and edit artwork - Edit paths - guide to Pathfinder Shape mode - Organise content with layers - Creating a Biohazard Symbol.

Unit 5: Creating shadows and effects

Creating realistic shadows - Creating repeating patterns for fills and borders, Drawing 3-D artwork—isometric, dimetric, and trimetric views - Creating line effects for maps - LiveTrace to LivePaint to LiveColor explorations.

Text Book:

1. Brian Wood, “Adobe Illustrator Classroom in a Book (2020 release)”, 1st Edition

Unit 1: Adobe Illustrator page no (32 - 55)

Unit 2: Adobe Illustrator page no (60 – 73)

Unit 3: Adobe Illustrator page no (80 – 89)

Unit 4: Adobe Illustrator page no (108 – 120)

Unit 5: Adobe Illustrator page no (372 -397)

1. Robert Shufflebotham, *Illustrator: Structured Learning a Beginner's Guide*, 2017.
2. Adobe Illustrator CS6 Tutorial
3. https://www.pgsd.org/cms/lib07/PA01916597/Centricity/Domain/202/illustrator_for_beginners_tastytuts.pdf

Bloom's Taxonomy	K1	K2	K3	K4	K5	K6
C01	1			4		
C02		2	3			6
C03		2				6
C04			3			
C05				4	5	6

BIT222V **AUTOMATED TESTING USING SELENIUM** **2hrs/ 2 cr**

Upon completion of this course students will be able to:

- ## Unit 1: Selenium Fundamentals (6hrs)

Introduction to Selenium - Features of Selenium - Selenium Version History - Advantages of Selenium - Drawbacks of Selenium – Introduction on Selenium Suite: Selenium IDE , Selenium RC,⁷⁸ WebDriver, Selenium Grid.

Unit 2: Selenium IDE (6 hrs)

Selenium IDE add-on – Advancement with new selenium IDE – Working principle of IDE – Components of IDE interface – Selenium commands – Key features of Selenium IDE – Selenium side runner.

Unit 3: Introduction to JavaScript (6 hrs)

Introduction - Usage of variables – operators - control structures - looping structures - arrays and functions - mathematical functions - string functions – Window - Confirmation, alert message.

Unit 4: Selenium WebDriver (7 hrs)

Introduction to Selenium WebDriver – Features of WebDriver - Selenium WebDriver Environment Setup - Web Elements and Operations - Web Element Locators – Selenium WebDriver API Commands – Understanding WebDriver events – Chrome driver: installing driver, test script for chrome browser, using chrome options.

Unit 5: Selenium Grid and Selenium Projects (5 hrs)

Introduction to Hub and Node – Configuring Selenium Grid – Hub configuration parameters– Different ways to specify the Configuration - Create Selenium Test Cases - Execute Test Batches and Analyze Test Results.

Text Books:

1. SatyaAva sarala, Selenium WebDriver Practical Guide, Packt Publishing, 2014.
2. DT Editorial Service, HTML 5, Black Book, Dreamtech Press, 2nd edition,2016
3. David Burns, Selenium 2 Testing Tools_ Beginner's Guide, Packt Publishing, 2012. Unit 1: Selenium WebDriver Practical Guide, Page no: (9-15)
Unit 2: Selenium 2 Testing Tools_ Beginner's Guide, Page no: (7-34)
Unit 3: HTML 5, Black Book page no: (265-386)
Unit 4: Selenium WebDriver Practical Guide, Page no: (21-41) (61-77) (105-124) Unit 5: Selenium WebDriver Practical Guide, Page no: (169-190)

References:

1. Unmesh Gundecha, Selenium Testing Tools Cookbook, 2nd Edition, Packt Publishing, 2015.

2. David Burns, Selenium 1.0 Testing Tools_ Beginners Guide, Packt Publishing, 2010.

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

BIT322V **QUANTITATIVE APTITUDE AND REASONING** **2hrs/2cr**

This course helps the students to develop their logical thinking, reasoning and arithmetic ability. It also enables the students to crack the competitive exams.

Upon completion of this course students will be able to:

- i. Perform operations on numbers and simplification process.
- ii. Gain knowledge on ratio, profit and loss.
- iii. Solve problems based on time and distance.
- iv. Understand the interest calculations and probability.
- v. Acquire the knowledge on logical reasoning and verbal analogies.

Unit 1: Problems on Number (6 hrs)

Numbers - Problems on numbers-HCF and LCM-Divisibility-Simplification-Average.

Unit 2: Ratio (6 hrs)

Problems on age - Ratio and Proportion- Alligation and Mixture - Variation-Profit and Loss.

Unit 3: Time based problems (6 hrs)

Time and work-pipe and cistern-Time and distance -Boats and streams-Problems on train.

Unit 4: Probability (6 hrs)

Simple interest – Compound interest- -Probability-Permutation-Combinations - Data Interpretation.

Unit 5: Reasoning (6hrs)

80

Verbal analogies - Number series - Alphabet series - Coding and Decoding

- Logical Reasoning - Venn diagram-Syllogism.

Text books:

1. R.S. Agarwal, Quantitative Aptitude for Competitive examinations, S.Chand publications, 2020.
2. R.S. Agarwal, A Modern approach to verbal and non verbal Reasoning, S.Chand and company, 2018.

Unit 1: Quantitative Aptitude for Competitive examinations Page No: (3-66) (139-160)

Unit 2: Quantitative Aptitude for Competitive examinations Page No: (182- 194) (251-310) (435-444)

Unit 3: Quantitative Aptitude for Competitive examinations Page No: (341- 424)

Unit 4: Quantitative Aptitude for Competitive examinations Page No: (445- 486) (613-631)

Unit 5: A Modern approach to verbal and non verbal Reasoning Page No: (1- 94) (139-219) (346-383) (section II 1-120)

References:

1.R.V.Praveen, Quantitative Aptitude for Reasoning – PHI Learning Private Limited, 2016.

Mapping Course Outcome with Bloom's Taxonomy

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

Mean = 3.4