FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A" Grade by NAAC (3rd Cycle)

74th Rank in India Ranking 2020 (NIRF) by MHRD

Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT : INFORMATION TECHNOLOGY

NAME OF THE PROGRAMME : B.Sc. INFORMATION TECHNOLOGY

PROGRAMME CODE : USIT

ACADEMIC YEAR : 2020 - 2021

DEPARTMENT OF INFORMATION TECHNOLOGY
B. Sc. (Information Technology)
SYLLABUS Front Page 2020 - 21

PART – I – TAMIL / FRENCH / HINDI– 12 CREDITS

PART – I – TAMIL

Offered by The Research Centre of Tamil

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	19TLC1	Language-Modern Literature பொதுத்தமிழ் - இக்கால இலக்கியம்	5	3	40	60	100
2.	II	19TLC2	Language - Bakthi Literature பொதுத்தமிழ் - பக்தி இலக்கியம்	5	3	40	60	100
3.	III	19TLC3	Language- Epic Literature பொதுத்தமிழ் - காப்பிய இலக்கியம்	5	3	40	60	100
4.	IV	19TLC4	Language-Sangam Literature பொதுத்தமிழ் - சங்க இலக்கியம;	5	3	40	60	100
			Total	20	12			

PART – I – FRENCH

Offered by The Department of French

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	19RLC1	PART 1 LANGUAGE FRENCH	5	3	40	60	100
2.	II	19RLC2	PART 1 LANGUAGE FRENCH	5	3	40	60	100
3.	III	19RLC3	PART 1 LANGUAGE FRENCH	5	3	40	60	100
4.	IV	19RLC4	PART 1 LANGUAGE FRENCH	5	3	40	60	100
			Total	20	12			

PART – I – HINDI

Offered by The Department of Hindi

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	19DLC1	PART 1 LANGUAGE HINDI	5	3	40	60	100
2.	II	19DLC2	PART 1 LANGUAGE HINDI	5	3	40	60	100
3.	III	19DLC3	PART 1 LANGUAGE HINDI	5	3	40	60	100
4.	IV	19DLC4	PART 1 LANGUAGE HINDI	5	3	40	60	100
			Total	20	12			

PART – II -ENGLISH – 12 CREDITS

Offered by The Research Centre of English

S. NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	19E1LB1	BASIC COMMUNICATIVE ENGLISH	5	3	40	60	100
2.		19E1LI1	INTERMEDIATE COMMUNICATIVE ENGLISH	5	3	40	60	100
3.		19E1LA1	ADVANCED COMMUNICATIVE ENGLISH	5	3	40	60	100
4.	II	19E2LB2	ENGLISH COMMUNICATION SKILLS (BASIC)	5	3	40	60	100
5.		19E2LI2	ENGLISH FOR EMPOWERMENT (INTERMEDIATE)	5	3	40	60	100
6.		19E2LA2	ENGLISH FOR CREATIVE WRITING (ADVANCED)	5	3	40	60	100
7.	III	19ELC3	ENGLISH FOR DIGITAL ERA	5	3	40	60	100
8.	IV	19ELC4	ENGLISH FOR INTEGRATED DEVELOPMENT	5	3	40	60	100
			Total	**20**	**12**			

PART – III -MAJOR, ALLIED & ELECTIVES – 95 CREDITS

MAJOR CORE COURSES INCLUDING PRACTICALS : 60 CREDITS

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.	I	19I1CC1	FUNDAMENTALS OF COMPUTING	6	4	40	60	100
2.		19I1CC2	LAB IN PROGRAMMING IN C	6	3	40	60	100
3.	II	19I2CC3	DATA STRUCTURES USING C++	6	4	40	60	100
4.		19I2CC4	LAB IN DATA STRUCTURES USING C++	6	3	40	60	100
5.	III	19I3CC5	DATA BASE MANAGEMENT SYSTEMS	6	4	40	60	100
6.		19I3CC6	LAB IN RDBMS	6	3			
7.	IV	19I4CC7	PROGRAMMING IN JAVA	6	4	40	60	100
8.		19I4CC8	LAB IN PROGRAMMING IN JAVA	6	3	40	60	100
9.	V	I5CC11	WEB TECHNOLOGY	4	4	25	75	100
10.		I5CC12	LAB V: WEB TECHNOLOGY LAB	5	4	25	75	100
11.		I5CC13	DATA COMMUNICATION AND NETWORKING	5	4	25	75	100
12.		I5CC14	DATA MINING CONCEPTS	4	4	25	75	100
13.		I5CC15	SOFTWARE ENGINEERING	4	4	25	75	100
14.	VI	I6CC16	.NET PROGRAMMING	4	4	25	75	100
15.		I6CC17	LAB VI: .NET	5	4	25	75	100

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
			PROGRAMMING LAB					
16.		I6CC18	INFORMATION SECURITY	5	4	25	75	100
17.		I6CC19	PROJECT LAB	2	4	50	50	100

ALLIEDCOURSES- 20 CREDITS

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	**19I1ACG1**	DISCRETE MATHEMATICS	5	5	40	60	100
2.	II	**19I2ACG2**	OPERATIONS RESEARCH	5	5	40	60	100
3.	III	**19I3AC3**	DIGITAL PRINCIPLES AND COMPUTER ARCHITECTURE	5	5	40	60	100
4.	IV	**19I4AC4**	OPERATING SYSTEMS AND LINUX	5	5	40	60	100

ELECTIVES-15 CREDITS

S.NO	SEM.	SUBJECT CODE	SUBJECT TITLE	HOURS	CREDITS
1.	V	I5ME1 I5ME2	Information Storage And Management Multimedia Technologies	5	5
2.	VI	I6ME3	Cloud Computing	5	5

		I6ME4	Mobile Computing		
3.	VI	I6ME5 I6ME6	Computer Graphics Internet & E-Commerce	5	5

PART – IV – 20 CREDITS

- **VALUE EDUCATION**
- **ENVIRONMENTAL AWARENESS**
- **NON MAJOR ELECTIVE**
- **SKILL BASED COURSES**

S.No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.	I	19G1VE1	Value Education (Including Meditation in Action Movement)	1	1	40	60	100
2.		19I1NME1	Image Editing Tool	2	2	40	60	100
3.	II	19G2VE2	Value Education	1	1	40	60	100
4.		19I2NME2	Image Editing Tool	2	2	40	60	100
5.	III	19I3EN1	Environmental Education	1	1	40	60	100
6.		19I3SB1	Automation Skills	2	2	40	60	100
7.	IV	19I3EN2	Environmental Education	1	1	40	60	100
8.		19I4SB2	Analytical Skills	2	2	40	60	100
9.	V	I5SB3	Image Designing Software	2	2	25	75	100
10.		I5SB4	Web Design Using Dreamweaver	2	2	25	75	100
11.	VI	I6SB5	3D Animation Software	2	2	25	75	100
12.		I6SB6	Image Editing Software	2	2	25	75	100

PART – V – 1CREDIT

Skill Development 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I1CC1	FUNDAMENTALS OF COMPUTING	Lecture	6	4

COURSE DESCRIPTION

This course content plays a vital role in building the basic concepts in computers and the fundamental knowledge in programming.

COURSE OBJECTIVES

To impart knowledge on basic concepts in Computer and to demonstrate the fundamental programming techniques in C.

UNITS

UNIT –I INTRODUCTION TO COMPUTER SYSTEM (17 HRS.)

Characteristics of Computers, History of Computers, Computer System. Hardware & Software: Components of Hardware, Software, Features of Software, Difference between Hardware & Software, types of software and open source software. Components of Computer and their Functions: **Input Unit, Output Unit (Self Study).** Storage Unit & CPU: Primary, Secondary and CPU. Blu-Ray Technology. Digital rights management (DRM).

INTRODUCTION TO C:

Overview of C: Introduction – Importance of C – Sample C Program – Basic Structure of C Program – Programming Style – Executing a C Program. Keywords and Identifiers – Constants –Variables - Data types – Declaration of Variables- Assigning values to variables – Defining symbolic constants - Operators and Expressions

UNIT –II DECISION-MAKING STATEMENTS (17 HRS.)

Decision Making and Branching: Introduction – Decision making with IF statement- Simple IF statement- the IF-Else statement- Nesting of If-Else statement- The Else-if ladder- The switch statement- The ?: operator- **The Go to statement (Self Study).**

Decision Making and Looping: Introduction – The While statement- The Do statement – The For statement – Jumps in loops.

UNIT –III ARRAYS ,STRUCTURES & UNIONS (17 HRS.)

Arrays : Introduction – One Dimensional arrays – Two Dimensional Arrays- Initializing Two dimension Arrays – Multi Dimensional arrays

Structures & Unions : Introduction – Defining Structures- Declaring Structure Variables – Accessing Structure Members - Structure Initialization- **Unions (Self Study).**

UNIT –IV FUNCTIONS (17 HRS.)

User Defined Functions: Definitions of Functions – Return Values and their types – Function Calls –Function Declarations – Category of Functions – Nesting of Functions – Recursion- Passing Arrays to Functions – **Passing Strings to Functions (Self Study).**

UNIT –V POINTERS AND FILE MANAGEMENT (17 HRS.)

Pointers : Introduction – Accessing the Address of a Variable – Declaring pointer variable – Pointers and Arrays- Array of Pointers – Pointers as Function Arguments – Functions Returning Pointers – Pointers to Functions – **Pointers and Structures (Self Study).**

File Management in C: Introduction – Defining and Opening a file – Closing file- Input Output operations on files – Error Handling during I/O operations – Random Access to files.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Real- time Applications using C

TEXT BOOKS:

1. Norton, Peter. Introduction to computers. McGraw-Hill Education, 2006.

2. Balagurusamy, E. Programming in ANSI C , 7e. Tata McGraw-Hill Education, 2018. (Chapters: 1, 2, 3, 5, 6, 7, 9, 10, 12)

REFERENCES:

1. Byron Gottfried, "Programming with C", 2nd edition, (Indian Adapted Edition), TMH Publication.
2. Yashavant Kanetkar, "Let us C", 16th Edition, BPB publication, 2017

WEB REFERENCES:

1. C Tutorial - Learn C Programming - W3schools.in
   https://www.w3schools.in/c-tutorial.
2. C Tutorial
   https://www.tutorialspoint.com/cprogramming/index.htm

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic concepts in Computer & C Programming.	K1	PSO1& PSO2
CO 2	Identify and Apply different construct available for iteration such as 'for', 'while' and 'do-while'.	K1, K2	PSO2
CO 3	Understand various storage concepts.	K1 & K3	PSO4
CO 4	Develop C programs using functions.	K1, K2 & K3	PSO3
CO 5	Summarize the concepts of Pointers and Files.	K2 & K4	PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. V. MAGESHWARI**

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HOD'S Signature

& Name

Employability 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I1CC2	LAB I - PROGRAMMING IN C	Practical	6	3

COURSE DESCRIPTION

This course content plays a vital role in building the basic programming skill in C language.

COURSE OBJECTIVES

To develop problem solving skill by using various concepts in C language.

PROGRAM LIST

1. Program using input and output statements.
2. Program using Operators.
3. Program using Conditional Statements.
4. Program using Switch Case Statements.
5. Program using Looping Statements.
6. Programs for Array Manipulations.
7. Program using String Functions
8. Program using Functions.
9. Program using Recursion.
10. Program using Structures
11. Program using Unions.
12. String Manipulation Programs

13. Program using Pointers
14. File Manipulation Programs
15. Command line arguments

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Know the concept of Problem solving.	K2, K3	PSO1& PSO2
CO 2	Implement various concepts in C.	K2, K3	PSO2
CO 3	Apply the concepts of Functions, Structures and Unions in C program	K2, K3	PSO3
CO 4	Make use of pointers using C programs.	K2, K3	PSO3
CO 5	Apply and Use the file concepts in C programs.	K3, K4	PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. V. MAGESHWARI**

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HOD'S Signature

& Name

Skill Development 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I1ACG1	DISCRETE MATHEMATICS	Lecture	6	4

COURSE DESCRIPTION

This course content is enables students to strengthen and increase the understanding of Discrete Mathematics with special emphasis on Computer science applications.

COURSE OBJECTIVES

To impart the mathematical skill to develop logical thinking.

UNITS

UNIT –I SETS, RELATIONS (17 HRS.)

Sets – Definition- Venn Diagram- Operations on sets Properties of Relations- Inverse relation- Equivalence classes- Partition of a set- Fundamental theorem on equivalence relations- Graphs of relations and Hasse Diagram.

UNIT –II LOGIC (17 HRS.)

Connectives- Equivalence Formulas- Tautological Implication- Normal Forms- Inference Theory- Predicate Calculus-Inference theory for Predicate Calculus.

UNIT –III THEORY OF MATRICES (17 HRS.)

Matrix Inversion- System of equations- Consistency of systems of linear equations- Eigen Values- Eigen Vectors- Digitalization Process- Induction Principle- Peano's Postulates.

UNIT –IV RECURRENCE RELATIONS AND GENERATING FUNCTIONS (17 HRS.)

Polynomial expression- Sequences- Recurrence relations- Generating Functions- Properties of Generating Functions- Solution of Recurrence Relations using Generating Functions.

UNIT –V BOOLEAN ALGEBRA (17 HRS.)

Boolean Algebra- Simplification of Boolean Functions by the map method -Introduction to the Applications of Boolean Algebra to Switching Theory-Turing Machine Problem.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

TEXT BOOK:

1. V Sundaresan, K S Ganapathy Subramanian, K Ganesan, Discrete mathematics, A.R. Publications, 2002. Chapters: 1(excluding Functions), 2, 3, 6(excluding 6.1, 6.2).

REFERENCES:

1. Doerr, Alan, and Kenneth Levasseur. Applied discrete structures for computer science. Galgotia Publications, New Delhi.
2. J P Tremblay and R Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill Publishing Company Limited.

WEB REFERENCES:

1. Discrete Mathematics Tutorial

   https://www.tutorialspoint.com/discrete_mathematics/index.htm

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S	PSOs ADDRESSED

		TAXONOMY)	
CO 1	Understand the basic principles of sets and operations in sets.	K1	PSO1& PSO2
CO 2	Write arguments using logical notation.	K1, K2	PSO2 & PSO3
CO 3	Implement various concepts in theory of Matrices	K1, K3	PSO6
CO 4	Demonstrate an understanding of relations and functions and be able to determine their properties.	K1, K2 & K3	PSO2 & PSO3
CO 5	Write the diversified solutions for various recurrence relations and Boolean algebra.	K2, K4	PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. R. RAJESWARI**

Forwarded By

HOD'S Signature

& Name

Entrepreneurship 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I1NME1	IMAGE EDITING TOOL	Practical	2	2

COURSE DESCRIPTION

This course content is enables other disciplined students to strengthen and increase the understanding of basis Multimedia application software like Photoshop and Corel Draw.

COURSE OBJECTIVES

To impart, practical knowledge on various editing techniques in Photoshop and Corel draw.

UNITS

UNIT –I BASICS OF CORELDRAW (6 HRS.)

Introduction-Getting Started-Creating A New File - Title Bar-Menu Bar- Tool Bar – Work Area-Views. TEXT Introduction-Text Tool-Converting Text-Formatting Text- Webdings Changing the Alignment-Applying Effects

UNIT –II IMAGE & LAYOUT (6 HRS.)

Bitmap Images-Vector Image-Resizing-Rotating-Skewing-Moving-Cropping-Importing Images-Adding Special Effects-Converting to Bitmap-Exporting Images. PAGE LAYOUT: Changing the Page Size-Changing the Layout- Changing the Background.

UNIT –III PHOTOSHOP : SELECTION AND PAINTING TOOLS (6 HRS.)

Marquee Tool-Crop Tool-Lasso Tool-Move Tool, Rubber/clone Stamp tool- Eraser Tool-Paint Brush Tool-Art History/History Brush Tool-Text Tool.

UNIT –IV TRANSFORMATIONS (6 HRS.)

Resizing: Resizing an image- Resizing a canvas- Resizing a selection Rotating: Rotate 180 degrees and 90 degrees clockwise or counter clockwise- Rotate by degrees- Rotate a selection.

UNIT –V FILTERS (6 HRS.)

Sharpen Filters: Sharpen, Sharpen more, Blur Filters: Blur, Blur-more, Distort Filters: Pinch(Squeezing, bulging), Pixellate Filters: crystallize, Extracting an part of image from background image.

LAB EXERCISE

1. Drawing Basic Shapes
2. Text Effect
3. Effects
4. Image Editing
5. Layout and Page Size Change
6. Tools
7. Resizing Image
8. Rotating Image
9. Filters

REFERENCES:

1. Kumar Bittu, “Adobe Photoshop”, ISBN: 978-9350570166, V&S Publishers.
2. Photoshop 7 Complete reference , ISBN 978-0072223118 - Greenberg – McGraw Hill Publications.

WEB REFERNCES :

1. Photoshop Online Training

   https://www.tutorialspoint.com/photoshop_online_training/index.asp
2. https://www.entheosweb.com/tutorials/coreldraw/liquid_lext/default.asp

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE	PSOs

		LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	ADDRESSED
CO 1	Construct simple vector graphics using basic drawing elements and shape commands.	K2, K3	PSO1& PSO2
CO 2	Apply basic shape commands and image effects in processing raster format pictures	K2, K3	PSO1, PSO2 & PSO3
CO 3	Understand the basic tools for editing images.	K2, K3	PSO1& PSO2
CO 4	Develop effective graphics for both web and print media.	K2, K3	PSO1, PSO2 & PSO3
CO 5	Apply layer features and layer management techniques for creating Web pages and Invitations.	K2, K3	PSO1, PSO2 & PSO3

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

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HOD'S Signature

& Name

Skill Development 100%

I B.Sc. Information Technology

SEMESTER –II

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I2CC3	DATA STRUCTURES USING C++	Lecture	6	4

COURSE DESCRIPTION

This course introduces the basic concepts of C++. It also aims at facilitate the students to know the Data Structure concepts.

COURSE OBJECTIVES

To impart Technical and Practical knowledge in Object oriented Programming with C++ & Data Structures.

UNITS

UNIT –I OBJECT ORIENTED CONCEPTS (17 HRS.)

Classes and Objects: Specifying a class Defining Member functions- A C++ Program with Class-Making an Outside function Inline – Nesting of Member Function - Memory allocation for objects- Static Data Members & Member Functions - Array of Objects - Friendly functions- Local Classes. Constructors and Destructors: Constructors- Parameterized Constructors- Multiple Constructors in Class- **copy constructors- Dynamic Constructors (Self Study)** - Destructors.

UNIT –II OPERATOR OVERLOADING & INHERITANCE (17 HRS.)

Defining operator overloading - Overloading unary operators-Overloading binary operators-using friend function -manipulation of strings using operators-rules for overloading operators- Extending Classes: Introduction-Defining derived classes-single inheritance- Multiple Inheritance-Multilevel Inheritance-**Hierarchical inheritance-**

Hybrid Inheritance (Self Study)-Virtual Base classes- Abstract Classes- Constructor in Derived Classes- Member Classes: Nesting of Classes.

UNIT –III POINTERS, VIRTUAL FUNCTIONS & POLYMORPHISM (17 HRS.)

Pointers: Pointers to Objects – This Pointers – Pointers to Derived Class - Virtual Functions- Pure virtual function - **Virtual Constructors and Destructors (Self Study)**. DATA STRUCTURES: Introduction to Data Structures – Types of Data Structures - Data Structures Operations.

UNIT –IV LINKED LIST, STACKS & QUEUES (17 HRS.)

Linked List –Basic Concepts – Linked List Implementation – Types of Linked List- Circular Linked List – Doubly Linked List – Stack – Stack Operations – Stack Implementation – Queue – Basic Concepts –Queue Operations –Queue Implementations - Circular queues –Priority Queue – **Double Ended Queues (Self Study).**

UNIT –V TREES, GRAPH, SEARCHING AND SORTING (17 HRS.)

Trees: Basic Concepts - Binary trees – Binary Tree Representation - Binary tree Traversal - Binary Search tree – Tree Variants – Graphs - Basic Concept – Graph Terminology – Graph Implementation- Shortest Path Algorithm – **Graph Traversal (Self Study)** - Sorting Techniques – Searching Techniques

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Real- time Applications using C++

TEXT BOOK:

1. Balagurusamy, E. Object Oriented Programming and Data Structures, Tata McGraw-Hill Education, 2015. Chapters 4, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17

REFERENCES:

1. Dewhurst, Stephen C., and Kathy T. Stark. Programming in C++. Prentice-Hall, Inc., 1989.
2. Lafore, Robert. Object-oriented programming in Turbo C++. Galgotia publications, 2001.
3. Allen, Weiss Mark. Data structures and algorithm analysis in C++. Pearson Education India, 2007.

WEB REFERNCES :

1. Data Structure and Algorithms Tutorial
   https://www.tutorialspoint.com/data_structures_algorithms/index.htm
2. Introduction To Data Structure

https://www.w3schools.in/data-structures-tutorial/intro/

3. C++ Tutorial
   https://www.tutorialspoint.com/cplusplus/index.htm
4. C++ Tutorials and Resources
   https://www.w3schools.in/category/cplusplus-tutorial/

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand how to apply the major OOPs concepts to implement encapsulation, inheritance and polymorphism.	K1, K2	PSO1 & PSO2
CO 2	Implement an achievable practical application and analyze issues related to object-oriented techniques in the C++ programming language	K1, K2 & K3	PSO2 & PSO3
CO 3	Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.	K1 & K3	PSO1, PSO2 & PSO3
CO 4	Use linear and non-linear data structures like Stacks, Queues, and Linked List.	K1, K2 & K3	PSO1, PSO2 & PSO3
CO 5	Analyze various Searching and Sorting Techniques using C++.	K2 & K4	PSO5 & PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

HOD'S Signature

& Name

Employability 100%

I B.Sc. Information Technology

SEMESTER –II

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I2CC4	LAB -II - DATA STRUCTURES USING C++	Practical	6	3

COURSE DESCRIPTION

This course enables students to identify, formulate all techniques of software development in the C++ Programming Language and demonstrate these techniques.

COURSE OBJECTIVES

To give programming skills on various concepts in Data Structures using C++ programs.

PROGRAM LIST

1. Programs using operators, decision making statements and looping statements.
2. Program using Classes and Objects
3. Program using Inline Functions.
4. Program using Functions with default arguments
5. Program using Polymorphism
6. Program using Constructors
7. Program using Destructors
8. Program using Inheritance & Its types
9. Program using Operator overloading
10. Program using Friend Functions.
11. Program for Stack Implementation
12. Program for Queue Implementation
13. Program for Linked List Implementation
14. Program for Binary Tree traversal
15. Program for Searching Techniques

16. Program for Sorting Techniques

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Implement an achievable practical application on object-oriented techniques in the C++ programming language.	K2, K3	PSO1 & PSO2
CO 2	Implement linear and non-linear data structures like Stacks, Queues, linked list.	K2, K3	PSO2 & PSO3
CO 3	Demonstrate the concept of classes and their types by using C++ objects.	K2, K3	PSO3
CO 4	Apply the concept of polymorphism and inheritance in C++.	K2, K3	PSO3
CO 5	Implement practical applications by applying Searching and Sorting Techniques using C++.	K3, K4	PSO5

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

HOD'S Signature

& Name

Skill Development 100%

I B.Sc. Information Technology

SEMESTER –II

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I2ACG2	OPERATIONS RESEARCH	Lecture	5	5

COURSE DESCRIPTION

This course content helps in solving problems in different environments using Linear Programming methodologies.

COURSE OBJECTIVES

To impart the mathematical skill to develop logical thinking.

UNITS

UNIT –I LINEAR PROGRAMMING PROBLEM - MATHEMATICAL FORMULATION (17 HRS.)

Introduction - Linear Programming Problem - Mathematical Formulation of the Problem - Illustration on Mathematical Formulation of LPPs, Linear Programming Problem- Graphical Solution: Introduction - Graphical Solution Method - General Linear Programming problem.

UNIT –II LINEAR PROGRAMMING - SIMPLEX METHOD (17 HRS.)

Introduction - Fundamental Properties of Solutions - The Computational Procedure - Use of Artificial Variables - Degeneracy in Linear Programming - Solution of Simultaneous Linear Equations - Inverting a Matrix Using Simplex Method - Application of Simplex Method.

UNIT –III DUAL PROBLEM (17 HRS.)

Primal-Dual Pair in Matrix Form - Duality Theorems - Complementary Slackness Theorem - Duality and Simplex Method - Economic Interpretation of Duality - Dual Simplex Method.

UNIT –IV TRANSPORTATION PROBLEM (17 HRS.)

Introduction - LP Formulation of the Transportation Problem - Existence of Solution in T.P. - Duality in Transportation Problem - The Transportation Table - Loops in Transportation Tables - Triangular Basis in a T.P. - Solution of a Transportation Problem - Finding an Initial Basic Feasible Solution - Test for Optimality

UNIT –V ASSIGNMENT PROBLEM (17 HRS.)

Introduction - Mathematical Formulation of the Problem - Solution Methods of Assignment Problem - Special Cases in Assignment Problem - Dual of the Assignment Method – The Travelling Salesman Problem.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

TEXT BOOK:

1. Gupta, S. C., and V. K. Kapoor. "Fundamentals of Mathematical Statistics, Ninth Extensively Revised Edition, Sultan Chand & Sons." (1997). Chapter: 2, 3, 4, 5, 10, 11

REFERENCES:

1. V.Sundaresan, K.S. Ganapathy Subramanian, K. Ganesan. "Operations Research", ARS Publications, 2003.
2. Hamdy A Taha," Introduction to Operations Research", Prentice Hall India,Seventh Edition, Third Indian Reprint 2004.

WEB REFERNCES :

1. Operations Research - Suny Binghamton University

   https://www.youtube.com/playlist?list=PLgA4wLGrqI-ll9OSJmR5nU4lV4_aNTgKx

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED

CO 1	Identify and develop operational research models from the verbal description of the real system.	K1, K2	PSO1& PSO2
CO 2	Understand simplex, dual problem.	K2 & K3	PSO2
CO 3	Understand the mathematical tools that are needed to solve the optimization problems.	K2 & K3	PSO1& PSO2
CO 4	Write diversified solutions for various Transportation problems.	K2 & K3	PSO3
CO 5	Analyze assignment problems.	K3 & K4	PSO7

COURSE DESIGNER:

1. **Staff Name: MRS. H. SHANMUGA PRIYA**

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& Name

Entrepreneurship 100%

I B.Sc. Information Technology

SEMESTER –II

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I2NME2	IMAGE EDITING TOOL	Practical	2	2

COURSE DESCRIPTION

This course content is enables other disciplined students to strengthen and increase the understanding of basis Multimedia application software like Photoshop and Corel Draw.

COURSE OBJECTIVES

To impart, practical knowledge on various editing techniques in Photoshop and Corel draw.

UNITS

UNIT –I BASICS OF CORELDRAW (6 HRS.)

Introduction-Getting Started-Creating A New File - Title Bar-Menu Bar- Tool Bar – Work Area-Views. TEXT Introduction-Text Tool-Converting Text-Formatting Text- Webdings Changing the Alignment-Applying Effects

UNIT –II IMAGE & LAYOUT (6 HRS.)

Bitmap Images-Vector Image-Resizing-Rotating-Skewing-Moving-Cropping-Importing Images-Adding Special Effects-Converting to Bitmap-Exporting Images. PAGE LAYOUT: Changing the Page Size-Changing the Layout- Changing the Background.

UNIT –III PHOTOSHOP : SELECTION AND PAINTING TOOLS (6 HRS.)

Marquee Tool-Crop Tool-Lasso Tool-Move Tool, Rubber/clone Stamp tool- Eraser Tool-Paint Brush Tool-Art History/History Brush Tool-Text Tool.

UNIT –IV TRANSFORMATIONS (6 HRS.)

Resizing: Resizing an image- Resizing a canvas- Resizing a selection Rotating: Rotate 180 degrees and 90 degrees clockwise or counter clockwise- Rotate by degrees- Rotate a selection.

UNIT –V FILTERS (6 HRS.)

Sharpen Filters: Sharpen, Sharpen more, Blur Filters: Blur, Blur-more, Distort Filters: Pinch(Squeezing, bulging), Pixellate Filters: crystallize, Extracting an part of image from background image.

LAB EXERCISE

1. Drawing Basic Shapes
2. Text Effect
3. Effects
4. Image Editing
5. Layout and Page Size Change
6. Tools
7. Resizing Image
8. Rotating Image
9. Filters

REFERENCES:

1. Kumar Bittu, “Adobe Photoshop”, ISBN: 978-9350570166, V&S Publishers.
2. Photoshop 7 Complete reference , ISBN 978-0072223118 - Greenberg – McGraw Hill Publications.

WEB REFERNCES :

1. Photoshop Online Training

   https://www.tutorialspoint.com/photoshop_online_training/index.asp

3. https://www.entheosweb.com/tutorials/coreldraw/liquid_lext/default.asp

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Construct simple vector graphics using basic drawing elements and shape commands.	K2, K3	PSO1& PSO2
CO 2	Apply basic shape commands and image effects in processing raster format pictures	K2, K3	PSO1, PSO2 & PSO3
CO 3	Understand the basic tools for editing images.	K2, K3	PSO1& PSO2
CO 4	Develop effective graphics for both web and print media.	K2, K3	PSO1, PSO2 & PSO3
CO 5	Apply layer features and layer management techniques for creating Web pages and Invitations.	K2, K3	PSO1, PSO2 & PSO3

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

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& Name

Skill Development 100%

II B.Sc. Information Technology

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I3CC5	DATABASE MANAGEMENT SYSTEMS	Lecture	6	4

COURSE DESCRIPTION

This course introduces database design and creation using DBMS software. It also imparts various concepts in database management system.

COURSE OBJECTIVES

To facilitate the student to understand the various functionalities of DBMS software and perform many operations related to creating, manipulating and maintaining databases for Real-world applications.

UNITS

UNIT –I DATABASES (17 HRS.)

Purpose of database systems - View of data- Database languages – Relational Databases – Database Design - Data Storage and Querying – Transaction Management- Database Architecture - Data mining and Information Retrieval – Specialty Databases - Analysis — Database users and Administrators. Relational Model - Structure of relational databases – Database Schema – Keys – Schema Diagram – **Relational Operations (Self Study).**

UNIT –II SQL (17 HRS.)

Background – Data Definition - Basic structure of SQL Queries - Set operations - Aggregate functions - Null values -nested sub queries – Complex Queries - Views - Modifications of the database – Joins – Views - relations - Embedded SQL – Dynamic SQL – SQL Functions and **procedures (Self Study).**

UNIT –III DATABASE DESIGN (17 HRS.)

Normalization - Atomic Domains and First Normal Form –Decomposition - Functional Dependencies - Multivalued Dependencies - Normal forms

UNIT –IV RELATIONAL QUERY LANGUAGES AND E-R MODEL (17 HRS.)

Algebra - The Tuple Relational Calculus - The Domain Relational Calculus - E-R Model - Constraints - E- R Diagram - **Extended E - R Features (Self Study) .**

UNIT –V PL/SQL (17 HRS.)

Introduction - The generic PL/SQL Block - The PL/SQL execution environment – PL/SQL - Control Structure. Introduction to cursors - Cursor FOR loops. Advantages of using Procedure or Function - Procedures versus Functions - Database triggers - **Deleting a trigger (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Multidimensional databases - Mobile databases - Multimedia databases

TEXT BOOK:

1. Silberschatz, Abraham, Henry F. Korth, and S. Sudarshan. " Database System Concepts.", 6th edition, McGraw Hill Education Private Limited (2016). chapters 1, 2, 3, 4, 5, 6, 7, 8
2. Bayross, Ivan. SQL, PL/SQL: The programming language of Oracle. BPB publications, 2010. chapters 15, 16, 18

REFERENCES:

1. Leon, Alexis, and Mathews Leon. Database management systems. Vikas Publishing House Pvt. Limited, 2010.
2. Elmasri, R., &Navathe, S. B. (2011).Database systems.Boston, MA: Pearson Education.

WEB REFERNCES :

1. Dbms Tutorial: Database Management System - Javatpoint

   https://www.javatpoint.com/dbms-tutorialIntroduction To Data Structure
2. Database Management System Tutorial - Tutorialspoint

   https://www.tutorialspoint.com/dbms/index.htm

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the structure and model of the relational database system.	K1	PSO1& PSO2
CO 2	Design multiple tables and use group functions, sub queries.	K1, K2,	PSO2
CO 3	Design a database based on a data model considering the normalization to a specified level.	K1 & K3	PSO4
CO 4	Develop E- R model based tables.	K1, K2, K3 &	PSO3
CO 5	Evaluate different PL/SQL blocks.	K2 & K4	PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

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& Name

Skill Development 100%

II B.Sc. Information Technology

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I3CC6	LAB III - RDBMS	Practical	6	3

COURSE DESCRIPTION

This course gives hands on experience in relational database management system.

COURSE OBJECTIVES

To facilitate the students with hands on training on SQL to design Databases. It also gives an exposure to database design and E-R Modeling.

PROGRAM LIST

1. DDL Commands
2. DML Commands
3. DCL Commands
4. TCL Commands
5. Programs on Mathematical functions.
6. Programs on string functions.
7. Programs on Aggregate functions.
8. Programs on Date functions.
9. Program using Data Constraints like Primary Key, Foreign key, check constraints.
10. Programs on Sub queries
11. Programs on Nested queries
12. Programs on Group by and Order by
13. Implementing the concepts of Joins
14. Programs using decision making and looping statements.

15. PL/SQL program using Cursors
16. PL/SQL program using Cursors and Loops
17. PL/SQL program using triggers.
18. Programs using Forms

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain Various SQL Commands.	K2, K3	PSO1& PSO2
CO 2	Write SQL queries to user specifications.	K2, K3	PSO2
CO 3	Design database schema considering normalization and relationships within database.	K2, K3	PSO3
CO 4	Develop PL/SQL Programs.	K2, K3	PSO2 & PSO8
CO 5	Develop triggers, procedures and Cursors.	K3, K4	PSO8

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

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II B.Sc. Information Technology

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I3AC3	DIGITAL PRINCIPLES AND COMPUTER ARCHITECTURE	Lecture	6	4

COURSE DESCRIPTION

The course content plays a vital role in making the students to understand the basic digital components.

COURSE OBJECTIVES

To make the student familiar with digital logic, data representation and functional design of arithmetic and logic unit that is capable of performing arithmetic operations and floating point operations.

UNITS

UNIT –I DIGITAL LOGIC CIRCUITS (17 HRS.)

Digital Computers- Logic Gates- Boolean algebra: Complement of a Function -K-Map Simplification: Product of Sum Simplification- Don't Care Condition. Combinational Circuits: Half Adder- Full Adder. Flip- Flops: SR Flip Flop- D Flip Flop - JK Flip Flop - T Flip Flop -**Edge Triggered Flip Flops (Self Study).**

UNIT –II DATA REPRESENTATION (17 HRS.)

Data Types: Number Systems- Octal and Hexadecimal Numbers- Decimal Representation- Alphanumeric Representation. Complements:1's Complement- 2's Complement- Subtraction of Unsigned Numbers. Fixed- Point Representation: Integer Representation-Arithmetic Addition- Arithmetic Subtraction –Overflow- Decimal Fixed

Point Representation. **Floating Point Representation - Other Binary Codes (Self Study)** - Error Detection Codes.

UNIT –III DIGITAL COMPONENTS (17 HRS.)

Integrated Circuits – Decoders - Encoders – Multiplexers - Registers - Shift Register - Binary Counters.Memory Unit: Random - Access Memory - Read Only Memory - **Types of ROMs (Self Study).** General Register Organization:Control Word - Examples of Micro operations - Stack Organization- Reverse Polish Notation - Evaluation of Arithmetic Expression

UNIT –IV CENTRAL PROCESSING UNIT (17 HRS.)

Instruction formats: Three Address Instruction - Two Address Instruction – One Address Instruction- Zero Address Instructions - RISC Instruction - Addressing Modes: Types. Data Transfer and Manipulation: Data Transfer Instruction - Data Manipulation Instructions - Arithmetic Instruction –Logical and Bit Manipulation Instructions - Shift Instruction – Program Control : Program Interrupts - Types of Interrupt- Reduced Instruction Set Computer: **CISC Characteristics- RISC Characteristics (Self Study).**

UNIT –V MEMORY ORGANIZATION (17 HRS.)

Memory Hierarchy - Main Memory: RAM and ROM Chips. Auxiliary Memory: **Magnetic Disks- Magnetic Tape (Self Study)** - Associative Memory. Cache Memory: Associative Mapping - Direct Mapping – Set Associative Mapping. Virtual Memory: Address Space and Memory Space.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Recent Development computer architecture.

TEXT BOOK:

1. Mano, M. Morris. Computer system architecture. Prentice-Hall of India, 2013. Chapter 1.1 - 1.6, 3.1 - 3.6, 2.1-2.7, 8.1- 8.8, 12.1-12.6

REFERENCES:

1. Dasgupta, Subrata. Computer Architecture: A Modern Synthesis. Volume 1, Foundations. John Wiley & Sons, 1989.

2. Hwang, Kai, and Faye A. Briggs. Computer architecture and parallel processing. McGraw-Hill, 1985.

WEB REFERNCES :

1. Binary Numbers Representation - Tutorialspoint
   https://www.tutorialspoint.com/.../digital_circuits_binary_numbers_representation.htm
2. Digital Electronics and Logic Design Tutorials - Geeksforgeeks

   https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain about digital logic circuits.	K1	PSO1& PSO2
CO 2	Compute simple arithmetic operations for fixed-point and floating-point addition and subtraction.	K1, K2 & K3	PSO2
CO 3	Understand various digital components.	K1 & K3	PSO4
CO 4	Construct an instruction set capable of performing a specified set of operations.	K3	PSO3 & PSO6
CO 5	Demonstrate a memory system for a given set of specifications.	K3 & K4	PSO6

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

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II B.Sc. Information Technology

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I3SB1	SKILLL BASED – AUTOMATION SKILLS	Practical	2	2

COURSE DESCRIPTION

This course trains students how to use MS Office applications use in office work such as creating professional-quality documents, store, organize and analyze information, arithmetic operations, functions and create dynamic slide presentations with animation, narration, images, and much more, digitally and effectively.

COURSE OBJECTIVES

To impart knowledge on various concepts in MS Word, Excel, PowerPoint & Publisher.

UNITS

UNIT –I WORD (6 HRS.)

Windows Basics – Introduction to word – Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

UNIT –II EXCEL (6 HRS.)

Introduction to worksheet – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

UNIT –III ADVANCED FEATURES IN EXCEL (6 HRS.)

Creating charts – Naming ranges and using statistical, math and financial functions, in a worksheet – Additional formatting commands and toolbar – other commands & functions.

UNIT –IV POWERPOINT (6 HRS.)

Overview of Power point – presenting shows for corporate and commercial using Power point

UNIT –V ADVANCED FEATURES OF POWER POINT (6 HRS.)

Formatting text and objects to customize the look of publication- Add, Resize, Rotate, and Group objects- Creation of Product Catalogue- Create bookmarks and hyperlinks.

PROGRAM LIST

MS-WORD

1. **Text Manipulation:** Writing a paragraph about the institution and Change the font size and type, Spell check, Aligning and justification of Text
2. **Bio data:** Preparing Bio-data.
3. **Find and Replace:** Writing a paragraph about individual and do the following. Find and Replace, Use Numbering Bullets, Footer and Headers.
4. **Tables and manipulation:** Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.
5. **Mail Merge:** Prepare an invitation to invite friends for birthday party. Prepare at least five letters.

MS-EXCEL

1. Data sorting-Ascending and Descending (both numbers and alphabets)
2. Mark list preparation for a student
3. Individual Pay Bill preparation.
4. Invoice Report preparation.
5. Drawing Graphs. Take your own table.

MS-POWERPOINT

1. Create a slide show presentation for a seminar.
2. Preparation of Organization Charts
3. Create a slide show presentation to display percentage of marks in each semester for all students
4. Use bar chart(X-axis: Semester, Y-axis: % marks).

5. Use different presentation template different transition effect for each slide.

REFERENCES:

1. Holden, Greg. Microsoft Office 2007 in Simple Steps. Prentice Hall Press, 2009.

WEB REFERNCES :

1. Free Microsoft Office Tutorials At Gcfglobal
   https://edu.gcfglobal.org/en/subjects/office/

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Use Word to prepare organizational documents.	K2, K3	PSO1, PSO2 & PSO3
CO 2	Design financial & other business applications requiring mathematical calculations using spread sheet software.	K2, K3	PSO1, PSO2 & PSO3
CO 3	Develop various charts--pie, bar, line, column, & area using spread sheet software.	K2, K3	PSO1, PSO2 & PSO3
CO 4	Create Dynamic presentations with animation.	K2, K3	PSO1, PSO2 & PSO3
CO 5	Demonstrate presentations with narration and images.	K3, K4	PSO1, PSO2, PSO3 & PSO7

COURSE DESIGNER:

1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

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Skill Development 100%

II B.Sc. Information Technology

SEMESTER –IV

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I4CC7	PROGRAMMING IN JAVA	Lecture	6	4

COURSE DESCRIPTION

This course enable the students to build object oriented java programs using the concept of abstraction, encapsulation, exception handling, packages, interfaces, threads and AWT controls. It also imparts the ability to develop projects in java with JDBC connectivity.

COURSE OBJECTIVES

To acquaint the students with various techniques of Java Programming and help them to create effective programs in this language.

UNITS

UNIT –I CLASSES & OBJECTS (17 HRS.)

Class fundamentals-Declaring objects-Assigning object reference variables-introducing methods-Constructors-this keyword-finalize() method-overloading methods-using object as parameters-Argument passing- returning object-Recursion- Nested &Inner Classes.

Inheritance & Polymorphism: Inheritance-using super-**Method overriding (Self Study).**

UNIT –II PACKAGES , INTERFACE & EXCEPTION HANDLING (17 HRS.)

Packages – Access Protection- Importing Packages-Interfaces. Exception :Exception Handling Function-Exception types-**Uncaught exception (Self Study)**-using try & catch.

UNIT –III MULTITHREADING PROGRAMMING (17 HRS.)

Life cycle of thread-Creating & Running Threads-Methods in thread classes.

java. lang PACKAGES: Type wrapper-The number class- the byte, short, integer and Long classes- the float and Double classes-The character class- The Boolean class- the process class- the runtime class- The system class – the object class- the math class- **the string class- string Buffer class (Self Study)**.

APPLET: The Life cycle of Applet- The Applet class- Development and Execution of as simple Applet- Syntax of Applet tag.

UNIT –IV ABSTRACT WINDOW TOOLKIT - I (17 HRS.)

Events-Listeners-Event Handling Methods-Labels-Button Control-Checkbox Control-radio button control-Choice control-List control-Scrollbars-Flow Layout- **Border Layout (Self Study).**

ABSTRACT WINDOW TOOLKIT - II: Windows & frames-Menus-Dialogs-Mouse Events and their Listener-Adapter Classes- Inner classes-Anonymous Inner classes.

SWING: JApplet class-Icons-JLabel Control-JTextfield Control-JButton Control-JCheckbox Control-JRadioButton Control-Menus-JSlider Control-JComboBoxConrol-JgtabbedPane Control-JScrollPane Control-**Tables (Self Study)**.

UNIT –V JAVA DATABASE CONNECTIVITY (17 HRS.)

Establishing a Connection-Creation of Data Tables-Entering Data into the tables _ Table Updating-Use of Prepared Statement- Obtaining Metadata-Using Transaction-Scrollable Result sets-**Stored Procedure (Self Study). SERVLETS:** Servlet and Dynamic Webpages- Life cycle of a servlet- A simple servlet

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Latest Trends in Java Technologies (Angular, React)

TEXT BOOK:

1. Schildt, Herbert. "Java: the complete reference." (2017). Chapters: 6, 7, 8, 9, 10, 11
2. Muthu, C. "Programming with JAVA." Vijay Nicole Imprints, Chennai (2004). Chapters: 25, 8, 16, 9, 10, 11, 18, 19

REFERENCES:

1. Horstmann, Cay S., and Gary Cornell. Core Java: Advanced Features. Vol. 2. Pearson Education, 2013.
2. Naughton, Patrick, and Herbert Schildt. "The complete reference java 2." (2003).
3. Arnold, Ken, et al. The Java programming language. Vol. 2. Reading: Addison-wesley, 2000.

WEB REFERNCES :

1. Java Tutorial
   https://www.tutorialspoint.com/java/
2. Java Tutorial For Beginners: Learn in 7 Days
   https://www.guru99.com/java-tutorial.html

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the concepts of Object-Oriented Programming & Java Programming Constructs.	K1 & K2	PSO1& PSO2
CO 2	Understand basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords.	K1 & K2	PSO1, PSO2 & PSO3
CO 3	Understand the concept of exception handling and Input/output operations.	K1 & K2	PSO1& PSO2
CO 4	Design Java & Java applet based applications.	K2 & K3	PSO6
CO 5	Analyze & Design the concept of Event Handling and Abstract Window Toolkit.	K3 & K4	PSO3 & PSO8

COURSE DESIGNER:

1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

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II B.Sc. Information Technology

SEMESTER –IV

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I4CC8	LAB – IV- PROGRAMMING IN JAVA	Practical	6	3

COURSE DESCRIPTION

This course gives hands on experience, practices the concepts of java programming language, and develops solutions for real world problems.

COURSE OBJECTIVES

To give programming skills on various concepts in JAVA.

PROGRAM LIST

1. Programs using Operator, Assignment Operator, Increment& Decrement Operator, Logical Operator and Bitwise Operator.
2. Programs Using IF, Conditional Operator, Array, While Loop, For Loop, Switch& Break and Continue.
3. Programs using the concept Overloading.
4. Programs using the concept Inheritance and Constructor
5. Programs using the concept Interface and Overriding .
6. Programs using the concept Built-in and User defined Exception Handling and Threads.
7. Programs using the concept Threads.
8. Programs using the concept String Handling.
9. Programs using the concept Packages

10. Programs for creating Applet.

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Implement Object Oriented programming concept using operators and control Structures.	K2, K3	PSO1& PSO2
CO 2	Design java programs using inheritance, interfaces and packages.	K2, K3	PSO1, PSO2 & PSO3
CO 3	Implement exception handling mechanism and multithreading concept.	K2, K3	PSO1, PSO2 & PSO3
CO 4	Design Java applet based applications.	K2, K3	PSO6 & PSO8
CO 5	Design applications to Handle Events using AWT components.	K3, K4	PSO6 & PSO8

COURSE DESIGNER:

1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

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HOD'S Signature

& Name

Skill Development 100%

II B.Sc. Information Technology

SEMESTER – IV

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I4AC4	OPERATING SYSTEMS AND LINUX	Lecture	6	4

COURSE DESCRIPTION

This course content plays a vital role in making the students to understand the basic operating system concept.

COURSE OBJECTIVES

To introduce basic concepts and principles of operating systems, which include memory management, process management, file management.

UNITS

UNIT –I OPERATING SYSTEM OVERVIEW (17 HRS.)

Operating System Overview: Operating System Objectives and **Functions (Self Study)**, the Evolution of Operating System, Major Achievements. Processes: Process, Process states- Two state, Five State, Suspended Process.

UNIT –II CONCURRENCY (17 HRS.)

Concurrency: Principles of Concurrency, Mutual Exclusion – Hardware Support, Semaphores, Monitors, Message Passing. **Deadlock: Principles of Deadlock (Self Study)**, Deadlock Prevention, Deadlock Detection, Deadlock Avoidance.

UNIT –III MEMORY MANAGEMENT & SCHEDULING (17 HRS.)

Memory Management: Memory Management Requirements, Memory Partitioning, Paging, Segmentation. **Uni-processor Scheduling**: Types of Processors Scheduling,

Scheduling Algorithm, Scheduling Criteria, FIFO, Round Robin, Shortest Process Next, **Shortest Remaining Time (Self Study)**, Highest Response Ratio.

UNIT –IV I/O MANAGEMENT AND DISK SCHEDULING (17 HRS.)

I/O Management and Disk Scheduling: I/O devices, Organization of the I/O Function, I/O Buffering, Disk Scheduling. **File Management:** Overview, File Organization and Access, File Directories, **File Sharing (Self Study)**.

UNIT –V LINUX FILE STRUCTURE, SHELL & FILE MANAGEMENT OPERATIONS (17 HRS.)

The Shell: The Command Line, Command Line Editing, Filename Expansion: *, ?, [ ], Standard Input/output and Redirection, Pipes |,Redirecting and Piping the Standard Error: >&, 2>. Jobs: Background, Kills, and Interruptions. **Linux Files, Directories:** The File Structure, Listing, Displaying, and Printing Files: ls, cat, more, less, and lpr, Managing Directories: mkdir, rmdir, ls, cd, and pwd, File and **Directory Operations: find, cp, mv, rm, and ln (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Recent advancements in Operating System (Ubuntu, MAC OS, Apple iOS, Android OS)

TEXT BOOK:

1. Stallings, William. Operating systems: internals and design principles. Boston: Prentice Hall, 7th edition, 2014. Chapters: 1.1-1.3, 2.1-2.2, 4.1-4.5, 5.1 - 5.4, 6.1 - 6.4, 8.1-8.2, 10.1 -10.5, 11.1 - 11.6
2. Petersen, Richard. Linux: the complete reference. McGraw-Hill Professional, 6th edition, 2000. Chapter 3, 6

REFERENCES:

1. Deitel, Harvey M., Paul J. Deitel, and David R. Choffnes. Operating systems. Pearson/Prentice Hall, 2008.
2. Madnick, Stuart E., and John J. Donovan. Operating Systems: Instructor's Manual to Accompany Operating Systems. Erg. Bd. McGraw-Hill, 2007.

WEB REFERNCES :

1. Operating System Tutorial - Tutorialspoint
   https://www.tutorialspoint.com/operating_system/index.htm
2. Learn Operating System (os) Tutorial - Javatpoint
   https://www.javatpoint.com/os-tutorial
3. Operating System Tutorial | Studytonight

https://www.studytonight.com/operating-system

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe the evolution, types, structure and functions of operating systems.	K1 & K2	PSO1& PSO2
CO 2	Explain techniques involved in concurrency and deadlock.	K1 & K2	PSO1
CO 3	Describe memory management and processor scheduling used in operating systems.	K1 & K2	PSO4
CO 4	Implement disk scheduling algorithm for a given scenario.	K1, K2 & K3	PSO3 & PSO4
CO 5	Execute Linux basic commands and shell scripts.	K3 & K4	PSO7 & PSO8

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

HOD'S Signature

& Name

Employability 100%

II B.Sc. Information Technology

SEMESTER – IV

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I4SB2	SKILL BASED – ANALYTICAL SKILLS	Lecture	2	2

COURSE DESCRIPTION

This course content plays a vital role for clearing any competitive exam and it covers all the Quantitative Aptitude topics and an in-depth understanding of this subject.

COURSE OBJECTIVES

To prepare the student with the range of skills which facilitate them to enhance their employability quotient and do well in the professional space.

UNITS

UNIT –I QUANTITATIVE APTITUDE – I (6 HRS.)

Different Number System, More on Numbers, Ratio and Proportion, Percentage, Approximate Value Calculation.

UNIT –II QUANTITATIVE APTITUDE – II (6 HRS.)

Mixtures, Averages, Time and Distance, Problems Based on Trains, Rowing Downstream and Upstream.

UNIT –III QUANTITATIVE APTITUDE – III (6 HRS.)

Pipes and Cistern, Races, Games, Time and Work, Clocks, Mensuration Area and Volume.

UNIT –IV VERBAL REASONING- I (6 HRS.)

SERIES: Locating Wrong Number, Probability, Data Interpretation, Data Sufficiency Series Completion, Analogy, Classification, Coding – Decoding, Blood Relations, Puzzle Test.

UNIT –V VERBAL REASONING- II (6 HRS.)

Direction Sense Test, Alphabetical Quibble, Number, Ranking & time, Sequence test, Mathematical Operations, Logical Sequence of Words, Arithmetical Reasoning.

REFERENCES:

1. Aggarwal, R. S. Quantitative Aptitude. S. Chand, 2017.

WEB REFERNCES :

1. Quantitative Aptitude Tutorial - Tutorialspoint
   https://www.tutorialspoint.com/quantitative_aptitude/index.htm
2. Aptitude Tutorial - Students Tutorial
   https://www.studentstutorial.com/aptitude/aptitude-tutorial.php/aptitude-tutorial.php

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the short cut methods.	K1 & K2	PSO1& PSO3
CO 2	Apply general mathematical techniques.	K2 & K3	PSO1& PSO3
CO 3	Develop their critical thinking.	K2 & K3	PSO1& PSO3
CO 4	Recall the formulas.	K1 & K2	PSO1& PSO2
CO 5	Solve the sums by applying shortcut methods with time management.	K2 & K3	PSO8

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

HOD'S Signature

& Name

Skill Development 100%

III B.Sc IT SEMESTER – V

WEB TECHNOLOGY

I5CC11

HOURS/WEEK : 4 **CREDITS: 4**

Objective:

To impart knowledge on various concepts in internet , HTML ,DHTML ,cascading style sheets, JSP & ASP

UNIT -1: INTRODUCTION TO INTERNET **[15 hrs]**

Internet- History of the internet- Internet services and accessibility – uses of the internet – protocols- web concepts – the client/server model of the web-retrieving data from the web-how web works-web browsers-searching information on the web-internet standards.

Internet protocols: introduction-internet protocols-IP-TCP-UDP-host names-internet applications and application protocols –datagram vs stream – TFTP-FTP-TELNET-HTTP-email protocols-SMTP-POP-IMAP.

UNIT-2: HTML ,DHTML & CSS **[15 hrs]**

Introduction-SGML- DTD-DTD elements-attributes-outline of an html document-head section- prologue-link-base-meta-script-style-body section-headers-paragraphs-text formatting-linking- internal linking-embedding images – lists-tables-frames-other special tags and characters-html forms. Introduction-Cascading style sheets-coding CSS-properties of tags-property values-other style properties-inline style sheets- embedded style sheets-external style sheets-grouping- inheritance –class as selector-id as selector-contextual selectors-pseudo classes and pseudo- elements-positioning-backgrounds-element dimensions-dhtml document object model and collections-using collections all- moving objects around the document-event handling-assigning event handlers-event bubbling-filters and transitions-filters-transitions-data binding-using tabular data control-sorting data-dynamic sorting –filtering.

UNIT-3: JAVASCRIPT **[15 hrs]**

Need of Script Language- **Language Elements**-Identifiers-Expressions-Java script

Keywords- Operators-Statements- Functions-**Objects of Java script**- The Window Object- The Document Object- Forms Object- Text boxes and ext areas-Buttons, radio-buttons and check boxes- the select Object-**Other objects**- The Date object- The Math Object- The String Object- Regular Expressions-Arrays-Worked Examples.

UNIT-4: JAVA SERVER PAGES [JSP] [15 hrs]

Introduction-advantages of JSP-developing first JSP-components of JSP-directives-JSP declaratives-scriplets-expressions-standard action-custom tags-reading request information- retrieving the data posted from a html file to jsp file-jsp sessions-cookies-cookie class-examples regarding the use of cookies-disabling sessions.

UNIT -5: ACTIVE SERVER PAGES [ASP] [15 hrs]

Introduction-advantages of using asp-first asp script-processing of asp scripts with forms- variables and constructs-subroutines-include/virtual-asp cookies-creating a cookie-retrieving a cookie value-a cookie with keys-reading cookies-ASP objects- response object-request object- application objects-session objects-server objects-the asp error object-Connecting to data with ASP-ODBC-DSN-ODBC-DSN-less-OLE DB-retrieving data from the table-Inserting data into the table.

Self Study : HTML tags- ASP Cookies

TEXT BOOK:

Web Technology- Second Edition - N.P. Gopalan, J. Akilandeswari- PHI Learing Private ltd.

Chapters : 1,2,4,6,7,11,12

Unit I - Chapters 1,2

Unit II - Chapters 4,7

Unit III- Chapter 5 **Unit**

IV - Chapter 11 **Unit V-**

Chapter 12

REFERENCE BOOKS:

1. Web Programming – Building internet applications- Chris Batos.
2. Internet an Web design – Ramesh Bangia
3. Dnamic Html – Bruce Campbell, Rick Darnell

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Employability 100%

III B.Sc IT SEMESTER – V

LAB V- WEB TECHNOLOGY LAB

I5CC12

HOURS/WEEK : 4 **CREDITS: 4**

Objective:

To give programming skills on various concepts in Web Technology

1. **HTML Programs**
   a. Web page designing with heading, font, <HR> and marquee tags
   b. Web page designing to demonstrate link between different documents, link within same document
   c. Web page designing using <a> tag with target attribute.
   d. Web page designing using table tag
   e. Web page designing using forms and list tags
   f. Web page designing with text fields, radio button and combo box.
   g. Image map for given image.

2. **Java Script**
   a. Performing simple calculations
   b. Working with strings
   c. Working with numbers
   d. Working with date and time
   e. Working with arrays
   f. Working with conditional statements & loops like IF..THEN..ELSE, select..case etc.

3. **ASP**
   a. To display date and time
   b. Usage of METHOD & ACTION attribute in form tag
   c. Using request object
   d. Using response object
   e. Working with server object

4. **ASP.NET**
   a. Create Simple application using web controls
   b. Write a program working with forms using ASP.NET.
   c. Write a program to display three images in a line. When any one of the images is clicked, it must be displayed below. On clicking the displayed image it must be cleared.
   d. Write a program to display the feedback form.
   e. Create a web page for online test

Inserting record into a database & Deleting record into a database

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Skill Development 100%

III B.Sc IT SEMESTER V

DATA COMMUNICATION & NETWORKING

I5CC13

HOURS/WEEK : 5 **CREDITS: 4**

Objective:

To impart knowledge on data communication and networking and estimation of the running time.

UNIT-1:INTRODUCTION **[15 Hrs]**

Data communications-components-data representation-data flow. **Networks**-distributed Processing-Network criteria-Physical structures-Network Models-Categories of Networks- Interconnection of Networks; Internetwork.**osi model:** Layered Architecture-Peer-to-peer Processes-Encapsulation. **Layers in the osi model:** Physical layer-Data Link Layer-Network Layer-transport layer-Session Layer-Presentation layer-Application Layer-Summary of layers.**TCP/IP Protocol Suite:** Physical and Data link layer-Network layer-transport Layer- Application Layers. **Addressing:** physical Addresses-Logical Addresses-Port Addresses-Specific Addresses.

UNIT-2:SWITCHING **[15 Hrs]**

Transmission Media-Guided Media-Twisted pair cable-Coaxial Cable-Fiber-optic cable **unguided media: wireless-**Radio waves-microwaves-Infrared.

Circuit Switched Networks-Three Phases-Efficiency-Delay-Circuit-Switched Technology in Telephone Networks-Datagram Networks-Routing Table-Efficiency-Delay-Datagram Networks in the Internet-Virtual-Circuit Networks-Addressing-Three Phases-Efficiency-Delay in Virtual- Circuit Networks- Circuit-Switched Technology in WANs.

DATALINK CONTROL: Framing-Fixed Size Framing-Variable-Size framing. Flow and error control- **Protocols:** Point-to-point protocol-framing-Transition Phases-Multiplexing-Multilink PPP.

UNIT-3: NETWORK LAYER: INTERNET PROTOCOL **[15 Hrs]**

INTERNETWORKING-need for Network Layer-internet As a Datagram Network-Internet as a Connectionless Network.IPv4-Dtagram-IPv6-Advantages-Packet format-Extension Headers. Transition from IPv4 To IPv6-Dual Stack-Tunneling-Header Translation. NETWORK LAYER:DELIVERY,FORWARDING AND ROUTING-Delivery-direct versus Indirect delivery-Forwarding- Forwarding Techniques-Forwarding Process-Routing Table. Unicast Routing Protocols-Optimization-Intra- and Inter domain Routing-Distance Vector routing

UNIT-4: TRANSPORT LAYER [15 Hrs]

PROCESS-TO-PROCESS DELIVERY-client/Server paradigm-Multiplexing and Demultiplexing-Connectionless versus Connection-oriented Service-Reliable versus unreliable- Three Protocols. User Datagram Protocol-Well-Known ports of UDP-User datagram-checksum- UDP operation-Use of UDP.TCP-TCP Services-TCP features-Segment-A TCP connection-.SCTP-SCTP Services-SCTP Features-Packet format

UNIT-5:APPLICATION LAYER [15 Hrs]

Name space-Flat Name Space-Hierarchical space-domain Name space-Label-domain Name- Domain-distribution of Name space-Hierarchy of name Servers-Zone-Root Server-Primary and secondary servers-DNS in the Internet-generic domains-Country Domains-Inverse domain-DNS Messages-Header. REMOTE LOGGING,ELECTRONIC MAIL,AND FILE TRANSFER-

Remote Logging-Telnet-Electronic Mail-Architecture-User Agent-Message Transfer Agent-PoP and IMAP-Web-Based Mail-File Transfer Protocol-Anonymous FTP

Self Study: SCTP Features-Packet format-ELECTRONIC MAIL,AND FILE TRANSFER

TEXT BOOK

Data Communications and Networking.Fourth Edition,Behrouz A Forouzan,The McGraw- Hill Companies.

Unit-I: Chapters: 1(page no 3-22),2(page no 27-50),3(page no 57-74),7(page no191-207) Unit-II: Chapters: 8(page no213-232),11(page no307-311,346-355)

Unit-III: Chapters: 19(549-568),20(579-604),22(page no647-684)

Unit-IV: Chapters: 23(703-753)

Unit-V: Chapters: 25(page no797-808),26(page no817-844)

REFERENCES

- Computer networks, Andrew S.Tanenbaum,Fourth edition,The Prantice hall.
- Data Communication And Networking, Dr. M.Jain, Sathish Jain,

  BPB Publications, Updated Edition
- Computer Network And Communication, V.K. Jain & Naveen Bajaj , Cyber Tech

Publications

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Skill Development 100%

III B.Sc. IT V SEMESTER

I5CC14 – DATA MINING CONCEPTS

(For those who join in 2017 onwards)

HRS/WEEK: 5 **CREDITS: 4**

Objective: This course aims at facilitating the student to understand the concepts of Data Mining

UNIT I: INTRODUCTION TO DATA MINING & APPLICATIONS [15 HRS]

Introduction: Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications – Major Issues in Data Mining.

UNIT II: DATA PREPROCESSING [15 HRS]

Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Reduction – Data Transformation and Data Discretization.

UNIT III: DATA MINING TECHNIQUES 15 HRS]

Data Mining Techniques: Mining Frequent Patterns - Association Rule Mining – The Apriori Algorithm – FP Growth - Correlation Analysis.

UNIT IV: CLASSIFICATION [15 HRS]

Classification: Classification – Decision Tree induction - Constructing decision tree – ID3 algorithm – Pruning – Bayesian Classification – Rule Based Classification.

UNIT V:CLUSTERING & ADVNCED MINING CONCEPTS [15 HRS]

Clustering: Cluster Analysis – Clustering Methods – Partitioning Methods - Hierarchical Methods – Density Based Methods – Outlier Analysis – **Introduction to Advanced Topics**: Web Mining , Text Mining, Mining Multimedia Data and Mining data Streams.

Self-Study: Introduction to Advanced Topics

TEXT BOOK:

1. Data Mining Concepts and Techniques- 3rd Edition. Authors: Jiawei Han, MichelineKamper, Morgan Kaufmann Publisher. Reprinted in 2016.

Unit-I **:** Chapters: 1, Chapter 13.3

Unit-II **:** Chapters: 3

Unit-III : Chapters: 6 (*page no 243-259*), (*page no 264-267*)

Unit-IV : Chapters: 8.1-8.4

Unit-V : Chapters: 10.1 – 10.4.12.1, 13.1.3

REFERENCE BOOKS:

1) ArunK.Pujari, "Data Mining Techniques", 3rdedition , Universities Press, 2015.
2) Pieter Adriaans, DolfZantinge "Data Mining", Pearson Education
3) K.P.Soman,ShyamDiwakar, V.Ajay, "Insight into Data Mining – Theory and Practice",Prentice Hall of India, 2009.

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Skill Development 100%

III B.Sc. IT V SEMESTER

I5CC15 – SOFTWARE ENGINEERING

(For those who join in 2015 onwards)

HRS/WEEK: 4 **CREDITS: 4**

Objective: To provide a framework of knowledge and guidelines for instituting and understanding the software engineering technology.

UNIT I: INTRODUCTION & PLANNING **[15 HRS]**

Introduction to Software Engineering: Some Definitions – Some Size factors – Quality and Productivity Factors – Managerial Issues. **Planning a Software Project:** Defining the Problem

– Developing a Solution Strategy – Planning the Development Process – Planning an Organizational Structure – Other Planning Activities.

UNIT II: SOFTWARE COST ESTIMATION **[15 HRS]**

Software Cost Estimation: Software Cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Maintenance Costs.

UNIT III: SOFTWARE REQUIREMENTS **[15 HRS]**

Software Requirements Definitions: The Software Requirements Specification – Formal Specification Techniques – Languages and Processors for Requirements Specification.

UNIT IV: SOFTWARE DESIGN **[15 HRS]**

Software Design: Fundamental Design Concepts – Modules and Modularization Criteria – Design Notations – Design Techniques – Detailed Design Considerations – Real-Time and Distributed System Design – Test Plans – Milestones, Walkthroughs, and Inspections - Design Guidelines.

UNIT V:VERIFICATION, VALIDATION & MAINTENANCE **[15 HRS]**

Verification and Validation Techniques: Quality Assurance – Static Analysis – Symbolic Execution – Unit Testing and Debugging – System Testing – Formal Verification.

Software Maintenance: Enhancing Maintainability During Development – Managerial Aspects of Software Maintenance – Configuration Management – Source-Code Metrics – Other Maintenance Tools and Techniques.

Self-Study: Maintenance Tools and Techniques

TEXT BOOK:

1) SOFTWARE ENGINEERING CONCEPTS – RICHARD FAIRLEY – Tata McGraw - Hill Publishing Company Limited, NewDelhi 1997.

Unit – I : Chapters 1, 2

Unit – II : 3

Unit – III : 4

Unit – IV : 5

Unit – V 8.1 – 8.7, 9.1 - 9.5

REFERENCE BOOKS:

1. SOFTWARE ENGINEERING – K. L. JAMES, Prentice Hall of India Pvt. Ltd. , New Delhi – 2009
2. FUNDAMENTALS OF SOFTWARE ENGINEERING – RAJIB MALL, Prentice Hall of India Pvt. Ltd. , New Delhi – 2003

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Skill Development 100%

III B.Sc. IT
V SEMESTER
I5ME1 – INFORMATION STORAGE AND MANAGEMENT
(For those who join in 2017 onwards)

HRS/WEEK: 4 **CREDITS: 4**

Objective: To know the Key challenges in Managing Information and Storage Network Technologies.

UNIT I: STORAGE SYSYEM **[15 HRS]**

Introduction to Information Storage and Management: Information storage – Evolution of Storage Technology Architecture – Data Center Infrastructure – Key Challenges in Managing Information – Information Lifecycle. **Storage System Environment:** Components of a Storage System Environment

UNIT II: DATA PROTECTION **[15 HRS]**

RAID : Implementation of RAID – RAID Array Components - RAID Levels. Intelligent Storage System: Components of an Intelligent Storage System – Intelligent Storage Array – High end Storage System – Mid Range Storage System

UNIT III: STORAGE NETWORKING TECHNOLOGIES & AREA **[15 HRS]**

Direct –Attached Storage: Types of DAS – DAS Benefits & Limitations – Fibre Channel: Overview - The SAN and Its Evolution – Components of SAN –Network Attached Storage: General Purpose Servers Vs NAS Devices – Benefits of NAS – NAS File I/O – Components of NAS.

UNIT IV: BACKUP & RECOVERY **[15 HRS]**

Backup Purpose – Backup Considerations – Backup Granularity - Recovery Considerations – Backup Methods – Backup Process – Backup and Restore Operations – Backup Topologies

UNIT V: STORAGE SECURITY & MANAGEMENT **[15 HRS]**

Securing the Storage Infrastructure: Storage Security Framework - Risk Triad- Storage Security Domains- **Managing the Storage infrastructure:** Monitoring the Storage Infrastructure.

Self Study: Backup technologies – Monitoring the storage infrastructure

TEXT BOOK:

Information Storage and Management – G.Somasundaram, Alok Shrivastava, EM

C Education Services, Wiley Publishing

Chapters : 1,2.1, 3.1-3.3, 4.1,4.2, 5.1,5.2,6.1-6.3,7.1-7.4, 12.1-12.8, 15.1,15.2,16.1

REFERENCE BOOKS:

1. Robert Spalding, “Storage Networks ” The Complete Reference, Tata McGraw Hill, 2003
2. Marc Fairley, “Building Storage Networks”, Tata McGraw Hill, 2001
3. E-Source: www.emc.com/resource library/resource-library.esp

Skill Development 100%

III. B. Sc IT SEMESTER V ELECTIVE II

MULTIMEDIA TECHNOLOGIES I5ME2

HOURS/WEEK : 5 **CREDITS : 4**

Objectives : To make the students know the trendy Multimedia technologies

Unit -1: INTRODUCTION TO MULTIMEDIA **[15 Hrs]**

Multimedia introduction-multimedia market-Content and copyrights-Resources for multimedia developers. **Products and Evaluation**: Types of products-Evaluation.

Unit-2: HARDWARE, OPERATING SYSTEMS AND SOFTWARE: **[15 Hrs]**

Computer Architecture-Computer Architecture standards-Operating systems and software- Multimedia computer Architecture-Software executables and Libraries-Software drivers.

Text: Elements of text-Text data files-Using text in multimedia Applications-Hypertext.

Unit-3: GRAPHICS: **[15 Hrs]**

Elements of graphics-Images and color-Graphics file and application formats-Obtaining images for multimedia use-Using graphics in multimedia applications.

Digital audio: Characteristics of sound and digital audio-Digital audio systems-MIDI-Audio file formats-Using audio in Multimedia applications-Using audio to enhance other contents-Audio for content delivery.

Unit-4: DIGITAL VIDEO AND ANIMATION: **[15 Hrs]**

Background on video-Characteristics of Digital video-Digital video data sizing-Video capture and playback systems-Computer animations-Using digital video in multimedia applications.

Unit-5: MULTIMEDIA AND THE INTERNET: **[15 Hrs]**

The internet-HTML and web authoring-Multimedia considerations for the Internet-Design considerations for the Web pages.

Self Study : MIDI- Design considerations for the web pages.

TEXT BOOK:

Multimedia Technology and Applications by David Hillman, Galgotia Publication Pvt Ltd.

Chapters:

Unit I: Chapter 1,2
Unit II: Chapter 3,4

Unit III: Chapter 5,6

Unit IV: Chapter 7

Unit V: Chapter 10

REFERENCE BOOK:

1. Principles of Multimedia - Ranjan Parekh - TMGH, New Delhi - Twelfth Reprint,
2. Fundamental of Multimedia - Ze-Nian Li & M. S. Drew

Employability 100%

III. B.Sc IT SEMESTER-V

IMAGE DESIGINING SOFTWARE

I5SB3

HOURS/WEEK: 2 **CREDITS : 2**

Objectives :

To introduce the concept of Vector based Drawing

Unit -1: BASICS OF CORELDRAW **[6 Hrs]**

Introduction-Getting Started-Creating A New File - Title Bar-Menu Bar- Tool Bar - Work Area-Views.

Unit -2: WORKING WITH LINES & OBJECTS **[6 Hrs]**

Lines-Straight Lines-Continuing a Line-View Mode- Selecting Objects- Rotating An Object-Fill -Positioning.

Unit -3: TEXT **[6 Hrs]**

Introduction-Text Tool-Converting Text-Formatting Text-Changing the Font Size-Decorating the Text-Webdings-Changing the Alignment-Applying Effects

Unit -4: IMAGE **[6 Hrs]**

Bitmap Images-Vector Image-Resizing-Rotating-Skewing-Moving-Cropping-Importing Images-Adding Special Effects-Converting to Bitmap-Exporting Images.

Unit -5: PAGE LAYOUT **[6 Hrs]**

Changing the Page Size-Changing the Layout-Applying Styles-Applying Bitmaps to the Background - Changing the Background-Adding a Page Frame-Moving Between Pages.

TEXT BOOKS :

CorelDRAW X4, Author: Kogent Solutions Inc.

E-REFERENCE:

Spoken Tutorial - Inkscape

Employability 100%

III.B.Sc IT SEMESTER V SKILL BASED

I5SB4 - WEB DESIGN USING DREAMWEAVER

HOURS/WEEK : 2 **CREDITS : 2**

Course Outcomes: This experiential learning will let the students to create a trendy commercial websites.

UNIT – I **[6HRS]**

Customizing the workspace – Switching and Splitting Views – Working with Panels – Selecting a workspace Layout - Adjusting toolbars – HTML in Dreamweaver – CSS in Dreamweaver

UNIT – II **[6 HRS]**

Defining a Site – Saving a Page – Inserting Text – Adjusting Fonts, colors and Sizes – Previewing a Page

UNIT – III **[6 HRS]**

Adding Background image to the header - Inserting components – Inserting Image Placeholder – Modifying Footer, Working with Cascading Style Sheets.

UNIT-IV **[6 HRS]**

Working with Templates - Working with Text, Lists, and Tables – Working with Images - Working with Navigation

NIT-V **[6 HRS]**

Working with Forms - Specifying a form action - Emailing form data - Styling forms Adding Interactivity - Previewing a completed file

TEXT BOOK:

"First Lessons in Dreamweaver CS6 " - by LP Editorial Board. Lawpoint Publications

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Skill Development 100%

III B.Sc. IT VI SEMESTER
.NET PROGRAMMING I6CC16-
(For those who join in 2017 onwards)

HRS/WEEK: 5 **CREDITS: 4**

Objective: To impart the knowledge of .NET Programming.

UNIT I: INTRODUCTION TO .NET **[15HRS]**

.Net framework overview - Common type system - Common intermediate language – Namespace - Languages in .Net - C# - Encapsulation – Polymorphism – Interfaces –XML - ADO.NET. **OurFirst VB.Net Program**: The solution explorer window - Class view window – Toolbox - Output Window- Task list Window. **DataTypes and Operators:** Literals – Variables - Data types - Declaration of Variables – Constants – Statements – Operators – Keywords – Comments - Scope of Variables - Console application in VB.Net.

UNIT II: CONTROL STATEMENTS **[15HRS]**

If Statement – Looping - Select Case- Go To statement- Intrinsic Control list- form control- Events- label- Textbox- Group box- check box- radio button- Scroll bar- Ctype- Track bar- Timer- Picture box- Working with mouse input- Link Label- Date time Picker- Month Calendar. **Arrays:** One dimensional Array- Array Initialization- Redim Statement- Multi dimensional Array- Array of array- List box control- Checked list box control- Combo Box control.

UNIT III: PROCEDURES & STRUCTURES [15HRS]

Subroutine procedures- Functions- Value returned by its function name- the return statement- Calling a function- Call by reference- Functions with arrays- Functions with Param arrays- Function Overloading- Sub Procedure- Structure- Functions inside the Structure- Nested Structures- Message box functions- Input box function.**Creating Menus and using Dialog boxes:** Menu- MDI form- Context Menu- Rich Text box- Color Dialog control- Font Dialog control.

UNIT IV: DATA ACCESS WITH ADO.NET [15 HRS]

What is database? - What is Relational database- Table Creation- Record insertion- Displaying data- Deleting Data- Modifying Data- Drop Table- Special

Features of ADO.NET- Difference between ADO & ADO.NET- Connections- Commands- Data Reader- Data Set- Using Data

Grid- Using Data Adapter configuration wizard- XML &ADO.NET- XML document to ADO.NET data- Filtering data using Data View- Complex data binding- Command parameters property- Using stored procedures with a command.

UNIT V:WEB APPLICATION WITH VB.NET & ASP.NET [15HRS]

Our first web application- Server controls- Validation Summary Control- ADO.NET& Data Binding. **Advanced Controls and Making Reports in VB.NET:** Tab Control- Toolbar Control- Error Provider Control- Tree View Control- Creating a user control in VB.NET- Adding a user control in VB.NET- Making Reports in VB.NET.

Self-Study: Creating Menus and using Dialog boxes

TEXT BOOKS :

1) VB.NET by P.Radhaganesan, Scitech Publications, Chennai.

Unit I: Chapters 1, 2, 3

Unit II: Chapters 4, 5

Unit III: Chapters 6, 7 Unit

IV: Chapter 10 Unit V:

Chapter 11, 13

REFERENCE BOOK:

1. Visual Basic .Net Programming Black Book by STEVEN HOLZNER, Dreamtech Press
2. Visual Basic 6 from the Ground Up by *Gary Cornell,Osborne Mcgraw Hill.*
3. Greg Buczek, "ASP .NET Developer's Guide", Tata McGraw – Hill.
4. Programming VB .NET: A Guide for Experienced Programmers Gary Cornell and Jonathan Morrison

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III B.Sc IT SEMESTER VI

LAB VI - .NET PROGRAMMING LAB I6CC17

HOURS/WEEK : 4 **CREDITS : 4**

VB.NET PROGRAMMING

1. Accept a character from console and check the case of the character.
2. Write a program to accept any character from keyboard and display whether it is vowel or not.
3. Write a VB.Net program to accept a string and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a calculator with memory and recall operations.
6. Develop a form in VB.NET to pick a date from Calendar control and display the day, month, and year details in separate text boxes.
7. Develop a VB.Net application to perform timer based quiz of 10 questions.
8. Develop a VB.Net application using the File and Directory controls to implement a common dialog box.
9. Develop a database application to store the details of students using ADO.NET
10. Develop a database application using ADO.NET to insert, modify, update and delete operations.
11. Develop a VB.Net application using Datagrid to display records.
12. Develop a VB.Net application using Datagrid to add, edit and modify records.

ASP.NET and XML PROGRAMMING

1. Create a simple ASP.NET page to Output Text with a form, two HTML text boxes, an HTML button, and an HTML element. Create an event procedure for the button.
2. Create a web application in ASP.NET using three different controls to the ASP.NET page for reserving rooms in hotel. The three controls are a button control, a label control, and a drop-down list control.
3. Create a application for Accessing a SQL Database by Using ADO.NET by connecting to the SQL Server database and call a stored procedure. You then display the data in a Repeater control.
4. Develop a web application to read the details of the selected country stored in XML database and display back to the user using Web controls
5. Develop a web application to read an XML document containing subject, mark scored, year of passing into a Dataset

Skill Development 100%

III B.Sc IT SEMESTER VI

INFORMATION SECURITY I6CC18

HOURS/WEEK: 5 **CREDITS : 4**

Objective:

To provide a framework of knowledge related to mechanisms that makes Information secured over communication channels.

UNIT-1 : INTRODUCTION **[15 Hrs]**

Introduction Attacks, Services And Mechanisms: Security Attacks – Security Services – A Model For Internetwork Security.

Conventional Encryption and Message Confidentiality**:** Conventional Encryption Principles – Conventional Encryption Algorithms – Cipher Block Modes Of Operation - Location Of Encryption Devices –Key Distribution.

UNIT-2 : CRYPTOGRAPHY **[15Hrs]**

Public Key Cryptography and Message Authentication **:** Approaches to Message Authentication – Secure Hash Function and HMAC – Public Key Cryptography Principles – Public Key Cryptography Algorithms – Digital Signatures – Key Management.

UNIT-3 : EMAIL SECURITY **[15Hrs]**

Electronic Mail Security**:** Pretty Good Privacy – Cryptography keys and key Rings - Public key Management – S/MIME - RFC822 - Multipurpose Internet Mail extensions.

UNIT-4 : WEB SECURITY **[15Hrs]**

Web Security*:* Web Security Requirements – Secure Socket Layer and Transport Layer Security – Secure Electronic Transaction.

UNIT-5: VIRUSES AND FIREWALLS **[15 Hrs]**

Intruders and Viruses*:* Intruders – Intrusion techniques – Password protection – Password selection strategies- Intrusion Detection - Viruses and Related Threats- Malicious Programs- The Nature of Viruses- Types of Viruses - Macro Viruses – Anti virus Approaches

– Advanced Antivirus Techniques..

Firewalls**:** Firewall Design Principles- Firewall Characteristics – Types of Firewalls – Firewall Configurations – Trusted Systems – Data Access Control – The Concept of Trusted Systems – Trojan Horse Defense

Self Study : Advanced Antivirus Techniques - Trojan Horse Defense

TEXT BOOK :

Network Security Essentials – Applications and Standards - William Stallings

Chapters : 1, 2, 3, 5, 7, 9, 10

Unit I – Chapters 1, 2

Unit II- Chapter 3 Unit

III – Chapters 5 Unit IV-

Chapter 7 Unit V-

Chapters 9, 10

REFERENCE BOOKS :

1) Cryptography and Network Security – Principles and Practices 2nd Edition - William Stallings

2) Internet Cryptography - Richard E. Simth

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Skill Development 100%

III B.Sc IT SEMESTER – II
ELECTIVE –II - CLOUD COMPUTING
I6ME3

HOURS/WEEK: 4 **CREDITS : 4**

To give an introduction to cloud computing and its technologies

UNIT-1: INTRODUCTION TO CLOUD COMPUTING [15Hrs]

Cloud Computing in a Nutshell-Roots of Cloud Computing-Layers and Types of Cloud- Desired Features of Cloud-Cloud Infrastructure Management-Infrastructures as as service Provider- Platform as a Service Provider.

UNIT-2:ENRICHING THE INTEGRATION AS A SERVICE PARADIGM [15 Hrs]

Migration into a Cloud: Introduction: Broad Approaches to Migrating inti cloud-The seven step Model of Migration into a cloud. the Evolution of SaaS-The challenges of SaaS Paradigm- Approaching the SaaS Integration Enigma-New integration Scenarios-The integration Methodologies-SaaS integration Products and platforms- SaaS integration Services-Business – to- Business integration Services-A frame work of Sensor- Cloud integration- SaaS Integration Appliances.

UNIT-3: INFRASTRUCTURE AS A SERVICE(IAAS): [15 Hrs]

Virtual Machines Provisioning and Migration Services: Introduction and Inspiration- Background and related works-Virtual Machines provisioning and Manageability-Virtual Machine Migration Services- VM Provisioning and Migration in Action- Provisioning in the cloud Context- Future Research Directions

UNIT-4: PLATFORM AND SOFTWARE AS A SERVICE(PAAS/SAAS): [15 Hrs]

Introduction: Technologies and Tools for cloud Computing-Aneka Cloud Platform-Aneka resource Provisioning-Hybrid Cloud Implementation Visionary thoughts for practitioners **UNIT-5 : Data Security in Cloud: [15 Hrs]**

An Introduction to the idea of data security-The current state of data security in the cloud- Homo sapiens and Digital Information- Cloud computing and data security risk-Cloud computing and identity-The cloud, Digital identity and data security.

Self Study: Provisioning in the cloud Context- Digital identity and data security.

TEXT BOOK:

"Cloud Computing Principles and Paradigms"- Rajkumar Buyya, James Broberg, Andrzej Goscinski. Wiley India Pvt ., Ltd.,

Chapters: 1,2,3,5,9,1015,18

Unit I- Chapters 1
Unit II – Chapters 2,3.3-
3.12 Unit III – Chapters 5
Unit IV – Chapters9
Unit V – Chapter 23

REFERENCE BOOK:

Cloud Computing Explained: Implementation Handbook for Enterprises, John Rhoton,Amazon.com.

Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide (David S. Linthicum)

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Skill Development 100%

III B.Sc IT SEMESTER VI

ELECTIVE II- MOBILE COMPUTING I6ME4

HOURS/WEEK :5 **CREDITS :4**

Objective:

- To learn the basics of Wireless voice and data communications technologies.
- To build working knowledge on various telephone and satellite networks.

UNIT -1: MOBILE COMMUNICATIONS: AN OVERVIEW: [15 Hrs]

Mobile Communication

Guided Transmission-unguided transmission- Modulation Methods and standards for voice oriented data communication standards- Modulation Methods and Standards for data and voice Communication.

Mobile Computing: Novel Applications- Limitations of Mobile Computing

Mobile Computing Architecture: Programming Languages- functions of Operating Systems – functions of Middle ware for Mobile systems- mobile computing Architecture Layers- protocols-Layers.

Mobile Devices: Handheld Mobile smart phones with Multimedia functionalities- Smartcards- Smart sensors

UNIT-2 : MOBILE DEVICES AND SYSTEMS : [15 Hrs]

Cellular Networks and Frequency Reuse: cellular Networks for Mobile Smartphones- Frequency Reuse in Networks- Capacity Enhancement in Networks.

Mobile Smartphones, Smart Mobiles and Systems: Smartphone features- Digital Music Players- Bluetooth and Wi-Fi- GPS-Gyroscope and Accelerometer- Digital Compass and magnetometer- camera- 2D and 3D Graphics and HDMI- Hand held Pocket Computers.

Smart Systems: Smart Cards- Smart Labels- RFID- Smart Tokens- Sensors- Actuators-Sensors and Actuators for Robotic Systems- Smart Appliances- Set- top Boxes.

Limitations of Mobile Devices: Quality and Security of Service- Hardware Limitations- Automotive systems

UNIT-3 : GSM AND OTHER 2G ARCHITECTURES: [15 Hrs]

GSM –services and system architectures-Radio interfaces of GSM: Space Division Multiple
Access-Time Division Multiple Access- Frequency division Multiple Access-Format of Data Burst- Traffic and control Data Channels- Control data channels.

Protocols of GSM: Mobile station- Base Transceiver Signalling Protocols- Base Transciver Base station controller signaling Protocols- Base Station controller-Mobile Service Switching centre Signalling Protocols-Localization--security-DECT

UNIT-4: WIRELESS MEDIUM ACCESS CONTROL, CDMA,3G ND 4G COMMUNICATION: [15 Hrs]

Mobile Satellite Communication Networks: Basic Parameters – configuration – Capacity Allocation- Integration of GEO, LEO and MEO Satellite and Terrestrial Mobile Systems- Personal Satellite Communication Program –Inmart, Iridium, MSAT, VSAT,DBS and Orbcumm Satellite Service.

Mobile IP network Layer: IP and mobile IP network layers, packet delivery and handover management, location management- registration- tunneling and encapsulation-rout optimization-dynamic host configuration protocol

UNIT-5: MOBILE TRANSPORT LAYER: [15 Hrs]

Conventional TCP/IP Transport Layer Protocols- Indirect TCP- Snooping TCP-Mobile TCP- other Methods of Mobile TCP-layers Transmission- TCP over 2.5G/3G Mobile Networks.

Mobile application Languages-XML, java,j2ME and javacard: Introduction-XML,Java, J2ME, java card

Self Study: Mobile application Languages

TEXT BOOK:

Mobile Computing-Raj Kamal-published by Oxford Higher Education-2008

REFERENCE BOOKS:

1. Wireless communications and networking-william stallings-pearson Education Asia-2002
2. Wireless communications principles and practice-second edition-Theodore S. Rappaport- Eastern economy edition-PHI learning Pvt limited-2009
3. Wireless digital communications modulation & spread

spectrum applications- Dr.Kamilo Feher- Eastern economy edition- PHI learning pvt limited-2007

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Skill Development 100%

III B.Sc. IT VI SEMESTER ELECTIVE III
I6ME5 –COMPUTER GRAPHICS
(For those who join in 2017 onwards)

HRS/WEEK: 4 **CREDITS: 4**

Objective: Aims at providing an introduction to Graphics and Image Processing

UNIT I: A SURVEY ON COMPUTER GRAPHICS **[15 Hrs]**

Computer Aided Design-Presentation Graphics – Computer art – Entertainment – Education and Training – Visualization – Image Processing-Graphical User Interfaces. **Overview of Graphics Systems:** Video display devices - Input devices.

UNIT II: OUTPUT PRIMITIVES **[15 Hrs]**

Points and lines – Line drawing algorithms - Circle generation algorithm **Two dimensional geometric transformations:** Basic transformation – Matrix representation - Composite transformation – Other transformation.

UNIT III: TWO DIMENSIONAL VIEWING **[15 Hrs]**

The viewing pipeline – Viewing coordinate reference frame - Window-to-viewport coordinate transformation – two dimensional viewing functions – Clipping operations – Point clipping – Line clipping – polygon clipping - Curve clipping – Text clipping – Exterior clipping.

UNIT IV: DIGITAL IMAGE PROCESSING **[15 Hrs]**

Definition - Fundamental Steps in Digital Image Processing-Components of an Image Processing System. **Digital Image Fundamentals:** A Simple image Formation model - **Image Sampling and Quantization:** Basic Concepts in Sampling and Quantization - Representing Digital Images - Spatial and Gray-Level Resolution. **Some Basic Relationships between Pixels:** Adjacency, Connectivity, Regions, and Boundaries, Distance Measures, Image Operations on a Pixel Basis.

UNIT V:INTENSITY TRANSFORMATIONS AND SPATIAL FILTERING **[15 Hrs]**

Background-Some Basic Intensity Transformation Functions: Image Negative, Log Transformation, Power- Law (Gamma) Transformation, and Piecewise – Linear

Transformation Function. **Histogram Processing:** Histogram Equalization, Histogram Matching, Spatial

Correlation and Convolution, Vector Representation of Linear Filtering, Generating Spatial Filter Masks, **Smoothing Spatial Filters:** Smoothing Linear Filters, Order Statistic Filters.

Self-Study: Smoothing Filters

TEXT BOOK:

1. Computer Graphics C Version, 2ndSecond Edition, Authors: Donald D.Hearn and Pauline Baker.M, Reprinted 2016.

Unit-I: Chapters: 1.1- 1.8, 2.1 – 2.5

Unit-II: Chapters: 3.1-3.2 (*page no 104-114*), 3.5 (*page no 117- 121*), 5.1-5.4 (*page no 204- 223*).

Unit-III: Chapters: 6.1 – 6.11 (*page no 237- 265*).

2. Digital Image Processing- 3rdEdition, Authors: Rafael.C.Gonzalez and Richard E.Woods, Reprinted 2016.

Unit-IV: Chapters: 1.1 (*page no 1-3*), 1.4 -1.5 (*page no 25- 30*), 2.3.4 (*page no 50- 52)*, 2.4 -2.5 (*page no 52- 71*).

Unit-V: Chapters: 3.1- 3.2 (*page no 105- 119*), 3.3, 3.3.1, 3.3.2 (*page no 120-137*), 3.4 – 3.5 (*page no 144-156*).

REFERENCE BOOKS:

3. Computer Graphics Principles and Practice -James D.Foley, Andriew Van Dam, Steven K.Feiner and John F.Hughes.
4. Computer Graphics – Schaum's Outline Series.
5. "Image Processing - The fundamentals" by Maria Petrou.

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Skill Development 100%

III B.Sc IT SEMESTER VI ELECTIVE III
INTERNET & E-COMMERCE I6ME6

HOURS/WEEK :5 **CREDITS : 4**

Objective:

To impart the knowledge about both internet and e-commerce.

UNIT-1: INTERNET CONNECTION CONCEPTS [15 Hrs]

Internet-computers on the internet-servers, clients and ports-The domain name system and DNS servers-Internet services-types of Accounts-Telephone, cable and satellite connections- Choosing an ISP-TCP/IP and connection software

E-mail concepts

Getting of E-Mail-E-mail addressing-Downloading E-mail-E0-mail Netiquette-Using smileys, Emotions and abbreviations-Formatted E-mail-signature and stationery-E-mail attachments- Web based email-Mail away from home-Common E-mail error messages.

Basic E-mail commands : Netscape messenger-Pine

UNIT -2: ONLINE CHATTING AND CONFERENCING CONCEPTS [15 Hrs]

Online chatting and conferencing concepts-Forms of chat and Conferencing-chat working

Other types of chat

Web-based chat-direct chat systems-MUDs, MOOs, and MUSHes

Voice and Video Conferencing

Voice and Video Conferencing-Define Voice and Video Conferencing-gathering your equipment- Conferencing is more than talking and seeing- Conferencing using NetMeeting- Getting together using Conference-voice Conferencing and video Conferencing with CU-See Me-summary of Conferencing applications

UNIT-3: INTRODUCTION TO E-COMMERCE [15 Hrs]

Welcome to Electronic Commerce: Electronic commerce Framework – Electronic Commerce and Media Convergence – The Anatomy of E-commerce- Electronic Commerce Consumer Applications

Electronic Commerce and World Wide Web: Architectural Framework for Electronic Commerce – World Wide Web as the Architecture – Web Background:

Hypertext Publishing – Technology behind the web.

UNIT-4: ELECTRONIC PAYMENT SYSTEMS : [15 Hrs]

Types of Electronic Payment Systems – Digital Token-Based Electronic Payment Systems – Smart Cards and Electronic Payment Systems – Credit Card-Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems

UNIT-5: INTER ORGANIZATIONAL COMMERCE AND EDI: [15 Hrs]

Electronic Data Interchange – EDI Applications in Business – EDI: Legal, Security, and Privacy Issues – EDI and Electronic Commerce

Self Study: Designing Electronic Payment Systems - EDI and Electronic Commerce

TEXT BOOKS

1. Internet Millennium Edition-The complete Reference-Margaret Levine Young
2. Frontiers of Electronic Commerce – Ravi Kalkota – Andrew B.Whinston - 1996 Pearson Education, Inc.

UNIT I: Chapters 1, 5 from Book1

UNIT II: Chapters 11, 16, 17 from Book1

UNIT III : Chapters 1.1- 1.4, 6.1 – 6.4 from Book2

UNIT IV : Chapters 8.1-8.6 from Book2

UNIT V: Chapters 9.1 – 9.4 from Book2

REFERENCE BOOKS:

1. Electronic Commerce – Kamelesh K.Bajaj, Debjani Nag - McGraw Publication, Second Edition
2. Introduction to E-Commerce – Jeffrey F.RayPort, Bernard. J. Jaworski – Tata McGraw Publication, Second Edition
3. Internet and Web technology – RajaKamal - Tata McGraw Publication.

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Entrepreneurship 100%

III B.Sc IT

SEMESTER VI

3D ANIMATION SOFTWARE

I6SB5

HOURS/WEEK: 2 **CREDITS : 2**

Objectives :

To introduce the concept of 3D animation software

UNIT -1: EXPLORING THE INTERFACE: [6 Hrs]

Introduction to Alice - download and install Alice 3.1-A brief tour of the Alice 3 IDE -A brief tour of the Menu Bar- Set Preferences -Touring the Gallery

UNIT-2: SETTING THE SCENE [6 Hrs]

Adding an object to a scene- set object properties in the Scene editor- set special effects in a scene-Marking - position and resize an object in the Scene editor- Positioning sub-parts in Scene editor- align objects using a Snap grid- Cut, Copy, and Paste with the Clipboard

UNIT -3: LEARNING TO PROGRAM THROUGH ALICE [6 Hrs]

Sequential & Parallel Execution - Do in order - Do together- Further nesting- Branching & Looping-Conditional execution-Relational Operators-Randomness-Repetition-While loops- Lists

UNIT-4: EVENT HANDLING AND METHODS: [6 Hrs]

Interactive programming & event handling - Control of flow- Events- Event handing methods.

UNIT -5: 3D TEXT AND BILLBOARDS, SOUND: [6 Hrs]

Create 3D Text- Billboards- Creating a Sound- Adding a Sound - Posting on YouTube

TEXT BOOKS :

"IntroductiontoProgrammingwithGreenfoot",byMichealKolling

WEBSITE :

http://www.alice.org/3.1/materials_videos.php

Employability 100%

III B.Sc IT

SEMESTER VI

IMAGE EDITING SOFTWARE

I6SB6

HOURS/WEEK: 2 **CREDITS : 2**

Objectives

To introduce the editing techniques in Photoshop 7.0

Unit-1 - INTRODUCTION TO ADOBE PHOTOSHOP [6 Hrs]

About Photoshop - Navigating Photoshop - Menus and panels - Opening new files Opening existing files

Unit-2 : GETTING STARTED WITH PHOTOSHOP [6 Hrs]

Exploring the Toolbox - The New CS4 Applications Bar & the Options Bar -Exploring Panels & Menus - Creating & Viewing a New Document - Customizing the Interface - Setting Preferences

Unit-3 : FILTERS [6 Hrs]

Sharpen Filters: Sharpen, Sharpen more, Blur Filters: Blur, Blur-more, Distort Filters: Pinch(Squeezing, bulging)- Pixellate Filters: crystallize, Extracting an part of image from background image.

Unit-4:GETTING STARTED WITH LAYERS [6 Hrs]

Understanding the Background Layer- Creating, Selecting, Linking & Deleting Layers- Locking & Merging Layers- Copying Layers, Using Perspective & Layer Styles- Filling & Grouping Layers- Introduction to Blending Modes- Blending Modes, Opacity & Fill- Creating & Modifying Text

Unit -5: PHOTO RETOUCHING [6 Hrs]

The Red Eye Tool- The Clone Stamp Tool- The Patch Tool & the Healing Brush Tool The Spot Healing Brush Tool- The Color Replacement Tool- The Toning & Focus Tools Painting with History

TEXT BOOKS

- Photoshop 6 Complete reference - Greenberg – McGraw Hill Publications.
- Page Maker Complete reference - Greenberg– McGraw Hill Publications

Signature of the HOD
Head of the Department
Department of Information Technology,
Fatima College (Autonomous), Madurai.