DEPARTMENT OF COMPUTER SCIENCE

YADAVA COLLEGE (AUTONOMOUS)

(Re – Accredited with "A" Grade by NAAC)

MADURAI -14

Under Graduate Course

Choice Based Credits System Syllabus

(2018 onwards)

DEPARTMENT OF COMPUTER SCIENCE
YADAVA COLLEGE (AUTONOMOUS)
(Re – Accredited with "A" Grade by NAAC)

CHOICE BASED CREDITS SYSTEM SYLLABUS PLAN (2018 onwards)

UNDER GRADUATE PROGRAMME

Semester	Part Code	Subject Code	Title of the Paper	Teaching	
				Hours	Credits
I	I		Tamil	5	3
	II		English	5	3
	III Core papers		Digital Principles and Computer Organization	4	3
			Programming in C	4	3
	Allied Paper		Statistics	4	5
	Core Lab I		Practical I- Programming in C Lab	2	1
	Core Lab II		Practical II - Visual Basic Lab	2	1
	IV ENS		Environmental Studies	2	2
	IV SBE		Skill Based Elective	2	2
II	I		Tamil	5	3
	II		English	5	3
	III Core Papers		Operating System Concepts	4	3
			Object Oriented Programming with C++	4	3
	Allied Paper		Discrete Mathematics	4	5
	Core Lab1		Practical III- C++ Programming Lab	2	1
	Core Lab2		Practical IV –Linux Lab	2	1
	IV VAE		Value Education	2	2
	IV SBE		Skill Based Elective	2	2
III	I		Tamil	5	3
	II		English	5	3
	III Core Papers		Data Structures	4	3
			Programming in .Net	4	3
	Allied Paper		Numerical Methods	4	5
	Core Lab 1		Practical V- Data Structure Implementation in C++	2	1
	Core Lab 2		Practical VI – .Net Technologies Lab	2	1

	IV NME		Non-Major Elective **(Web Technologies)**	2	2
	IV SBE		Skill Based Elective	2	2

Semester	**Part Code**	**Subject Code**	**Title of the Paper**	**Teaching**	
				Hours	**Credits**
IV	**I**		Tamil	5	3
	II		English	5	3
	III Core Papers		Data Base Management System	4	3
			Java Programming	4	3
	Allied Paper		Operation Research	4	5
	Core Lab1		Practical –VII Oracle Programming Lab	2	1
	Core Lab2		Practical – VIII Java Programming Lab	2	1
	IV NME		Non-Major Elective **(Oracle)**	2	2
	IV SBE		Skill Based Elective	2	2
V	**III Core Papers**		Computer Networks	5	5
			Web Technologies	4	3
			J2EE	5	3
	Core Lab1		Practical IX – Multimedia Lab	5	3
	Core Lab2		Practical – X Web Technologies Lab	5	3
	Elective I		Multimedia	4	4
	IV SBE		Skill Based Elective	2	2
VI	**III Core Papers**		PHP **(Hyper Text Preprocessor)**	5	3
			Python and R Programming	5	4
			Software Engineering	5	4
	Core Lab1		Practical XI – PHP **(Hyper Text Pre Processor)** Lab	4	3
	Core Lab2		Practical XII – Python and R Programming Lab	4	3
	Elective II		Mobile Computing	5	5
	IV SBE		Skill Based Elective	2	2
	V		PE/NCC/NSS/EXT	--	1

Total				**180**	**140**

Department of Computer Science

Yadava College (Autonomous)

(Re – Accredited with "A" Grade by NAAC)

CHOICE BASED CREDITS SYSTEM SYLLABUS PLAN (2018 onwards)

Under Graduate Programme

Part	**No.of.Papers**	**Hours**	**Credits**
I	4	20	12
II	4	20	12
III Core Papers	Digital Principles and Computer Organization	4	3
	Programming in C	4	3
	Operating System Concepts	4	3
	Object Oriented Programming with C++	4	3
	Data Structures	4	3
	Programming in .NET	4	3
	Data Base Management System	4	3
	Java Programming	4	3
	Computer Networks	5	5
	Web Technologies	4	3
	J2EE	5	3
	PHP **(Hyper Text Pre Processor)**	5	3
	Python and R Programming	5	4
	Software Engineering	5	4
Core Lab	Programming in C lab	2	1
	Visual Basic Lab	2	1
	C++ Programming Lab	2	1
	Linux Lab	2	1
	Data Structure Implementation in C++	2	1
	.Net Technologies Lab	2	1

	Oracle Programming Lab	2	1
	Java Programming Lab	2	1
	Multimedia Lab	5	3
	Web Technologies Lab	5	3
	PHP **(Hyper Text Pre Processor)** Lab	4	3
	Python and R Programming Lab	4	3
Elective I	Multimedia	4	4
Elective II	Mobile Computing	5	5
Allied Papers	Statistics	4	5
	Discrete Mathematics	4	5
	Numerical Methods	4	5
	Operation Research	4	5
IV	ENS	2	2
	SBE	12	12
	VAE	2	2
	NME	4	4
V	PE/NCC/NSS/EXT	--	1

YADAVA COLLEGE (AUTONOMOUS) MADURAI – 14

BLUE PRINT OF THE CHOICE BASED CREDITS SYSTEM DISTRIBUTION OF NUMBER OF PAPERS (NO), HOURS (HR), AND CREDITS (CR)

UG COURSE

B.Sc COMPUTER SCIENCE

bject		**Semester I**			**Semester II**			**Semester III**			**Semester IV**			**Semester V**			**Semester VI**			**Total Credits**
		No	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	
rt I	Tamil	1	5	3	1	5	3	1	5	3	1	5	3	--	--	--	--	--	--	**12**
rt II	English	1	5	3	1	5	3	1	5	3	1	5	3	--	--	--	--	--	--	**12**
rt III	Core	2	12	8	2	12	8	2	12	8	2	12	8	3	24	17	3	23	17	**66**

	Allied I	1	4	5	1	4	5	1	4	5	1	4	5	--	--	--	--	--	--	**20**
	Project/ Elective/ Allied	--	--	--	--	--	--	--	--	--	--	--	--	1	4	4	1	5	5	**09**
rt IV	ENS	1	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**02**
	VAE	--	--	--	1	2	2	--	--	--	--	--	--	--	--	--	--	--	--	**02**
	NME	--	--	--	--	--	--	1	2	2	1	2	2	--	--	--	--	--	--	**04**
	SBE	1	2	2	1	2	2	1	2	2	1	2	2	1	2	2	1	2	2	**12**
rt V	PE/NCC/ NSS/ EXT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	**01**
tal Papers and ours per Semester		--	30	--	--	30	--	--	30	--	--	30	--	--	30	--	--	30	--	**140**
lf Study Paper tra Credits		--	--	--	--	--	--	--	--	3	--	--	3	--	--	3	--	--	3	**12**
tal																				**152**

CORE PAPER I

DIGITAL PRINCIPLES and COMPUTER ORGANIZATION

Semester : I **Hours of Teaching : 4**

Subject Code : **Credits : 3**

UNIT I

Number system – Excess – 3 – Code - Gray code - Transistor Inverter - Logic Gates -

Boolean algebra – k-map Simplifications.

UNIT II

Multiplexers - De-multiplexers – Encoders – Decoders – Flip - Flops - JK Flip Flop - RS Flip Flop - T Flip Flop - D Flip Flop - Shift Registers - Serial In Serial Out - Serial In Parallel Out - Parallel In Serial Out - Parallel In Parallel Out.

UNIT III

Functional Units - Basic Operational Concepts - Bus Structures – Software – Performance - Stack and Queue.

UNIT IV

Addressing Modes - Fetching a word from memory - Execution of a complete instruction - Hardwired control - Micro Programmed Control - DMA.

UNIT V

Introduction to microprocessor: Architecture of Microprocessor - Evolution of Microprocessors - 8085 Microprocessor Programming Model - 8085 Instruction Set - 8085 Pin Function - 8085 Architecture.

Text book(s)

1. "Digital circuits and design" **S.Salivahanan& S.Arivazhagan Vikas publications.**
2. "Computer organization" **V. carl hamacher, Zvonko G.vranesic, Sawat G.Zaky, TMH publications.**
3. "Microprocessor Architecture programming and applications with 8085" **Ramesh Gaonkar PRI publications.**

Reference book(s)

1. "Digital Principles & Applications" **Albert dave marvinot & Donald p.leach, TMH publications.**
2. "Computer Organization and Architecture" **William Stalling, PHI publications.**

1. "**Digital circuits and design**" S.Salivahanan & S.Arivazhagan Vikas publications.

UNIT I: Chapter 1.1, 1.9, 3.3, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.1.7
UNIT II: Chapter 6.2, 6.4, 6.5, 6.7, 7.2, 7.6, 7.3, 7.5, 7.7, 9.2, 9.2.1
9.2.2, 9.2.3, 9.2.5, 9.2.7

2. **"**Computer organization**" V. Carl Hamacher, Zvonko G.vranesic, Sawat G.Zaky,TMH publications.**

UNIT III: Chapter 1.2, 1.3, 1.4, 1.5, 1.6, 2.8
UNIT IV: Chapter 2.5, 7.1.3, 7.2, 7.4, 7.5, 4.4

1.

3. **"**Microprocessor Architecture programming and applications with 8085**" Ramesh Gaonkar PRI publications.**

UNIT V: Chapter 1.1, 2.1.2, 2.2, 4.1.1, 4.1.5

PAPER II
PROGRAMMING IN C

Semester	**: I**	**Hours of Teaching**	**: 4**
Subject Code	**:**	**Credits**	**: 3**

UNIT I

Overview of C: History of C - Importance of C - Basic Structures of C Programs - Programming Style.

Constants, Variables and Data Types: Character Set - C Tokens - Keywords and Identifiers – Constants – Variables - Data Types - Declaration of Variables - Defining Symbolic Constants.

Operators and Expressions: Arithmetic Operators - Relational Operators - Logical Operators - Assignment Operators - Increment and Decrement Operators - Conditional Operator - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions - Precedence of Arithmetic Operators - Type conversions in Expressions - Operator Precedence and Associativity - Mathematical Functions.

UNIT II

Managing Input and Output Operations: Reading a Character - Writing a Character - Formatted Input - Formatted Output.

Decision Making and Branching: Decision Making with If Statement - Simple If Statement - The If…Else Statement - Nesting of If…Else Statements - The Else…If Ladder - The Switch Statement – The ?: operator.

Decision Making and Looping: The While Statement - The Do Statement - The For Statement - Jumps in Loops.

UNIT III

Arrays: One-Dimensional Arrays - Two Dimensional Arrays - Initializing Two Dimensional Arrays - Multidimensional Arrays.

User– Defined Functions: Need for User-Defined Functions - A Multi-Function Program - Return Values and their Types - Functions Calls - Category of Functions - No Arguments and No Return Values - Arguments but No Return Values - Arguments with Return values - Nesting of Functions – Recursion-Passing Arrays to Functions - The Scope, Visibility and Lifetime of Variables.

UNIT IV

Structures and Unions: Defining a Structure - Declaring Structure Variables - Structure Initialization – Copying and Comparing Structure variables - Arrays of Structures - Arrays within Structures - Structures within Structures – Structures and Functions – Unions - Size of Structures - Bit Fields.

Pointers: Understanding Pointers - Accessing the Address of a Variable - Declaring Pointer Variables - Initialization of Pointer Variable - Accessing a variable through its Pointer - Pointer Expressions - Pointer increments and Scale Factor - Pointers and Arrays - Pointers and Character Strings - Pointers to Functions - Pointers and Structures.

UNIT V

File Management in C: Defining and opening a File - Closing a File - Input / Output Operations on Files - Error handling during I/O operations - Random Access to Files - Command Line Arguments.

Dynamic Memory Allocation: Dynamic Memory Allocation - Allocating a Block of Memory - Allocating a Multiple Blocks of Memory - Releasing the Used Space - Altering the size of a Block.

The Preprocessor: Macro Substitution - File Inclusion - Compiler Control Directives.

Text Book(s)

1. **"Programming in ANSI C", E.Balagurusamy,** McGraw Hill Education, Sixth Edition.

Reference Book(s)

1. **"Programming with C"** Byron Gottfried, Tata McGraw Hill Publishing Company

UNIT I Chapter 1.1, 1.2, 1.8, 1.9,

	Chapter	2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.11
	Chapter	3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.14, 3.15, 3.16
UNIT II	Chapter	4.2, 4.3, 4.4, 4.5,
	Chapter	5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8,
	Chapter	6.2, 6.3, 6.4, 6.5
UNIT III	Chapter	7.2, 7.5, 7.6, 7.7,
	Chapter	9.2, 9.3, 9.6, 9.7, 9.9, 9.10, 9.11, 9.12, 9.15, 9.16, 9.17, 9.19
UNIT IV	Chapter	10.2, 10.3, 10.5, 10.6, 10.8, 10.10, 10.11, 10.12, 10.13, 10.14
	Chapter	11.2, 11.3, 11.4, 11.6, 11.8, 11.9, 11.10, 11.11, 11.15, 11.16
UNIT V	Chapter	12.2, 12.3, 12.4, 12.5, 12.6, 12.7,
	Chapter	13.2, 13.3, 13.4, 13.5, 13.6
	Chapter	14.2, 14.3, 14.4

ALLIED PAPER I
STATISTICS

Semester : I	**Hours of Teaching: 4**
Subject Code :	**Credits : 5**

UNIT I

Curve fitting – Principles of Least Squares – Fitting Straight line. A Second Degree Parabola

UNIT II

Correlation – Rank Correlation – Regression Lines

UNIT III

Probability -Conditional probability- Bay'es Therom

UNIT IV

Random Variable-Discrete Random Variable-Continues Random Variable-Probability Density Function-Binomial Distribution-poison Distribution-Normal Distribution

UNIT V

Index numbers – Aggregate – Average of Price Relative – Weighted Index Number – Weighted Average of Price Relative – Cost of Living Index Number – Conversion of CBI to FBI.

Text Book(s)

1. **"Mathematical Statistics",** Kapoor & Saxena, S.Chand & Sons, NewDelhi.

Reference Book(s)

1. **"Statistics",** Arumugam & Isaac, New Gamma Publishing House, Palayamkottai.
2. **"Statistics",** S.P.Gupta, S.Chand & Sons
3. **"Introduction to Mathematical Statistics",** Robert.V, Hogg &Allen T.Craig, Collier, Macmillan International Edition.

1. ***"Statistics",*** *Dr.S.Arumugam & A.Thangapandi.*

PRACTICAL I

PROGRAMMING IN C LAB

Semester : I	**Hours of Teaching: 2**
Subject Code :	**Credits : 1**

1. Write a C program to find Sine Series.

2. Write a C program to find Fibonacci series.

3. Write a C program to find Prime number.

4. Write a C program to sort an Array.

5. Write a C program to search an element.

6. Write a C program to find Adam number.

7. Write a C program to find sum of digits.

8. Write a C program to find Factorial value, Fibonacci, GCD Value (Recursion).

9. Write a C program to find Matrix Addition.

10. Write a C program to find Transpose of a Matrix.

11. Write a C program to find Character day of a week-Switch.

12. Write a C program to find Quadratic Equation-Switch.

13. Write a C program to find Frequency of a number-Function.

14. Write a C program to find NCR Value- Function.

15. Write a C program to find Pay Bill.

16. Write a C program to find Mark sheet.

17. Write a C program to find EB Bill.

PRACTICAL II
VISUAL BASIC LAB

Semester : I **Hours of Teaching: 2**

Subject Code : **Credits : 1**

1. Program to check whether the given number
    a. Armstrong Number
    b. Adam Number
2. Program to program
    a. Reverse the String
    b. Calculate the Length of the String
3. Program the find
    a. Current Date and Time
    b. Day of given Date
4. Program to use the flex grid control
5. Program to draw geometric shapes
6. Program to design a digital clock
7. Object type questionnaire
8. Program to vary color palette
9. Program to show picture animation
10. Program to create a file open dialogue to load a picture
11. Program to design a arithmetic calculator
12. Program to create a mouse down event program

13. Menu creation with simple file and edit operation
14. Sequential file reading and writing
15. Process student's mark list using data control
16. Process library maintenance using data control
17. Process telephone billing using data control
18. Process stock inventory using data control

CORE PAPER III
OPERATING SYSTEM CONCEPTS

Semester : II **Hours of Teaching: 4**
Subject Code : **Credits : 3**

UNIT I

Introduction: What Is An Operating System? - Mainframe Systems - Multiprocessor Systems - Distributed Systems - Clustered Systems - Real-Time Systems - Handheld Systems.

Computer System Structures: I/O Structures - Storage Structure - Hardware Protection.

Operating System Structure: System Components - Operating System Services System - Calls - System Programs - System Structure - System Designed Implementation – System Generation.

UNIT II

Process: Process Concept - Process Scheduling - Operation on Process - Communication In Client – Server Systems.

Threads: Multithreading Models-Threading Issues - Window2000 Threads-Java Threads.

CPU Scheduling: Scheduling Criteria-Scheduling Algorithm - Multiple Processer Scheduling - Real-Time Scheduling-Algorithm Evaluation – Process Scheduling Models.

UNIT III

Process Synchronization: The Critical Section Problem-Synchronization Hardware-Semaphores Classic Problem of Synchronization-Critical Regions

Deadlocks: Deadlock Characterization - Deadlock Prevention - Deadlock Avoidance – Deadlock Detection - Recovery From Deadlock

UNIT IV

Storage Management: Memory Management – Swapping - Contiguous Memory Allocation – Paging Segmentation - Segmentation With Paging.

Virtual Memory: Demand Paging - Process Creation - Page Replacement – Allocation Of Frames Thrashing.

File-System Interface: File Concept - Access Methods - Directory Structures.

File-System Implementation: Directory Implementation - Allocation Methods – Free Space Management

UNIT V

I/O Systems: I/O Hardware - Kernel I/O Subsystem-Transforming I/O To Hardware Operations - STREAMS

Mass-Storage Structure: Disk Structure-Disk Scheduling-Disk Management-Swap Space Management

Text Book(s)

1. "Operating System Concepts" **Sixth Edition –Silberschatz,Galvin,Gagne-John Wiley&Sons(Asia)Pte Ltd Singapore**

Reference Book(S):

1. "Operating Systems Concept & Design" **Second Edition –Millan Milenkovic Ibm Corporation**
2. "Operating System" ***Stuart E.Madinck,John***
3. "Operating System"***, H.M Deitel,*** **Tmh.**
4. "Operating System", ***Graynutt,*** **Addison Wesley Longman Inc.**

1. **"Operating System Concepts"** Sixth Edition

UNIT I Chapter 1 - 1.1, 1.2, 1.4, 1.5, 1.6, 1.7, 1.8
Chapter 2 - 2.2, 2.3, 2.5
Chapter 3 - 3.1, 3.2, 3.3, 3.4, 3.5, 3.7, 3.8

UNIT II Chapter 4 – 4.1, 4.2, 4.3, 4.6
Chapter 5 - 5.2, 5.3, 5.6, 5.8
Chapter 6 - 6.2, 6.3, 6.4, 6.5, 6.6, 6.7

UNIT III Chapter 7 - 7.2, 7.3, 7.4, 7.5, 7.6
Chapter 8 - 8.2, 8.4, 8.5, 8.6, 8.7

UNIT IV Chapter 9 - 9.2, 9.3, 9.4, 9.5, 9.6

Chapter 10 - 10.2, 10.3, 10.4, 10.5, 10.6

Chapter 11 - 11.1, 11.2, 11.3

Chapter 12 - 12.3, 12.4, 12.5

UNIT V Chapter 13 - 13.2, 13.4, 13.5, 13.6

Chapter 14 – 14.1, 14.2, 14.3, 14.4

CORE PAPER IV

OBJECT ORIENTED PROGRAMMING WITH C++

Semester : II **Hours of Teaching: 4**

Subject Code : **Credits : 3**

UNIT I

Principles of Object – Oriented Programming: Software Evaluation – Object Oriented Programming Paradigm - Basic Concepts of Object Oriented Programming - Benefits of OOP – Object Oriented Languages - Applications of OOP.

Tokens, Expressions and Control Structures: Tokens – Keywords - Identifiers and Constants - Basic Data Types – User Defined Data Types - Derived Data Types - Symbolic Constants - Declaration of Variables - Reference Variables - Operators in C++ - Scope Resolution operator – Manipulators - Expressions and their Types - Control Structures.

UNIT II

Functions in C++: The Main Function - Function Prototyping - Call by Reference - Return by Reference - Inline Functions - Default Arguments - Function Overloading - Math Library Functions.

UNIT III

Classes and Objects: Specifying a Class - Defining Member Functions - A C++ Program with Class - Making an outside Function Inline - Nesting of Member Functions - Private Member Functions - Arrays within a Class - Static Data Members - Static Member Functions - Array of Objects - Friendly Functions - Returning Objects.

Constructors and Destructors: Constructors - Parameterized Constructors - Multiple Constructors in a Class - Constructor with Default Arguments - Copy Constructors - Destructors.

Operator Overloading and Type Conversions: Defining Operator Overloading - Overloading Unary Operators - Overloading Binary Operators - Rules for Overloading Operators - Type Conversions.

UNIT IV

Inheritance: Introduction - Defining Derived Classes - Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance - Virtual Base Classes.

Pointers, Virtual Functions and Polymorphism: Pointers - Pointers to Objects - Virtual Functions - Pure Virtual Functions.

UNIT V

Managing Console I/O Operations: C++ Streams - Unformatted I/O Operations - Formatted Console I/O Operations - Managing Output with Manipulators.

Working With Files: Classes for File Stream Operations - Opening and Closing a File - Detecting end-of-file - File Modes. **Templates:** Class Templates - Function Templates.

Text Book(s)

1. "Object Oriented Programming with C++", **E.Balagurusamy, Fifth Edition, Tata McGraw-Hill.**

Reference Book(s)

1. **"Object –Oriented Programming with ANSI and Turbo C++"** Ashok N.Kamthane – Pearson Education.

UNIT I	Chapter	1.2, 1.4, 1.5, 1.6, 1.7, 1.8
	Chapter	3.2, 3.3, 3.4, 3.5, 3.6, 3.8, 3.9, 3.11, 3.13, 3.14, 3.15, 3.18, 3.20, 3.25
UNIT II	Chapter	4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.10, 4.12
UNIT III	Chapter	5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.11, 5.12, 5.13, 5.15, 5.16
	Chapter	6.2, 6.3, 6.4, 6.5, 6.7, 6.11
	Chapter	7.2, 7.3, 7.4, 7.8, 7.9
UNIT IV	Chapter	8.1, 8.2, 8.3, 8.5, 8.6, 8.7, 8.8, 8.9
	Chapter	9.2, 9.3, 9.6, 9.7
UNIT V	Chapter	10.2, 10.4, 10.5, 10.6
	Chapter	11.2, 11.3, 11.4, 11.5
	Chapter	12.2, 12.4

ALLIED PAPER II
DISCRETE MATHEMATICS

Semester : II	**Hours of Teaching: 4**
Subject Code :	**Credits : 5**

UNIT I

Set Theory: Introduction – Sets – Notation and description of sets – Subsets – Venn – Euler diagram – Operation on sets – Properties of set operation – Verification of the basic laws of algebra by Venn diagram

UNIT II

Logic : Introduction – TF statement-Connectives-Atomic and compound statement – well formed formula – Truth table of a formula – Tautology implication and equivalence of formula – Replacement process

UNIT III

Lattices : Some properties of lattices – New lattice – Modular and distributive – lattices – Boolean algebra

UNIT IV

Introduction – Matrix operations – Inverse of a Square Matrix – Elementary operations and Rank of a Matrix - Eigen values and Eigen Vectors.

UNIT V

Introduction-Finite Automata-Definition of Finite automaton – representation of finite automaton – acceptability of a string by a finite automaton – language accepted by a finite automaton – non deterministic finite automata – acceptability of a string by a non deterministic finite automata – equivalence of FA and NFA – procedure of finding FA equivalent a given NFA

Text Book(s)

"Discrete Mathematics", *M.K.Venkata Raman, N.Sridharan, N.Chandra sekaran, National Publishing Company, Chennai.*

UNIT I

Chapter 1 (1 to 8)

UNIT II

Chapter 9 (1 to 9)

UNIT III

Chapter 10 (1 to 5)

UNIT IV

Chapter 6 (1 to 5, 7)

UNIT V

Chapter 12 (1 to 10)

PRACTICAL LAB III

C++ PROGRAMMING LAB

Semester : II	**Hours of Teaching: 2**
Subject Code :	**Credits : 1**

1. Simple C++ program using class
2. Write a C++ Program to implement inheritance & virtual function
3. Write a C++ Program to implement multiple inheritance
4. Write a C++ Program to implement multilevel inheritance
5. Write a C++ Program to implement hybrid inheritance
6. Write a C++ Program to implement hierarchical inheritance
7. Write a C++ Program to implement operator overloading (+,*,/,-)
8. Write a C++ Program to implement '++' operator to overload
9. Write a C++ Program to implement friend function
10. Write a C++ Program to implement constructor & destructor
11. Write a C++ Program to implement function overloading
12. Write a C++ Program to Process student's mark list using file
13. Write a C++ Program to Process library maintenance using file
14. Write a C++ Program to implement matrix addition using operator overloading
15. Write a C++ Program to implement matrix multiplication using operator overloading

PRACTICAL LAB IV
LINUX LAB

Semester : II	**Hours of Teaching: 2**
Subject Code :	**Credits : 1**

1. To set the attributes of a given file
2. To log and unlog the terminal using trap
3. To find the number of terminals user logged – in
4. To find the number of users who have logged – in
5. File manipulation operations
6. String manipulations
7. Check the given file is directory or not
8. Create and append a file
9. Replace the vowels with the special characters
10. Compare two files
11. Delete the lines from a file which have a specific word

12. Using awk command and communication command

13. Shell programming using filters: grep, sed

14. Design a script to create your own command

15. Customizing log – in process

16. Signal handling

CORE PAPER V
DATA STRUCTURES

Semester : III **Hours of Teaching: 4**

Subject Code : **Credits : 3**

UNIT I

Introduction and Overview: Introduction- Basic Terminology; Elementary Data Organization – Data Structures- Data Structure Operations.

Arrays, Records and Pointers: Linear Arrays- Representation of Linear Arrays in Memory- Traversing Linear Arrays- Inserting and Deleting- Sorting; Bubble Sort- Searching; Linear Search- Binary Search- Multidimensional Arrays- Pointers; Pointer Arrays- Records; Record Structures- Matrices- Sparse Matrices.

UNIT II

Stacks, Queues, Recursion: Stacks- Array Representation of Stacks- Linked Representation of Stacks- Arithmetic Expressions; Polish Notation- Quicksort, an Application of Stacks- Recursion- Queues- Linked Representation of Queues- Dequeues.

UNIT III

Linked List: Linked Lists- Representation of Linked Lists in Memory- Traversing a Linked List- Searching a Linked List- Insertion into a Linked List- Deletion from a Linked List- Two –

way Lists.

UNIT IV

Trees: Binary Trees- Representing Binary Trees in Memory- Traversing Binary Trees- Traversal Algorithms using Stacks- Binary Search Trees- Searching and Inserting in Binary Search Trees- Deleting in a Binary Search Tree.

UNIT V

Graphs and their Applications: Introduction- Graph Theory Terminology- Sequential Representation of Graphs; Adjacency Matrix; Path Matrix- Warshall's Algorithm; Shortest Paths.

Sorting: Introduction- Sorting- Insertion Sort- Selection Sort- Merge-Sort- Radix Sort.

Text Book:

1. **"Data Structures",** Seymour Lipschutz, Indian Adapted Edition 2006, Sixteenth reprint, Tata McGraw-Hill Companies.

1. **"Data Structures",** Seymour Lipschutz Indian Adapted Edition 2006, Sixteenth reprint, Tata McGraw – Hill Companies

UNIT I	Chapter	1.1, 1.2, 1.3, 1.4
	Chapter	4.2,4.3,4.4,4.5,4.6,4.7,4.8,4.9,4.10,4.11,4.13,4.14
UNIT II	Chapter	6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.10, 6.11, 6.12
UNIT III	Chapter	5.2, 5.3, 5.4, 5.5, 5.7, 5.8, 5.10
UNIT IV	Chapter	7.2, 7.3, 7.4, 7.5, 7.7, 7.8, 7.9
UNIT V	Chapter	8.1, 8.2, 8.3, 8.4, 8.7
	Chapter	9.1, 9.2, 9.3, 9.4, 9.6, 9.7

CORE PAPER VI
PROGRAMMING IN .NET

Semester : III **Hours of Teaching: 4**

Subject Code : **Credits : 3**

UNIT I

.NET Framework Overview - .Net Framework Class Library – Language In .Net – Object Oriented Programming Features – Console Application – Assemblies.

UNIT II

Introduction To VB.NET – Data Types And Operators – Control Statement – Arrays – Procedures And Structures – Object Oriented Concept In VB.Net - Event – Delegates – Exception Handling.

UNIT III

Concept of Database - Relational Database – Special Features of ADO.Net - Difference

between ADO and ADO.NET - XML and ADO.NET – Complex Data Binding – Crystal Report.

UNIT IV

ASP.NET APPLICATIONS – Code - Behind - The Global.aspx Application File – Understanding ASP.NET Classes – ASP.NET Configuration.

WEB FORM FUNDAMENTALS – A Simple Page Applet – Improving the Currency Converter – A Deeper Look at HTML Control Class - The Page Class - Assessing HTML Server Controls.

UNIT V

VALIDATION AND RICH CONTROLS - Validation - A Simple Validation Example - Understanding Regular Expression - A Validated Customer Form - Other Rich Controls.

THE DATALIST, DATAGRID, AND REPEATER - Introducing Templates –Using Templates with the Data list - Data Binding With Multiple Templates - Comparing The Template Controls - Preparing Your List For Selection And Editing - Selecting Items - Editing Items- Paging With The Data grid - Sorting With The Data grid.

Text Book(s)

1. **P.Radhaganesan,** ”VB.NET”**, SCITECH Publication (INDIA) pvt.Ltd.**
2. **Matthew MacDonald,** ”ASP.NET - The Complete Reference”**, TATA McGRAW-HILL EDUCATION pvt.Ltd**

Reference book(s)

1. **Nitni Pandey,Yesh Singhal, Mridula.”Visual Studio.Net Programming”, Wiley – Dream Techindia(P) Ltd,2002**
2. **David Sceppa,”Microsoft ADO.NET”, Microsoft Press,2002**
3. **Nikhil Kothari, Vandana Data Type, ”Developing Microsoft ASP.NET Server Control And Components”, Tata Mcgraw Hill Publication,2002.**
2.
3. **P.Radhaganesan,** ”VB.NET” **,SCITECH Publication**
4. UNIT I**Chapter 1**
5. UNIT II **Chapter 2,3,4,5,6,8,9**
6. UNIT III **Chapter 10**
7.

8. **Matthew MacDonald,"**ASP.NET **– The Complete Reference"**
9. UNIT IV **Chapter 5, 6**
10. UNIT V **Chapter 9, 15**

ALLIED PAPER III

NUMERICAL METHODS

Semester : III	**Hours of Teaching: 4**
Subject Code :	**Credits : 5**

UNIT I

Solution of simultaneous linear algebraic equation system by Gaussian elimination and Gauss-Jordon methods-Iterative methods: Gauss Jacobi and Gauss-Seidel methods-Inverse of a matrix by Gauss Jordon method.

UNIT II

Lagrangian Polynomials – interpolation - Divided differences-Finite differences, Forward Backward and Central differences – Newton's forward and backward - Stiriling Formula.

UNIT III

Numerical Differentiations – Newton's Integration - Trapezoidel rule- Simpsons 1/3 rule - Simpsons 3/8 rule and Introduction of errors in integration.

UNIT IV

Single step methods: Taylor series method for first order differential equation - Euler and modified Euler methods - Runge- Kutta method for solving first order differential equations.

UNIT V

Types of interactive method – Bisection method - False position method - Newton rapshon method - The method of successive approximation.

Text Book(s)

1. **"Numerical Methods"** *by Kandasamy,P., Thilagavathy, K. and Gunavathy,K.S. Chand Co.Ltd., New Delhi.*
2. **"Numerical Methods"** *by S.Arumugam and Thangapandi Issac and Somasundaram, Scitech publication, Chennai.*

1. **"Numerical Methods"** *by Kandasamy,P., Thilagavathy, K. and Gunavathy,K.S. Chand Co.Ltd., New Delhi.*

UNIT I Page No: 112 TO 132 Page No: 146 TO 158

UNIT II Page No: 257 TO 280

UNIT III Page No: 299 TO 321

UNIT IV Page No: 352 TO 362
Page No: 371 TO 395

UNIT V Page No: 529 TO 540; 542 TO 550

PRACTICAL LAB V
DATASTRUCTURE IMPLEMENTATION IN C++

Semester : III **Hours of Teaching: 2**
Subject Code : **Credits : 1**

Objectives:

- **To implement the different data structures in C++**

1. Write a C++ Program to create singly linked List
2. Write a C++ Program to ADD, DELETE Elements from singly Linked List
3. Write a C++ Program to create Doubly linked List
4. Write a C++ Program to ADD, DELETE, Elements from Doubly Linked List
5. Write a C++ Program to create circular Linked List
6. Write a C++ Program to ADD, DELETE, Elements in Circular Linked List
7. Write a C++ Program to create Stack using Pointer
8. Write a C++ Program to implement Stack operations
9. Write a C++ Program to create Queue using pointer
10. Write a C++ Program to implement Queue Operations
11. Write a C++ Program to implement Various Tree Traversal using Pointer
12. Write a C++ Program to perform Linear Searching and Binary Searching of Numbers and Strings
13. Write a C++ Program to perform Sorting (Bubble, Insertion, and Selection) Techniques of numbers, character values and String.

PRACTICAL LAB VI

.NET TECHNOLOGIES LAB

Semester : III **Hours of Teaching: 2**

Subject Code : **Credits : 1**

VB.NET PROGRAMMING

1. Write a Program using structure and enum
2. Write a Program using classes, methods, properties and read only property
3. Write a Program using constructors, overload constructors and class events
4. Write a Program using Exception Handling
5. Write a Functions to Perform various string operations
6. Write a Program using .net built-in collection classes namely array list, bit array, Hash table, queue, sorted list, stack, collection, dictionary base
7. Write a Program using inheritance, constructors in inheritance
8. Write a Program using overriding, abstract base classes, shared members and interface
9. Write a Program using win Form controls
10. Write a Program using streams and serialization

ASP.NET PROGRAMMING

11. Develop a package for student data processing
12. Develop a package for employee data processing
13. Design software for Inventory Control System
14. Design software for Bank Data Processing

15. Design Package using various Built – in Objects

NON MAJOR ELECTIVE I
WEB TECHNOLOGIES

Semester : III	**Hours of Teaching: 2**
Subject Code :	**Credits : 2**

Objectives

- To enable the students. Explain the importance of internet and web designing.
- To become familiar with internet, HTML, DHTML and XML

UNIT I

Introduction to the Internet: Computers in Business-Networking-Internet-Email-Resource Sharing-Gopher-WWW-Usenet-Telnet-Bulletin Board Service-Wide Area Information Service.

UNIT II

Internet Technologies - Modem-Internet Addressing-Physical Connection-Telephone Lines. Internet Browsers-Internet Explorer-Netscape Navigator.

UNIT III

Introduction to HTML: Designing a home page-History of HTML- HTML Generation-HTML Document-Anchor Tag-Hyper Links-Sample HTML Documents. Head and Body Section: Header Section-Title-Prologue-Links-Colorful Web Page-Comment Lines.

UNIT IV

Designing the body section: Heading Printing-Aligning the Heading-Horizontal Rules-Paragraph-Tab Setting-mages and Pictures.

Embedding-PNG Format Images. Ordered and Unordered Lists: Unordered Lists-Heading in a List-Ordered Lists-Nested List.

UNIT V

Table Handling Tables-Table Creation in HTML-Width of the Table and cells-Cells Spanning Multiple Rows/Columns-Coloring Cells-Column Specification.

Text Book(s)

1. **"World Wide Web Design with HTML",** C.Xavier, TMH

CORE PAPER VII
DATA BASE MANAGEMENT SYSTEM

Semester : IV **Hours of Teaching: 4**
Subject Code : **Credits : 3**

UNIT I

Introduction to Database Management Systems (DBMS): Introduction – Characteristics of Data in a Database – Database Management System – Types of Database Management Systems.

Data, Information and Information Processing: Introduction – Quality of Information – Information Processing.

Database Architecture and Data Modeling: Conceptual, Physical and Logical Database Models, Database Design, Data Constraints.

UNIT II

Entity-Relationship (E-R) Modeling: E-R Model – Components of an E-R Model – E-R Modeling Symbols.

Normalization: Introduction – First Normal Form (1NF) – Second Normal Form (2NF) – Third Normal Form (3NF) – Boyce Code Normal Form (BCF) – Fourth Normal Form (4NF) – Fifth Normal Form (5NF) – Domain – Key Normal Form (DKNF).

UNIT III

Data Base Security: Data Security Risks – Data Base Users – Protecting Data with in the Data Base – Data Encryption – Network Security – Security Auditing

Transaction Management and Concurrency Control: Transactions – Transaction Properties – Transaction States – Concurrency Control – Serializability – Recoverability – Commit-Rollback-Save point

UNIT IV

Backup and Recovery: Data base Backups – Transaction Logs – Data base Recovery – Causes of Failures – Recovery Techniques

Distributed Data base: Client / Server Database Architecture - Database Links – Transaction Processing in Distributed Transactions – Functions of Distributed DBMS –

Advantages & Disadvantages of Distributed Systems

UNIT V

Parallel Processing and Parallel Database: Parallel Databases – Benefits of Parallel Processing – Benefits of Parallel Databases.

Mobile Databases: Mobile Databases – Mobile Database Processing – Technology Requirements.

Text Book(s):

1. **"Data Base Management systems"**, *Alex Leon and Mathews Leon, Vikas Publishing House*
2. **"Database System Concepts",** *Abraham Silberschatz, Henry F. Korth and S.Sudarshan McGraw-Hill*

Reference Book(s):

1. **"Fundamental Database Systems",** *Ramez Elmasri, Shamkani B.Navathe, Pearson Education*
2. *Raghu Ramakrishnan,* **"Database Management System"**, *TMH Publishing*

1. **"Database Management systems",** *Alex Leon and Mathews Leon, Vikas Publishing House*

UNIT I Chapter 5
Chapter 1
Chapter 8

UNIT II Chapter 9
Chapter 11

UNIT III Chapter 27
Chapter 29

UNIT IV Chapter 30
Chapter 33

UNIT V Chapter 35
Chapter 37

CORE PAPER VIII
JAVA PROGRAMMING

Semester : IV	**Hours of Teaching: 4**
Subject Code :	**Credits : 3**

UNIT I

Overview of Java Language: Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.

Constants, Variables and Data Types: Constants – Variables – Data Types – Declaration of Variables – Giving Values to Variables – Symbolic Constants – Type Casting.

Operators and Expressions: Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators - Increment and Decrement Operators – Conditional Operator - Bit-wise Operators - Special Operators – Arithmetic Expressions - Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

UNIT II

Decision Making and Branching: Decision Making with If Statement – Simple If Statement – The If..Else Statement – Nesting of If…Else Statements – The Else If Ladder – The Switch Statement - ?: Operator.

Decision Making and Looping: While Statement – do Statement – for Statement – Jumps in Loops – Labeled loops

UNIT III

Classes, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Class Members – Constructors - Method Overloading – Static Members – Nesting of Methods – Inheritance: Extending a Class – Overriding Method – Find Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility control.

Arrays, Strings and Vectors: One-dimensional Arrays – Creating an Array – Two-dimensional Array - Strings – Vectors – Wrapper classes

Interfaces Multiple Inheritance: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.

UNIT IV

Packages: Putting Classes Together: Using System Packages – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Binding classes.

Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization – Implementing the 'Runnable' Interface.

Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing Our Own Exceptions

UNIT V

Applets Programming: Preparing to Write Applets – Building Applet Code – Applet Life Cycle - Applet Tag - Adding Applet to HTML File - Running the Applet - Getting Input from the User – Event Handling.

Graphics Programming: The Graphics Class - Lines and Rectangles - Circles and Ellipses - Drawing Arcs – Drawing Polygons - Line graphs - Drawing Bar Charts.

Text Book(s)

1. **"Programming with JAVA A Primer "** E.Balagurusamy 5th Edition - *TMH Publishing Company Ltd*

Reference Book(s):

1. *Patrick Naughton Herbert Schildt ,"The Complete Reference",3rd edition,1999*
2. *Peter Norton William Stanek,"Guide to Java Programming",1999*
3. *John R.Hubbard,"Programming with Java",Schaum's outlines TMH,1999*

1. **"Programming with JAVA A Primer"** E.Balagurusamy 5th Edition – TMH Publishing Company Ltd

UNIT I	Chapter 3	3.2, 3.5, 3.6, 3.7, 3.9, 3.10, 3.11
	Chapter 4	4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9
	Chapter 5	5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15
UNIT II	Chapter 6	6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8

	Chapter 7	7.2, 7.3, 7.4, 7.5, 7.6
UNIT III	Chapter 8	8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12 8.13, 8.14, 8.16, 8.18
	Chapter 9	9.2, 9.3, 9.4, 9.5, 9.6, 9.7
	Chapter 10	10.2, 10.3, 10.4, 10.5
UNIT IV	Chapter 11	11.3, 11.5, 11.6, 11.7, 11.8
	Chapter 12	12.2 TO 12.10
	Chapter 13	13.2 TO 13.7
UNIT V	Chapter 14	14.3, 14.4, 14.5, 14.8, 14.9, 14.10, 14.16, 14.17
	Chapter 15	15.2 TO 15.7, 15.9

ALLIED PAPER IV

OPERATION RESEARCH

Semester : IV	**Hours of Teaching: 4**
Subject Code :	**Credits : 5**

Objectives

- To enable the students to understand the concept of L.P.P, Dual, Optimization model, queuing model, Game theory

UNIT I

L.P.P – Formulation of L.P.P – Graphical Method – Basic Solution – BFS-Artificial Method –Simplex Method- Big-M method

UNIT II

Transportation Model – Mathematical Formulation of Transportation Problem – Methods for finding IBFS – NWC – LCM – VAM – MODI method – Degeneracy – Unbalanced – Maximization case in Transportation Problem

UNIT III

Assignment Problem – Mathematical Formulation of Assignment Problem – Comparison with Transportation Model – Difference between Transportation and Assignment Problem – Hungarian Method – Unbalanced Assignment – Maximization case in Assignment – Restriction in Assignment – Traveling Salesman Problem

UNIT IV

Game Theory – 2x2 Game – Maximin – Minimax Principle – Saddle Point and Value of Game – Games without Saddle Point – Arithmetic Method – 2xn-mx2 – Graphical Method – Dominance Property

UNIT V

Scheduling by PERT and CPM – Planning – Scheduling – Control – Basic Terminologies – Rules for Constructing a Project Network – Network Computation – Compute the Latest Finish and Latest Start – Float – Program Evaluation Review Technique – Difference between PERT & CPM

Text Book(s)

1. **"Operation Research",** *V.K.Kapoor, Sultan Chand & Sons Publishers, Delhi*

Reference Book(s)

1. **"Operation Research: An Introduction",** *Hamdy, A.Taha, Macmillan International Student's Edition, delhi*
2. **"Operation Research",** *Kanti Swarup, R.K.Gupta and Manmohan, Sultan Chand and Sons,Delhi*

"Research Management Techniques", *V.Sundaresan, K.S. Ganapathy Subramanian, K.Ganesan*

UNIT I	Chapter	2.1 - 2.41	Chapter	3.1 - 3.74
UNIT II	Chapter	7.1 - 7.64		
UNIT III	Chapter	8.1 - 8.49		
UNIT IV	Chapter	15.24 -15.46		
UNIT V	Chapter	16.1 - 16.39		

PRACTICAL LAB VII
ORACLE PROGRAMMING LAB

Semester : IV **Hours of Teaching: 2**

Subject Code : **Credits : 1**

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1. Data Definition Language (DDL) commands is SQL.
2. Data Manipulation Language (DML) and Data Control Language (DCL) commands in SQL.
3. High – level language extension with Cursors.
4. High – level language extension with Triggers.
5. Creating Tables for Different Applications using DDL.
6. Solving Queries – Date Functions, Numeric Functions, Group Functions.
7. Set Operators – Union, Union All, Intersect, Minus.
8. Join Concept – Simple Join, Table Aliases, Self Join, Outer Join, Sub Queries, Multiple Sub queries.
9. Procedures and Functions.
10. Embedded SQL.
11. Database design using E -R model and Normalization.
12. Design and implementation of Payroll Processing System.

13. Design and implementation of Banking System.
14. Design and implementation of Library Information System.
15. Creating PL/SQL block using all the control statements.
16. Creating PL/SQL block using EXPLICIT & IMPLICIT CURSOR.
17. Creating PL/SQL block with error handling techniques (pre-defined & user-defined Exception).
18. Write a PL/SQL Program to Railway Reservation using Report Generation
19. Write a PL/SQL Program to Employee Details using Report Generation
20. Write a PL/SQL Program to Student Information using Report Generation
21. Write a PL/SQL Program to Library Information using Report Generation
22. Write a PL/SQL Program to Admission Information using Report Generation

PRACTICAL LAB VIII
JAVA PROGRAMMING LAB

Semester : IV **Hours of Teaching: 2**
Subject Code : **Credits : 1**

1. Arrays and Flow Control Statement
2. Run Time Exception & I / O Exception
3. Multi Threading
4. Layout Management
5. GUI Component (Label, Check box, Menus, Text etc)
6. Event Handling (Focus events, Key events, Paint events, Text events, Mouse events, Windows events)
7. Animations and Images
8. Java Applet
9. Java file Management Method
10. Java Streams

11. JDBC (Java Data Base Connectivity)

NON MAJOR ELECTIVE II
ORACLE

Semester : IV **Hours of Teaching: 2**

Subject Code : **Credits : 2**

UNIT I

The Basic parts of speech in SQL: Style-Using SQL to select Data from tables –Tables – Select from where, and order by – logic and value – Like – another use for where – Sub queries –Combining tables – Creating a view.

UNIT II

Getting Text information and changing it: Data types – What is string – Notation – Concatenation – How to cut and paste strings – RPAD and LPAD – LTRIM and RTRIM – Combining Two functions – Adding one more function – LOWER,UPPER and INITCAP – LENGTH –SUBSTR – INSTR – Order by and where with string functions – SOUNDEX – National language support.

UNIT III

Playing the numbers: The three classes of number functions – Notation – Single value functions – Group value functions – List functions.

UNIT IV

Dates: Date Arithmetic – Sys Date – The Difference between Two dates – Adding months – Next Day – Round and Trunc in Date calculations To – Date and To – CHAR formatting – Dates in where clauses – Dealing with the year 2000.

UNIT V

Changing Data: Insert, Update and delete – insert – inserting a Time – roll back, commit, and auto commit – Implicit commit – delete – update.

Text Book

1. ***"ORACLE 8.0",*** *The Complete reference, George Koch, Kevin Looney, TMH.*

CORE PAPER IX
COMPUTER NETWORKS

Semester : V **Hours of Teaching: 5**

Subject Code : **Credits : 5**

UNIT I

INTRODUCTION: Uses of Computer Networks: Networks for Companies - Network for People - Social Issues. - **Network Hardware**: Local Area Networks - Metropolitan Area Networks - Wide Area Networks - Wireless Networks – Internetworks. **Network Software:** Protocol Hierarchies - Design Issues for the Layers – Interfaces and Services – Connection – Oriented and Connectionless Services. Service Primitives – The Relationship of Services to Protocols. - **Reference Models:** The OSI Reference Model – The TCP/IP Reference Model – A Comparison Of The OSI And TCP Reference Models.

UNIT II

PHYSICAL LAYER: Transmission Media: Magnetic Media – Twisted Pair- Baseband Coaxial Cable – Broadband Coaxial Cable – Fiber Optics. - **Wireless Transmission:** The Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light wave Transmission. - **Narrow Band ISDN System Architecture:** ISDN Services-ISDN System Architecture-The ISDN Interface-Perspective on N-ISDN. - **Broadband ISDN and ATM:** Virtual Circuits Versus Circuit Switching-Transmission in ATM Networks. - **Cellular Radio:** Paging System – Cordless Telephones – Analog Cellular Telephones – Digital Cellular Telephones – Personal Communication Services.

UNIT III

DATA LINK LAYER: Data Link Layer Design Issues: Services Provided To The Network Layer – Framing – Error Control – Flow Control. **Error Detection and Correction:** Error Correcting Codes – Error Detecting Codes. **Elementary Data Link Protocols:** On Unrestricted Simpler Protocol – A Simplex Stop – And – Wait Protocol – A Simplex Protocol For A Noisy Channel. - **Sliding window protocols:** A One Link Sliding Window Protocol – A Protocol Using Go Back N- A Protocol using Selective Repeat.

UNIT IV

NETWORK LAYER: Routing Algorithms: Shortest Path Routing – Flooding – Distance Vector Routing – Hierarchical Routing – Broadcast Routing. - **THE TRANSPORT LAYER: The Transport Services:** Quality Of Services – Transport Services Primitives.

Element Of Transparent Protocols: Addressing , Establishing Connection- Releasing Connection – **The Internet Transport Protocols(TCP And UDP):** The TCP Service Model – The TCP Protocol – The TCP Segment Header – TCP Connective Management – TCP Transmission Policy – TCP Congestion Control – TCP Timer Management – UDP – Wireless TCP And UDP

UNIT V

THE APPLICATION LAYER: Network Security: Traditional Cryptograph – Two Fundamental Cryptograph Principles – Secret – Key Algorithms – Public Key Algorithms. **Electronic Mail:** Architecture and Services – The User Agent – Message Formats – Message Transfer E-Mail Privacy - **The World Wide Web:** The Client Side – The Server Side.

Text Book(s):

1. **"COMPUTER NETWORKS"**, Third Edition, Andrew S.Tanenbaum – Prentice Hall India

Reference Book(s)

1. "Data Communication and Computer Networks ", **Prakash C.Gupta,PHI,2005**

2. "Data and Computer Communication", **William Stalling,PHI,2007**

1. "**COMPUTER NETWORKS**", Third Edition, Andrew S.Tanenbaum.

UNIT I	Chapter 1	1.1.1 To 1.1.3, 1.2-1.2.1 To 1.2.5, 1.3-1.3.1 To 1.3.6, 1.4, 1.4.1 To 1.4.3
UNIT II	Chapter 2	2.2-2.2.1 To 2.2.5, 2.3-2.3.1 To 2.3.5, 2.5-2.5.1 To 2.5.4, 2.6-2.6.1 To 2.6.3, 2.7-2.7.1 To 2.7.5
UNIT III	Chapter 3	3.1-3.1.1 To 3.1.4,3.2-3.2.1 To 3.2.2,3.3-3.3.1 To 3.3.3,3.4-3.4.1 To 3.4.3
UNIT IV	Chapter 5	5.2-5.2.2, 5.2.3, 5.2.5, 5.2.7, 5.2.9
	Chapter 6	6.1.2, 6.1.3, 6.2-6.2.1 To 6.2.3, 6.4-6.4.1 To 6.4.9
UNIT V	Chapter 7	7.1.1 To 7.1.4,7.4-7.4.1 To 7.4.5,7.6-7.6.1 To 7.6.2

CORE PAPER X
WEB TECHNOLOGIES

Semester : V	**Hours of Teaching: 4**
Subject Code :	**Credits : 3**

UNIT I

HTML: Introduction – SGML – Outline of html document – Head section – Body Section – HTML forms.

DHTML: Introduction – Cascading Style Sheets (CSS) – DHTML Document Object Model and Collection – Event Handling – Filters and Transition – Data Binding.

UNIT II

EXTENSIBLE MARKUP LANGUAGE (XML): Introduction – HTML (vs) XML - Syntax of the XML document - XML attributes - XML Validation - XML DTD - The building blocks of XML documents - DTD Elements - DTD Attributes - DTD Entities - DTD Validation – XSL - XSL Transformation - XML Name Space - XML Schema.

UNIT III

VBSCRIPT: Introduction - Embedding VB Script Code in an HTML document - Comment - Variables – Operators – Procedures – Conditional Statements - Looping Constructs - Objects and VB script cookie.

UNIT IV

ACTIVE SERVER PAGES (ASP): Introduction – Advantages of using ASP - First ASP Script - Processing of Asp Scripts with Forms - Variables and Constructs –Subroutines - Include/Virtual - ASP Cookies - ASP Objects - Connecting to Data with ASP.

UNIT V

AJAX – Asynchronous JavaScript and XML: Introduction – Understanding the Technology behind AJAX – Working of AJAX – Benefits of AJAX – AJAX as Web Application Development – Data Exchange in AJAX – AJAX Example.

Text book(S)

1. ‘’Web Technology’’ **A Developer’s perspective, N.P.Gopalan., J.Akilandeswari, PHI.**

UNIT I	Chapter	4	Chapter	7
UNIT II	Chapter	8		
UNIT III	Chapter	6		
UNIT IV	Chapter	12		

2. ‘’Web Technology**’’ Akanksha Rastogi, K.Nath & CO Meerut**

UNIT V Chapter 18

CORE PAPER XI

J2EE

Semester : V **Hours of Teaching: 5**

Subject Code : **Credits : 3**

UNIT I

JAVA SCRIPT: Introduction-language Elements-Objects of Java Script-Other Objects.

UNIT II

JAVA SERVER PAGES (JSP): Introduction – Advantages of JSP – Developing first JSP – Reading Request Information – Retrieving the Data Posted from a HTML File to a JSP File.

UNIT III

JAVA SERVER PAGES (JSP): Components of JSP – JSP Sessions – Cookies – Disabling a Sessions.

UNIT IV

SERVLET : Introduction-Advantages of Servlet over CGI-Installing Servlet-the Servlet life cycle-Servlet API-A simple Servlet- handling HTTP get request HTTP post request-cookies-session tracking-multi tier application using database connectivity-Servlet chaining.

UNIT V

ENTERPRISE JAVA BEANS (EJB): Introduction to Enterprise Beans – Session Beans – Entity Beans – EJB's Architecture. **SESSION BEANS:** State Management Modes. **ENTITY BEANS:** Introduction – Entity Bean Life Cycle

Text Book(s)

1. **''Web Technology''** A Developer's perspective, N.P.Gopalan., J.Akilandeswari

PHI.

UNIT I	Chapter	5	
UNIT II	Chapter	11	(11.1, 11.2, 11.3, 11.5, 11.6)
UNIT III	Chapter	11	(11.4, 11.7, 11.8, 11.9)
UNIT IV	Chapter	10	

2. ''Enterprise Java Beans ''

UNIT V	Chapter	1	(Page No: 8 To 15; 37 To 40; 43 To 47)

CORE LAB IX

MULTIMEDIA LAB

Semester : V **Hours of Teaching: 5**

Subject Code : **Credits : 3**

1. Bit map to vector conversion
2. Quick and easy picture animation
3. Creating easy tint effect
4. Zooming a picture in and out
5. Changing a color of circle
6. Converting a shapes
7. Picture masking
8. Creating a text animation
9. Image rotation
10. Creating Inverse text effect
11. Changing color image to black and white
12. Text masking
13. Creating clip as countdown
14. Glowing effect for text
15. Stretching a text
16. Character transformation
17. Stretching a object
18. Greeting card preparation

19. Jumping letters animation
20. Ball bouncing
21. Shape tweening effect
22. Motion tweening effect
23. Adding a shape hint in shape tween
24. Creating onion skin outline
25. Creating and integrating scenes

CORE LAB X
WEB TECHNOLOGIES LAB

Semester : V **Hours of Teaching: 5**

Subject Code : **Credits : 3**

Objectives

To learn and implement the Scripting languages, design and develop the programs for web – sites

1. Write a HTML program which display "I am studying HTML" in all the heading Levels
2. Write a HTML program that uses the address tag
3. Write a HTML program that displays an image as a hyperlink
4. Write a DHTML code that displays message to the user when the document is loaded in the browser
5. Use the onblur () method on text box and display a message when the textbox loses focus
6. Write a DHTML code that can select or deselect five checkboxes on the click of a button
7. Write a Simple JSP Program
8. Write a JSP program to forwarding.
9. Write a JSP program to Static Inclusion.
10. Write a JSP program to Dynamic Inclusion.
11. Write a JSP program for server side and client side forwarding.
12. Write a JSP program for calling JSP form Servlet.
13. Write a JSP program for form handling

14. Write a JSP program for printing date
15. Write a JSP program for Session in JSP

ELECTIVE PAPER I

MULTIMEDIA

Semester : V	**Hours of Teaching: 4**
Subject Code :	**Credits : 4**

UNIT I

Introduction: Objectives – Brief History of Multimedia – What is Multimedia? – The Multimedia market.

Resource for Multimedia Developers: Magazines and periodicals – vendors and trade shows – Internet – Education – Experience – Critical Attitude.

Products and Evaluation

The Multimedia Development Team: Assembling a Multimedia Production Team

UNIT II

Hardware, Operating Systems and Soft wares

UNIT III

Graphics: Digital Audios:

UNIT IV

Digital Video and Animation: Authoring Tools:

UNIT V

Flash 5.0: Understanding the flash Frame Work – Exploring the Interface – Using Tools Naai of Action and Viewing Drawing in Flash – Animation in Flash – Using Bit Maps and others Media with Flash

Text Book(s)

1. **"Multimedia Technology and Applications"**, *David Hillman, Galgotia Publications pvt Ltd.*
2. ***Flash 5 Bible***, *Robert Reinhar & and Jon Warrer Lantz*

Reference Book(s)

1. **"Multimedia making it work",** Tay Vaughan, Osborne, Mc Graw Hill.

1. **"Multimedia Technology and Applications"**, *David Hillman, Galgotia Publications pvt Ltd.*

UNIT I	Chapter	1
	Chapter	2
UNIT II	Chapter	3
UNIT III	Chapter	5
	Chapter	6
UNIT IV	Chapter	7
	Chapter	9

2. **Flash 5 Bible,** *Robert Reinhar & and Jon Warrer Lantz*

UNIT V	Chapter	1
	Chapter	2
	Chapter	3
	Chapter	11
	Chapter	12

CORE PAPER XII

PHP (PHP Hypertext Preprocessor)

Semester : VI	**Hours of Teaching: 5**
Subject Code :	**Credits : 3**

UNIT I

The PHP Scripting Language: Introduction PHP-Conditions and branches- Loop-Function-User Defined Function. **Array, String and Advanced Data Manipulation in PHP:** Arrays –String-Regular Expressions.

UNIT II

Introduction to Object-Oriented Programming with PHP 5: Class and object – Inheritance. **SQL and MySQL:** MySQL Command Interpreter – Querying wit SQL Select

UNIT III

Writing to Web Database: Database Insert, Updates and Deletes.

Validation with PHP and JavaScript: Validation and Error Reporting Principles-Server-Side Validation with PHP-JavaScript and Client0side Validation

UNIT IV

Session: Introduction Session Management-PHP Session Management - Using Session in Validation-When to Use Session.

Authentication and Security: HTTP Authentication With PHP- Form-based Authentication-Protecting Data on the web

UNIT V

Error, Debugging and Deploying: Error – Common Programming Error.

Reporting: Creating a Report –Producing PDF –PDF-PHP Reference.

Text Book(s):

1**."Web Database Applications with PHP and MySQL ",** Hugh E.Williams & David Lane, 2nd Edition Covers PEAR, SHROFF PUBLICATIONS & DISTRIBUTIONS PVT.LTD

1. **"Web Database Applications with PHP and MySQL ",** Hugh E.Williams & David Lane,

UNIT I	Chapter	2 (Page No: 16 To 37, 43 To 53)
	Chapter	3 (Page No: 57 To 97)
UNIT II	Chapter	4 (Page No: 108 To 131)
	Chapter	5 (Page No: 140 To 160)
UNIT III	Chapter	8 (Page No: 251 To 270)
	Chapter	9
UNIT IV	Chapter	10 (Page No: 338 To 360)
	Chapter	11 (Page No: 373 To 401)
UNIT V	Chapter	12 (Page No: 402 To 412)
	Chapter	13

CORE PAPER XIII

PYTHON and R PROGRAMMING

Semester : VI	**Hours of Teaching : 5**
Subject Code :	**Credits : 4**

UNIT I

Python 3 – Overview: History of Python – Python Features. **Python 3 – Basic Syntax:** First Python Program – Python Identifiers – Reserved Words – Lines and Indentation – Multi Line Statements – Quotation in Python – Comments in Python – Using Blank Lines – Waiting for the User – Multiple Statements on a Single Line – Command Line Arguments. **Python 3 Variable Types:** Assigning Values to Variables – Multiple Assignment – Standard Data Types – Python Numbers – Python Strings – Python Lists – Python Tuples – Python Dictionary – Data Type Conversion. **Python 3 Basic Operators:** Types of Operator – Python Arithmetic Operators - Python Comparison Operators - Python Assignment Operators - Python Bitwise Operators - Python Logical Operators - Python Membership Operators - Python Identity Operators - Python Operators Precedence

UNIT II

Python 3 – Decision Making: IF Statement – IF…ELIF…ELSE Statement – Nested IF Statements – Single Statement Suites. **Python – 3 Loops:** While Loop Statements – for Loop Statement – Nested Loops – Loop Control Statement – break Statement – Continue Statement – Pass Statement – Iterator and Generator

UNIT III

Python 3 – Numbers: Mathematical Functions – Number abs() Method - Number ceil() Method - Number exp() Method - Number fabs() Method - Number floor() Method - Number log() Method - Number log10() Method - Number max() Method - Number min() Method - Number modf() Method - Number pow() Method - Number round() Method - Number sqrt() Method. **Python 3 - Strings:** String capitalize() Method - String center() Method - String endswith() Method - String find() Method - String isalnum() Method - String isalpha() Method - String isdigit() Method - String islower() Method - String isupper() Method - String join() Method - String lower() Method - String maketrans() Method - String replace() Method - String startswith() Method - String title() Method - String translate() Method - String zfill() Method

UNIT IV

R Programming: Data Analytics – An Insight: Introduction - Data Evolution – At Glance – Data Science – Data Analytics – Big Data Analytics – Big Data Applications. **Understanding Data:** Introduction – Data Understanding – Data Processing Phases – Data Measurements – Measures for Variable types. **Exploring R Basics:** Introduction – Getting Started – RStudio – Packages and Library – Installing and Loading Packages – Starting R – R Basic Data Types – R Basic Operators – R Objects.

UNIT V

Exploring R Basics: Vectors – List – Arrays – Matrix – Factors – DataFrame – R File Formats – Importing and Exporting Files. **Data Visualization in R:** Introduction – Exploratory Data Analytics – Lattice Package – Datasets – Histogram – Density Plot – Box Plot – Bar Chart – Strip Plot – Theoretical Quantile Plot – Dot Plot – Scatter Plot – Ggplot2 – Geoms – Exploring ggplot and qplot – Geom_Points – Geom_Line – Geom_Histogram – Geom_Bar – Geom_Boxplot -

Text Book(s)

1. **Python 3 Tutorials Point Simply Easy Learning**
2. **"Data Analytics with R Step by Step",** V.Bhuvaneswari, 2016 Edition, Scitech Publications (India) Pvt.Ltd.

Python 3 Tutorial

UNIT I

Chapter 2 Chapter 4

Chapter 5 Chapter 6

UNIT II

Chapter 7 Chapter 8

UNIT III

Chapter 9 Chapter 10

Data Analytics with R Step by Step

UNIT IV

Chapter 1 Chapter 2

Chapter 3

UNIT V

Chapter 3 Chapter 4

CORE PAPER XIV

SOFTWARE ENGINEERING

Semester : VI **Hours of Teaching: 5**

Subject Code : **Credits : 4**

UNIT I

Introduction to Software Engineering - Some Definition – Some Size Factors – Quality and Productivity Factors – Managerial Issue

Planning a Software Project: Defining the Problem – Developing a Solution Strategy – Planning the Development Process – Planning an Organization Structure – Other Planning activities

UNIT II

Software Cost Estimation: Software cost Factors – Software Cost Estimation techniques – Staffing level Estimation – Estimating Software Maintenance Costs

UNIT III

Software Requirement Definition: The Software requirements Specification – Formal Specification Techniques - Languages and Processors for Requirements Specification

UNIT IV

Software Design: Fundamental Design Concepts – Modules and Modularizing Criteria – Design Notations – Design Techniques

UNIT V

Verification and Validation Techniques: Quality Assurance – UNIT testing and Debugging – System testing

Software Maintenance: Enhancing maintainability during development – Managerial aspects of Software Maintenance – Configuration Management – Other Maintenance Tools and Techniques.

Text Book(s)

1. Software Engineering Concepts, Richard E.Fairly, Tata McGraw-Hill book Company, 2005

UNIT I	Chapter	1.1 To 1.4	Chapter	2.1 To 2.5
UNIT II	Chapter	3.1 To 3.4		
UNIT III	Chapter	4.1 To 4.3		
UNIT IV	Chapter	5.1 To 5.4		
UNIT V	Chapter	8.1, 8.5, 8.6	Chapter	9.1, 9.2, 9.3, 9.5

Reference Book(s)

3. Software Engineering, Jawadekar, Tata McGraw-Hill book Company, 2004

CORE LAB XI
PHP LAB

Semester : VI **Hours of Teaching : 4**

Subject Code : **Credits : 3**

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1. **Write a PHP Program to Factorial Number**
2. **Write a PHP Program to Armstrong Number Checking**
3. **Write a PHP Program to Sum of Prime Number**
4. **Write a PHP Program to Number Palindrome Checking**
5. **Write a PHP Program to Sum of Digits**
6. **Write a PHP Program to find the value of 1/1! + 2/2! + …. N/n!**
7. **Write a PHP Program to Multiplication**
8. **Write a PHP Program to Using Case Statement**
9. **Write a PHP Program to String Manipulation**
10. **Write a PHP Program to Student Details**
11. **Write a PHP Program to Employee Details**
12. **Write a PHP Program to Railway Reservation**
13. **Write a PHP Program to Banking System**
14. **Write a PHP Program to Simple Interest Calculation**
15. **Write a PHP Program to account Opening Form**
16. **Write a PHP Program to E-mail ID Creation**
17. **Write a PHP Program to Cinema Ticket Reservation**
18. **Write a PHP Program to EB Bill Calculation**
19. **Write a PHP Program to Driving License Form**
20. **Write a PHP Program to Telephone Bill Calculation**
11.

CORE LAB XII

PYTHON and R PROGRAMMING LAB

Semester : VI	**Hours of Teaching : 4**
Subject Code :	**Credits : 3**

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1. To Perform Basic Operators using Python
    a. arithmetic Operator
    b. comparison operator
    c. assignment operator
    d. bitwise operator
    e. logical operator
2. Conditional Statements using Python
    a. if statement
    b. If…elif..else statement
    c. Nested if statement
3. Mathematical Functions using Python
    a. Abs() method
    b. Ceil() method
    c. Floor() method
    d. Log10() method
    e. Max() method
    f. Min() method
4. String Function using Python
    a. Center() method
    b. Find() method
    c. Join() method
5. To Perform List using Python
    a. Len() method
    b. Max() method
    c. Min() method
6. Date and Time method using Python
7. To Perform Functions

ELECTIVE II

MOBILE COMPUTING

Semester : VI	**Hours of Teaching: 5**
Subject Code :	**Credits : 5**

UNIT I

Introduction to Cellular Systems: Introduction- Introduction to Wireless- Frequency needed for Transmission- Signals- Antenna- Signal Propagation.

Introduction to Cellular Systems: General Concepts- Advantage of Cellular Systems with Small Cells- Cellular Wireless Networks.

UNIT II

Mechanisms to Access the Medium - SDMA- FDMA- TDMA

Global System for Mobile Communication - GSM- Services offered by GSM- GSM Architecture- Radio Subsystem- Network and Switching Subsystem- Operating Subsystem- Radio Interface- Logical Channels- GSM Protocol Suites- Localization and Calling- Handover- Security- GSM Summary- GPRS- DECT.

UNIT III

WLAN: Wireless LANs- Advantages of WLAN over Wired LAN- Wireless Transmission Technologies- Settings for WLAN- WLAN Technologies.

Bluetooth: Introduction- Usage of Wireless PAN- Key Features of Blue Tooth- Protocol Stack.

UNIT IV

WATM - Wireless ATM- Reasons that led to the development of WATM- Wireless ATM Working Group- WATM Service- Reference Modes- Handover- Location Handover- Mobile Quality of Service- Access Scenario of WATM.

Mobile IP - Goals- Solution to deliver packets during mobility- Requirements.

UNIT V

Wireless Markup Language (WML) - Introduction- Problems faced by web applications- WML Scripts- Wireless Telephone Application- WAP 2.0- Architecture of WAP 2.0- Protocol Stack of WAP 2.0.

Text Book(s)

1. **"Mobile Computing"** – B.S Charulatha, Revised Edition – July 2008, Charulatha Publications.

UNIT I Chapter 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.7.1, 1.7.2, 1.7.3

UNIT II Chapter 1.10.1, 1.10.2, 1.10.3,

Chapter 2.0,2.1,2.2,2.3,2.3.12.3.2,2.3.3,2.3.4,2.3.5, 2.3.6,2.3.7,2.3.8,2.3.9,2.3.10,2.4,2.5

UNIT III Chapter 3.0, 3.1, 3.2, 3.3, 3.4, 3.8, 3.8.1, 3.8.2, 3.8.3, 3.8.4

UNIT IV Chapter 3.9, 3.9.1, 3.9.2, 3.9.3, 3.9.4, 3.9.5, 3.9.6, 3.9.7, 3.9.8

Chapter 4.1, 4.1.1, 4.1.2, 4.1.3

UNIT V Chapter 5.5, 5.5.1, 5.5.2, 5.5.3, 5.6, 5.7, 5.7.1, 5.7.2

DEPARTMENT OF COMPUTER SCIENCE

YADAVA COLLEGE (AUTONOMOUS)

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MADURAI -14

Self – Study Papers

Under Graduate Course

Choice Based Credits System Syllabus

(2018 onwards)

DEPARTMENT OF COMPUTER SCIENCE

YADAVA COLLEGE (AUTONOMOUS)

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MADURAI -14

Scheme for Self – Study Papers for Earning Extra Credits by Brilliant Students

UNDER GRADUATE

Semester	Subject Code	Paper Title	Credits	Exam Hours	Internal	External	Total
III		Desktop Publishing (Corel Draw & Photo Shop)	2	3	25	75	100
IV		Soft Computing	2	3	25	75	100
V		Embedded Systems	2	3	25	75	100
VI		VC++	2	3	25	75	100

SELF-STUDY PAPER

DESKTOP PUBLISHING (COREL DRAW & PHOTOSHOP)

Semester: III **Credits: 2**

UNIT I

CorelDraw Basics: The Corel draw screen-drawing basic Geometric Figures-views.

Drawing and selecting: Getting started with the project.

Working with Text: Formatting Text.

UNIT II

Working With Images: Resizing Rotating and skewing Images.

Page Layout and Background: Page Frame.

UNIT III

Getting Started With Photoshop: Opening an Existing File.

Working with Images and Color: Image size-Editing Image-Color Modes-File Formats-Setting the Current Foreground and Background colors-The Eye-dropper Tool.

UNIT IV

Making selections: The Selection Tools-Editing Selections.

Painting and Editing Tools: The Painting tools-The Editing Tools-The eraser Tools.

UNIT V

Layers: Transforming Layers.

Types: Changing the Type Setting.

Text Book:

1."Comdex Desktop Publishing course Kit" Vikas Gupta, Dreamtech Press.

SELF-STUDY PAPER

SOFT COMPUTING

Semester: IV **Credits: 2**

UNIT I

Concepts of Fuzzy Logic: Fuzzy set theory-Fuzzy reasoning-Fuzzy Interface Systems-Tsukamoto-Fuzzy models-inputs space partitioning-Fuzzy modeling.

UNIT II

Regression and Optimization: Least squares methods for system identification – Least squares estimator (LSE)-recursive LSE for time varying system-LSE for non-linear models-derivative free optimization-genetic algorithms.

UNIT III

Concepts of Artificial Networks: Basic Models and Learning rules-adaptive networks-feed forward and feed back networks-Supervised and unsupervised learning approaches.

UNIT IV

Neuro-Fuzzy Modeling: Adaptive Neuro-Fuzzy interface System(ANFIS)-ANFIS architecture-Hybrid learning algorithm-examples-on-line identification-chaotic tim series prediction.

UNIT V

Neuro-Fuzzy Control Applications: Feedback control systems-inverse learning-non-linear system identification-application examples-building lighting control-temperature control.

Reference Book(s)

1. **J.S.T Jang, C.T Sun and E.Mitizutani "Neuro-Fuzzy and Soft Computing", Prentice Hall International,Inc,1997.**

2. **Chin-Teng Lin, C.S. George Lee, "Neural Fuzzy systems", Prentice-Hall International, Inc 1996.**
3. **Jose C, principle, Neil R.Euliano and W. Curt Lefebvre, "Neural and adaptive systems", John willey & Sons, Inc, 2000.**

SELF-STUDY PAPER
EMBEDDED SYSTEM

Semester: V **Credits: 2**

UNIT I

Introduction: The concept of embedded system design, processor technology, design technology, custom single-purpose processor, embedded microcontroller cores, embedded memories, examples of embedded systems.

UNIT II

General purpose processor and ASIPs: Software and operation of general purpose processors, programmers view, development environment, ASIPs, microcontrollers, DSP chips.

UNIT III

Standard peripherals: Timers and applications, USARTY, PPI, PIT, PIC, PWM, A/D CONVERTS.

Memory: Different types of ROM's and Ram's.

UNIT IV

Interfacing: Introduction to interfacing, interrupts and DMA, Communication serial protocols, parallel protocols, wireless protocols.

UNIT V

Software: Software aspects of embedded systems: real time programming languages and operating systems for embedded systems.

Reference Books:

1. **Embedded system design By Frank vahid and Tony GIvargis 2002 (John wiley).**
2. **Embedded Microcomputer system: real Time interfacing By J.W. Valvano 2000 (Brooks/Cole).**
3. **The Art of designing embedded systems by Jack Ganssle 1999 (Newmes).**
4. **An Embedded software primer By david simon 2000(Addison Wesley).**

5. **VLSI digital signal processing By V.K. madiseeti 1995 (IEEE press, NY, USA).**
6. **The 8051 Microcontroller: Architecture, programming and application By K.J.Ayala 1996 (Penram intl).**

VISUAL C++

SEMESTER: VI **Credits: 2**

UNIT I

WINDOWS PROGRAMMING 9 WINDOWS ENVIRONMENT-a simple windows program-windows and messages-creating the window-displaying the window-message loop-the window procedure-message processing-text output-painting and repainting-introduction to GDI-device context-basic drawing-child window controls

UNIT II

VISUAL C++ PROGRAMMING-INTRODUCTION 9 Application framework-MFC library-visual c++ -Event Handling-mapping modes-colors-fonts-model and modeless dialog-windows common controls -bitmaps.

UNIT III

THE DOCUMENT AND VIEW ARCHITECTURE 9 Menus-Keyboard accelerators-rich edit control-toolbars-status bars-reusable frame window base class-separating document from its view-reading and writing SDI and MDI documents-splitter window and multiple views-creating DLLs-dialog based applications.

UNIT IV

ACTIVEX AND OBJECT LINKING AND EMBEDDING (OLE) 9 ActiveX controls Vs. ORIDINARY windows controls-Installing ActiveX controls-calendar control-ActiveX control container programming-create ActiveX control at runtime-component object model(COM)-containment and aggregation Vs. inheritance-OLE drag and drop-OLE embedded component and containers-Sample applications.

UNIT V

ADVANCED CONCEPTS 9 Database Management Microsoft ODBC-Structured Query Language-MFC ODBC classes-sample database applications-filter and sort strings-DAO concepts-displaying database records in scrolling view-Treading-VC++ Networking issues-Winiet-building a web client-Internet Information server- ISAPI server extension-chat application-playing and multimedia(sound and video) files.

Text Book(s)

1. Charles Petzold," Windows programming", Microsoft press, 1996 (UNIT I chapter 1-9)

2. David J. Kruglinski, George shepherd and scot Wingo, " Programming Visual c++", Microsoft press, 1999 (UNIT II-V).

Semester	Part Code	Title of the Paper	Status
I	I	Tamil	--
	II	English	--
	III Core papers	Digital Principles and Computer Organization	Include as New Core Paper
		Programming in C	Change
	Allied Paper	Statistics	Change
	Core Lab I	Practical I- Programming in C Lab	--
	Core Lab II	Practical II – Visual Basic Lab	Replace from II Semester
	IV ENS	Environmental Studies	--
	IV SBE	Skill Based Elective	--
II	I	Tamil	--
	II	English	--
	III Core Papers	Operating System Concepts	Change
		Object Oriented Programming in C++	Change
	Allied Paper	Discrete Mathematics	Change
	Core Lab1	Practical III- C++ Programming Lab	--
	Core Lab2	Practical IV – Linux Lab	Replace from V Semester
	IV VAE	Value Education	--
	IV SBE	Skill Based Elective	--
III	I	Tamil	--
	II	English	--
	III Core Papers	Data Structures	Change
		Programming in .NET	Replace from VI Semester
	Allied Paper	Numerical Methods	--
	Core Lab 1	Practical V- Data Structure Implementation in C++	--
	Core Lab 2	Practical VI – .NET Technologies Lab	Replace from VI Semester
	IV NME	Non-Major Elective **(Web Technologies)**	--
	IV SBE	Skill Based Elective	--

IV	**I**	Tamil	--
	II	English	--
	III Core Papers	Data Base Management System	Change
		Java Programming	Change
	Allied Paper	Operation Research	Change

SYLLABUS STATUS REPORT (2018 onwards)

	Core Lab1	Practical –VI I Oracle Programming Lab	--
	Core Lab2	Practical – VIII Java Programming Lab	--
	IV NME	Non-Major Elective **(Oracle)**	--
	IV SBE	Skill Based Elective	--
V	**III Core Papers**	Computer Networks	Change
		Web Technologies	Change
		J2EE	--
	Core Lab1	Practical – IX Multimedia Lab	Replace from III Semester
	Core Lab2	Practical – X Web Technologies Lab	--
	Elective I	Multimedia	Replace from III Semester
	IV SBE	Skill Based Elective **(Soft Skill)**	--
VI	**III Core Papers**	PHP **(Hyper Text Preprocessor)**	--
		Python and R Programming	Include New Core Paper
		Software Engineering	Replace from V Semester
	Core Lab1	Practical XI – PHP **(Hyper Text Pre Processor)** Lab	--
	Core Lab2	Practical XII – Python and R Programming Lab	Include New Core Lab
	Elective II	Mobile Computing	Change
	IV SBE	Skill Based Elective **(General Knowledge)**	--
	V	PE/NCC/NSS/EXT	--

-- No Change

BLUE PRINT OF QUESTION PAPER

Section – A

Answer any 10 Questions **(10 * 2 = 20 Marks)**

1. UNIT I
2. UNIT I
3. UNIT I
4. UNIT II
5. UNIT II
6. UNIT II
7. UNIT III
8. UNIT III
9. UNIT III
10. UNIT IV
11. UNIT IV
12. UNIT IV
13. UNIT V
14. UNIT V
15. UNIT V

Section – B

Answer all the Questions **(5 * 5 = 25 Marks)**
Choose Either a) or b)

16. a) UNIT I **[OR]**

12. b) UNIT I

13.

17. a) UNIT II **[OR]**
    b) UNIT II

18. a) UNIT III **[OR]**
    b) UNIT III

19. a) UNIT IV **[OR]**
    b) UNIT IV

20. a) UNIT V **[OR]**
    b) UNIT V

Section – C

Answer any Three Questions **(3 * 10 = 30 Marks)**

21. UNIT I
22. UNIT II
23. UNIT III
24. UNIT IV
25. UNIT V

DEPARTMENT OF COMPUTER SCIENCE

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MADURAI -14

M.Sc COMPUTER SCIENCE

Choice Based Credits System Syllabus

(2 0 1 8 o n w a r d s)

BLUE PRINT OF THE CHOICE BASED CREDIT SYSTEM DISTRIBUTION OF NUMBER OF PAPERS (NO), HOURS (HR), AND CREDIT (CR)

M.Sc COMPUTER SCIENCE

SUBJECT	**SEMESTER I**			**SEMESTER II**			**SEMESTER III**			**SEMESTER IV**			**TOTAL**		
Core	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**	**No**	**Hr**	**Cr**
Theory	4	17	16	4	16	16	4	18	16	2	10	6	14	61	54
Practical	2	8	4	2	10	5	3	8	6	1	4	2	8	30	17
Elective	1	5	4	1	4	3	1	4	4	--	--	--	3	13	11
Project	--	--	--	--	--	--	--	--	--	1	16	8	1	16	08
Total	--	**30**	--	--	**30**	--	--	**30**	--	--	**30**	--	--	**120**	**90**

Semester	Part	Subject Code	Title of the Paper	Teaching	
				Hours	Credits
I	Core Theory		Mathematical Foundations	4	4
			Advanced Operating Systems	4	4
			Relational Data Base Management System	4	4
			Programming in C and C++	5	4
	Core Practical		Practical – I C and C++ Programming Lab	4	2
			Practical – II Oracle Lab	4	2
	Elective		Computer Networks	5	4
II	Core Theory		Data Structures using C++	4	4
			Advanced Java Programming	4	4
			Network Security	4	4
			Software Engineering	4	4
	Core Practical		Practical – III Data Structures using C++ Lab	6	3
			Practical – IV Advanced Java Programming Lab	4	2
	Elective		Automata Theory	4	3
III	Core Theory		Compiler Design	5	4
			Web Designing	5	4
			Digital Image Processing	4	4
			Data Analytics	4	4
	Core Practical		Practical – V Linux Programming Lab	3	2
			Practical – VI Web Design and .Net Technologies Lab	3	2
			Practical – VII Digital Image Processing Using MAT Lab	2	2
	Elective		Soft Computing	4	4
IV	Core Theory		PHP (Hypertext Preprocessor)	6	3
			Cloud Computing	4	3
	Core Practical		Practical – VIII PHP Lab	4	2
	Research		Project Viva – Voce	16	8
Total				120	90

YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS PLAN (2018 onwards)

M.SC COMPUTER SCIENCE

Nature of Subject	Title of the Paper	Hours	Credits
Core Theory	Mathematical Foundations	4	4
	Advanced Operating Systems	4	4
	Relational Data Base Management System	4	4
	Programming in C and C++	5	4
	Data Structures using C++	4	4
	Advanced Java Programming	4	4
	Network Security	4	4
	Software Engineering	4	4
	Compiler Design	5	4
	Web Designing	5	4
	Digital Image Processing	4	4
	Data Analytics	4	4
	PHP (Hypertext Preprocessor)	6	3
	Cloud Computing	4	3
Core Practical	C and C++ Programming Lab	4	2
	Oracle Lab	4	2
	Data Structures Using C++ Lab	6	3
	Advanced Java Programming Lab	4	2
	Linux Programming Lab	3	2
	Web Design and .Net Technologies Lab	3	2
	Digital Image Processing Using MAT Lab	2	2
	PHP Lab	4	2
Elective	Computer Networks	5	4
	Automata Theory	4	3
	Soft Computing	4	4
Project	Viva Voce	16	8
Total		**120**	**90**

CORE PAPER I
MATHEMATICAL FOUNDATIONS

Semester : I **Hours of Teaching : 4**

Subject Code : **Credit : 4**

UNIT I

Logic: Proposition – Logical Operators – Truth Tables – Normal forms – Laws of Logic – Proofs in Propositional calculus (Theory of Inference)

UNIT II

Algebraic Structures: Groups – Subgroups – Homomorphism – Cosets – Lagrange's Theorem – Normal subgroups – semi groups – monoids – homomorphism of semi group and monoids – sub semi groups and sub monoids.

UNIT III

Lattices and Boolean algebra: Lattices – Properties – new lattices – modular and distribution lattices. Boolean algebra – Switching circuits.

UNIT IV

Introduction to transportation problems: IBFS – Optimum Solutions – MODI method – Unbalanced – Maximization – **Introduction to assignment Problem:** Unbalanced – Maximization – Restriction.

UNIT V

Introduction to game theory – Two Persons zero sum game – Maximin – minimax – principles – Saddle point – without saddle point – Matrix Oddment method – Solve N*N game – Graphical Method – Dominance property.

Text Book(s)

1. **"Discrete Mathematics"** M.K.Venkatraman, N.Sridharan, N.Chandrasekaran, 2001, The National Publishing Company
2. **"Resource Management Techniques"** – Prof.V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan., A.R.Publications

CORE PAPER II

ADVANCED OPERATING SYSTEMS

Semester : I **Hours of Teaching : 4**

Subject Code : **Credits : 4**

UNIT I

Process synchronization: overview: Functions of an OS – Design approaches. Synchronization mechanisms: Concept of a process – concurrent process – Critical section problem – other synchronization problems. Process Deadlocks: preliminaries – Models of Deadlocks – Models of resources – A Graph theoretic model of a System State – Systems with only reusable Resources.

UNIT II

Distributed Operating System: Communication networks – Communication primitives. Theoretical foundations: Inherent limitations – Lamport's logical clocks – Vector clocks - Termination detection Distributed Mutual exclusion: Preliminaries – Non – Token based and Token Based Algorithms - Comparative performance analysis. Distributed Deadlock detection: Deadlock handling strategies - control Organization - centralized and Distributed deadlock detection algorithm.

UNIT III

Distributed Resource Management: Architecture – Mechanisms – Design Issues – case studies – Distributed shared memory: Architecture – Algorithms – Memory coherence – Coherence protocols – Design Issues. Distributed scheduling: Issues – components- Load – distributing algorithms – Performance Comparison.

UNIT IV

Multiprocessor Operating systems: Motivation – Basic Architectures – Interconnection Networks – Caching – MOS Structures – Design Issues – Threads – Process Synchronization – Process Scheduling – Memory Management.

UNIT V

Database Operating systems: Introduction – Concurrency control: Database systems Serializability Theory – Distributed database systems – Lock based and Timestamp based algorithm – Concurrency control algorithms.

Text Book(s)

1. Mukesh Singhal, Niranjan G. Shivaratri, "Advanced Concepts in Operating Systems: Distributed, Database and Multiprocessor Operating Systems," TMH, 2001.

Reference Book(s)

1. Andrew S. Tanenbaum, "Modern Operating System, "PHI, 2003.
2. Pradeep K. Sinha, "Distributed Operating system concepts and Design,"PHI, 2003.

CORE PAPER III

RELATIONAL DATABASE MANAGEMENT SYSTEM

Semester : I **Hours of Teaching : 4**

Subject Code : **Credits : 4**

UNIT I

Data, Information and Information Processing: Introduction – Definition of Information – History of Information – Quality of Information – Accuracy – Timeliness – Relevancy. **Introduction to Database Management System:** Introduction – Why A Database – Characteristics Of Data In A Database – Database Management System – Transaction Management – Concurrency Control – Security Management – Language Interface – Storage Management – Data Catalog Management – Why DBMS – Types Of Database Management Systems – Hierarchical Model – Advantages – Disadvantages – Network Model - Advantages – Disadvantages – Relational - Advantages – Disadvantages – Object –Oriented Model - Advantages – Disadvantages – Object-Relational Model – Deductive / Inference Model – Comparison between the Various Database Models.

UNIT II

Introduction to Oracle and RDBMS: Understanding RDBMS – Understanding E-R Model - Identifying Keys – E-R Diagrams – Normalization – CODD'S Rules for Relational Databases. **Introduction to SQL:** Overview Of SQL – Sub-Language of SQL – Data types in Oracle – Operators in Oracle – Retrieving Data form Database Tables – Using the SELECT Statement – Using the WHERE Clause – Using the ORDER BY Clause – Using the GROUP BY And HAVING Clauses – Using the ROLLUP and CUBE Operations – Using Joins and SET Operators in Oracle – Equi And Non-Equi Joins – Cartesian join – outer join – self join - cross join – natural join – Set Operators – **Functions in Oracle** – Arithmetic Functions – Date Functions – Character Functions.

UNIT III

DDL and DML Statements : Understanding DDL – Creating Tables – Deriving a Table from Existing Table – Altering Tables – Dropping Tables – Understanding Integrity Constrains – NULL Constraint – UNIQUE KEY Constraint – PRIMARY KEY Constraint – FORGIEN KEY Constraint.

Understanding DML: Using INSERT statement – Using UPDATE statement – Using DELETE statement. **Views in ORACLE:** Inserting, Updating and Deleting Data Using Views – Types of Views – Read-Only Views – Inline Views – Materialized Views – object views.

UNIT IV

Understanding DCL and TCL Statements: Understanding Data Control Statements – Using the GRANT Statement - Using the WITH GRANT OPTION – Using the REVOKE Statement – Understanding Locking and Transaction Control Language – Introducing Locking – Introducing Transactions – Using COMMIT And ROLLBACK Statement. **PL/SQL Programming:** Introduction to PL/SQL – PL/SQL types.

Cursors in ORACLE: Working with Cursors – Declaring Cursors – Opening Cursors and Retrieving Records – Closing Cursors – Using %ROWTYPE Attributes – Attributes Of Explicit Cursors – Attributes Of Implicit Cursors.

UNIT V

Procedures, Functions and Packages: Working with Procedures – The CREATE PROCEDURE Statement – Creating and Dropping Procedures –Working with Functions – The CREATE FUNCTION Statement - Creating and Dropping Functions – Working with Packages – Creating Packages - Calling Stored Procedures and Functions.

TRIGGERS IN ORACLE: Working with Trigger – The CREATE TRIGGER Statement – Types of Triggers – Creating Triggers – Creating BEFORE and AFTER Triggers.

Text Book(s)

1. **"Database Management System,"** Alexis Leon, Mathews Leon "Vijay Nicole Imprints Pvt .Ltd.
2. **"Understanding Oracle",** First Indian Edition "Ivan Bayross" BPB Publications.

Reference Book(s)

3. **"Fundamentals of Data Base Systems",** Elmasri, Navathe, Third Edition, Pearson Education Asia.

1. **"Database Management System,"** Alexis Leon, Mathews Leon "Vijay Nicole Imprints Pvt .Ltd.

Chapter 5 Page No 99 to 117

2. **"Understanding Oracle",** First Indian Edition "Ivan Bayross" BPB Publications.

UNIT II

Chapter 1 Page No 3 to 15
Chapter 2 Page No 52 to 46, 46 to 51

UNIT III

Chapter 3 Page No 57 to 68, 75 to 79
Chapter 4 Page No 95 to 104

UNIT IV

Chapter 5 Page No 106 to 113, 116 to 123
Chapter 6 Page No 125 to 135
Chapter 8 Page No 173 to 185

UNIT V

Chapter 9 Page No 192 to 201,218 to 220, 224 to 230
Chapter 10 Page No 231 to 241

CORE PAPER IV

PROGRAMMING IN C and C++

Semester : I **Hours of Teaching : 5**

Subject Code : **Credits : 4**

UNIT I

Overview of C: Basic Structure of C Programs **- Constants, Variables, and Data Types:** character set – c tokens – keywords and identifiers – constants – variables – data types – declaration of variables – declaration of storage class – assigning values of variables – defining symbolic constants – declaring a variables as constant. **Operators And Expression:** introduction – arithmetic operators –relational operators – logical operators – assignment operators – increment and decrement operators – conditional operators – bitwise operators – special operators – arithmetic expression – precedence operators – some computational operators – type conversion in expression – operator precedence and Associativity – mathematical functions. **Input and Output Operations:** introduction – reading a character – writing a character – formatted input – formatted output. **Decision Making and Branching:** introduction – decision making with if statement – simple if statement – The if...else statement – nesting of if...else statements – the else if leader – the switch statement – the ?: operator – the Goto statement. **Decision Making and Looping:** introduction – the while statement – the do statement – the for statement – jumps in loops. **ARRAYS:** One dimensional Arrays, Declaration of One-Dimensional Array, Initializations of One-Dimensional Arrays, Two-Dimensional Arrays, Initializations of Two-Dimensional Arrays, Multi-Dimensional Arrays – Dynamic Array.

UNIT II

Character arrays and strings: introduction – declaring and initializing string variables – reading string from terminal – writing string to screen – arithmetic operations on characters – putting strings together – comparison of two strings – string-handing – functions – table of strings. **User Defined Functions:** Need For user defined functions - A Multi-Function Program - Elements of user defined Functions - Definition of Functions - Return Values and Their Types - Function calls -Function Declarations - Category of Functions - No Arguments and No Return Values - Arguments But No Return values - Arguments with Return Values - No Arguments But Return a Value- function that return multiple values – nesting of functions – recursion – passing arrays to functions – passing strings to functions – the scope, visibility and lifetime of variables. **Structure and unions:** introduction – defining a structure – declaring structure variables – accessing members – structure initialization – copying and comparing structure variables – operations on individual members – arrays of structure – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

UNIT III

Pointers: introduction – understanding pointers – accessing the address of a variables – declaring pointer variables – initialization of pointer variables – accessing a variables through its pointer – chain of pointers – pointer expressions – pointer increments and scale factor – pointer and arrays – pointers and character strings – arrays of pointer – pointers of function arguments - functions returning pointers – pointers to functions – pointer and structures – troubles with pointers. **File management in c:** introduction– defining and opening a file – closing a file – input/output operations on files – error handling during I/O operations – random access to files – command line arguments. **Dynamic memory allocation and linked list:** introduction – dynamic memory allocation – allocation a block of memory : malloc – allocating multiple blocks memory : calloc – releasing the used space : free – altering the size of block: realloc – concepts of link lists – advantages of linked list - types of linked lists – pointers revisited – creating a linked list – inserting an item – deleting an item – application of linked list. **The pre-processor:** introduction – macro substitution – file inclusion – compiler control directives. **Graphics:** ABC of graphics – stylish lines – drawing and filling images – palettes and colors – outputting text – justifying text – a bit of animation. **Interaction with mouse:** drawing with mouse – more mouse cursors – menus using mouse – **Chart master:** bar chart – pie chart.

UNIT IV

Principles of object-oriented programming: software evolution – object–oriented programming paradigm – basic concepts of object–oriented programming – benefits of OOP - object–oriented languages – application of OOP. **Tokens, expressions and control structures:** tokens – keywords – identifiers and constants – basic data types - user – defined data types – reference variables – operator in C++ - scope resolution operators – manipulators. **Function in C++:** function prototyping – call by reference - return by reference – inline functions – default arguments – recursion – function overloading.

Class and objects: specifying a class – defining member function – a C++ program with class – making an outside function inline – nesting of member functions – private member functions – arrays within a class – static data members – static member functions – friendly functions. **Constructors and destructors:** constructors – parameterized constructor – multiple constructors in a class – constructors default arguments – dynamic initialization of objects – copy constructor – destructors.

UNIT V

Operator overloading type conversion: defining operator overloading – overloading

unary operators – overloading binary operator – overloading binary operator using friends – manipulation of string operators – rules for overloading operators – type conversions.

Inheritance extending classes: single inheritance – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance – virtual base classes – abstract classes. **Pointers, virtual functions and polymorphism:** pointers of objects – this pointer – virtual functions – pure virtual functions. **Managing console I/O operation:** C++ streams – C++ streams classes – unformatted I/O operations – formatted I/O operations –managing output with manipulators. **Working with files:** opening and closing a file – detecting end – of – file – more about open (): file modes – file pointers and their manipulations. **Templates:** class templates - class templates with multiple parameters – function templates.

Text Book(s)

1. **"Programming ANSI C",** Sixth edition "E.Balagurusamy" McGraw Hill Education private limited.
2. **"Graphic Under C",** Yashavant kanetkar" BPB publications
3. **"Object oriented programming with C++",** Fifth "E.Balagurusamy" McGraw Hill Education private limited.

Reference book(s)

1. B.Gottfried, **"Programming with C",** Schaum series, Tata McGraw Hill
2. P.E.Mahapatra, **"Thinking in C",** A.H.Wheeler & Co.Ltd, New Delhi
3. R.Lafore, **"Object Oriented Programming in C++",** Galgotia

"Programming in ANSI C", Balagurusamy

UNIT I	Chapter	1.8, 2.2 To 2.12, 3.1 To 3.16,4.1 To 4.5,5.1 To 5.9,6.1 To 6.5,7.2 To 7.8
UNIT II	Chapter	8.1 To 8.9, 9.2 To 9.19, 10.1 To 10.14
UNIT III	Chapter	11.1 To 11.17, 12.1 To 12.7, 13.1 To 13.14, 14.1 To 14.4,

"Graphic under C" **Yashavant kanetkar BPB publications**

UNIT III Chapter 2, 4, 6

"Object oriented programming with C++", **Fifth "E.Balagurusamy"**

UNIT IV Chapter 1.2, 1.4 To 1.8 3.2 To 3.6, 3.13 To 3.15, 3.18, 4.3 To 4.7, 4.9, 4.10, 5.3 To 5.9, 5.11, 5.12, 5.15, 6.2 To 6.7, 6.11

UNIT V Chapter 7.2 To 7.6, 7.8, 7.9, 8.3 To 8.5 To 8.10, 9.3, 9.4, 9.6, 9.7, 10.2 To 10.6,11.3 To 11.6, 12.2 To 12.4

PRACTICAL I

C and C++ PROGRAMMING LAB

Semester : I	**Hours of Teaching : 4**
Subject Code :	**Credits : 2**

1. Programs using Input statement.
2. Programs using Control, Conditional Statements.
3. Programs using files.
4. Graphics programs.
5. To create menus with shortcuts & interactivity.
6. To create cursors of various shapes.
7. Simple C++ program using class
8. Write a C++ program to implement inheritance & virtual function.
9. Write a C++ program to implement multiple inheritance
10. Write a C++ program to implement multilevel inheritance
11. Write a C++ program to implement hybrid inheritance
12. Write a C++ program to implement hierarchical inheritance
13. Write a C++ program to implement operator overloading(+,*,/,-)
14. Write a C++ program to implement '++' operator to overload.
15. Write a C++ program to implement friend function
16. Write a C++ program to implement constructor & destructor
17. Write a C++ program to implement function overloading
18. Write a C++ program to Process student's mark list using file.
19. Write a C++ program to Process library maintenance using file
20. Write a C++ program to implement matrix addition using operator overloading
21. Write a C++ program to implement matrix multiplication using operator overloading.

PRACTICAL II

ORACLE LAB

Semester : I	**Hours of Teaching : 4**
Subject Code :	**Credits : 2**

Queries and SQL Functions

1. Creating Tables for Different Applications using DDL
2. Performing all DML Functions
3. Performing DCL Functions
4. Solving Queries - Date Functions, Numeric Functions, Group Functions
5. Set Operators- Union, Union All, Intersect, Minus
6. Join Concept- Simple Join, Table Aliases, Self Join, Outer Join, Sub Queries, Multiple Sub queries

Constraints, Database Objects & PL/SQL

1. Creating tables with integrity constraints- domain integrity, check constraints, Entity integrity constraints-Referential integrity constraints, deferrable constraints
2. Creating tables with security- row level locks, table level locks
3. Creating database objects using queries- synonym, sequences, view, partition view, index

1. Creating PL/SQL block using all the control statements
2. Creating PL/SQL block using EXPLICIT & IMPLICIT CURSOR
3. Creating PL/SQL block with error handling techniques (pre-defined & user-defined Exception)

Subprograms, packages, Triggers

a. Creating procedures, functions, and packages for different applications.
b. Creating triggers for different applications

ELECTIVE PAPER I

COMPUTER NETWORKS

Semester : I **Hours of Teaching : 5**

Subject Code : **Credits : 4**

Objectives

- *To understand basics of networks*
- *To become familiar with different types & importance of layers*
- *Explain the different techniques in networks*

UNIT I

Introduction: Uses of Computer Networks - Network Hardware - Network Software - Reference Models - Example Networks - Examples of Data Communication services.

UNIT II

The Physical Layer: Guided Transmission Media - Wireless Transmission - Communication Satellites - The Telephone System - Multiplexing

UNIT III

The Data Link Layer: Data Link Layer Design Issues - Error Detection and Correction - Elementary Data Link Protocols - Sliding Window Protocols - The Channel Allocation Problem - Multiple Access Protocols, Aloha, CSMA & Collision Free protocols.

UNIT IV

The Network Layer: Network Layer Design Issues - Routing Algorithms – Flooding - Distance Vector - Shortest Path – Flooding - Hierarchical and Broadcast.

The Transport Layer: The Transport Services - Elements of Transport Protocols.

UNIT V

The Application Layer: DNS - The Domain Name System, Electronic Mail – WWW - Multimedia.

Text Book(s)

1. "Computer Networks", A .S. Tanenbaum, Latest edition, PHI Publication

Reference Book(s)

1. **"Telecommunication Network Design Algorithms",** *Aaron Kershenbaum, MC-Graw Hill.*
2. **"Data and Computer Communications"** *William Stallings, PHI.*

"**Computer Networks",** A .S. Tanenbaum, Latest edition, PHI Publication.

UNIT I	Chapter 1
UNIT II	Chapter 2
UNIT III	Chapter 3.1, 3.2, 3.3, 3.4 Chapter 4.1, 4.2.1, 4.2.2, 4.2.3
UNIT IV	Chapter 5.1, 5.2.1 TO 5.2.6 Chapter 6.1, 6.2
UNIT V	Chapter 7

CORE PAPER V

DATA STRUCTURES USING C++

Semester : II	**Hours of Teaching : 4**
Subject Code :	**Credits : 4**

UNIT I

Review of C++: The Standard C++ Programming Language – Conditionals – Operators – Iteration – Functions – Strings – Files. **Pointers and Arrays:** Pointers – Derived Types – References – Passing by Reference – Null Pointer Exceptions – The **new** and **delete** Operators – Arrays – Dynamic Arrays – Passing an Array to a Function – Multidimensional Arrays.

UNIT II

Classes: A **point** class – Instances, Implicit Arguments, and the **this** pointer – Compiling Classes and their Client Programs – Friend Functions – A **Line** Class – A class for Random Numbers – Static Members – Composition – Inheritance. **Recursion:** The Factorial Function – Tracing a recursive call – The Fibonacci Sequence – Binomial Coefficients – The Euclidean Algorithm – Inductive Proof of Correctness – Complexity Analysis of Recursive Algorithms – Dynamic Programming – The Towers of Hanoi – Mutual Recursion

UNIT III

Stacks: The **Stack** Interface – Using **Stack** Objects – Applications of Stacks – Removing Recursion – Contiguous Implementation – Linked Implementation. **Queues:** The **Queue** Interface – Using **Queue** Objects – Applications of Queues – Removing Recursion – Contiguous Implementation – Linked Implementation. **Lists:** The **List** Interface – Using **List** Objects – Iterators – Applications – Circular Lists – Ordered Lists – An Unbounded **Integer** Class – Implementation of the **List** Class.

UNIT IV

Trees: Tree Terminology – Decision Trees and Transition Diagrams – Tree Traversal Algorithms – A **tree** Class Interface – Implementation of the **tree** class. **Binary Trees:** Definitions – Counting Binary Trees – Full Binary Trees – Identity, Equality, and Isomorphism – Complete Binary Trees – Tree Traversals – Expression Trees – Forests – A **Binary Tree** class interface - Implementation of the **Binary Tree** class.

UNIT V

Search Trees: Binary Search Trees – Implementation of Binary Search Trees – Performance Characteristics of Binary Search Trees – AVL Trees. **Sorting:** The Bubble Sort – The Selection Sort – The Insertion Sort – The Merge Sort – The Quick Sort – Heaps - The Heap Sort – The Shell Sort.

Text Book(s)

1. **"Data Structures with C++" - John R. Hubbard** Tata McGraw-Hill Edition 2004.

UNIT I Chapter 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7.
Chapter 2.1,2.2,2.3,2.4,2.5,2.6,2.7,2.8,2.9,2.10.

UNIT II Chapter 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9.
Chapter 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10

UNIT III Chapter 5.1, 5.2, 5.3, 5.4, 5.5, 5.6.
Chapter 6.1, 6.2, 6.3, 6.4, 6.5.
Chapter 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8

UNIT IV Chapter 9.1, 9.2, 9.3, 9.4, 9.5.
Chapter 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10

UNIT V Chapter 11.1, 11.2, 11.3, 11.4,
Chapter 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9

CORE PAPER VI

ADVANCED JAVA PROGRAMMING

Semester : II **Hours of Teaching : 4**

Subject Code : **Credits : 4**

UNIT I

Overview of Java Language: Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments. **Constants, Variables and Data Types:** Constants – Variables – Data Types – Declaration of Variables – Giving Values to Variables – Symbolic Constants – Type Casting.

Operators and Expressions: Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators - Increment and Decrement Operators – Conditional Operator - Bit-wise Operators - Special Operators – Arithmetic Expressions - Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions. **Decision Making and Branching:** Decision Making with If Statement – Simple If Statement – The If..Else Statement – Nesting of If…Else Statements – The Else If Ladder – The Switch Statement - ?: Operator. **Decision Making and Looping:** While Statement – do Statement – for Statement – Jumps in Loops – Labeled loops

UNIT II

Classes, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Class Members – Constructors - Method Overloading – Static Members – Nesting of Methods – Inheritance: Extending a Class – Overriding Method – Find Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility control. **Arrays, Strings and Vectors:** One-dimensional Arrays – Creating an Array – Two-dimensional Array - Strings – Vectors – Wrapper classes. **Interfaces Multiple Inheritance:** Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.

UNIT III

Packages: Putting Classes Together: Using System Packages – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Binding classes.

Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization – Implementing the 'Runnable' Interface. **Managing Errors and Exceptions:** Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing Our Own Exceptions

UNIT IV

Applets Programming: Preparing to Write Applets – Building Applet Code – Applet Life Cycle - Applet Tag - Adding Applet to HTML File - Running the Applet - Getting Input from the User – Event Handling. **Graphics Programming:** The Graphics Class - Lines and Rectangles - Circles and Ellipses - Drawing Arcs – Drawing Polygons - Line graphs - Drawing Bar Charts.

UNIT V

JAVA SERVER PAGES (JSP): Introduction – Advantages of JSP – Developing first JSP – Reading Request Information – Retrieving the Data Posted from a HTML File to a JSP File - components of JSP – JSP Sessions – Cookies – Disabling a Sessions. **SERVLET :** Introduction-Advantages of Servlet over CGI-Installing Servlet-the Servlet life cycle-Servlet API-A simple Servlet- handling HTTP get request HTTP post request-cookies-session tracking-multi tier application using database connectivity-Servlet chaining.

Text Book(s)

1. **"Programming with JAVA A Primer "** E.Balagurusamy 5th Edition - *TMH Publishing Company Ltd*
2. **''Web Technology'' A Developer's perspective,** N.P.Gopalan., J.Akilandeswari, PHI.

"Programming with JAVA A Primer " E.Balagurusamy 5th Edition - *TMH Publishing Company Ltd*

UNIT I	Chapter 3	3.2, 3.5, 3.6, 3.7, 3.9, 3.10, 3.11
	Chapter 4	4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9
	Chapter 5	5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15
	Chapter 6	6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
	Chapter 7	7.2, 7.3, 7.4, 7.5, 7.6
UNIT II	Chapter 8	8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12 8.13, 8.14, 8.16, 8.18
	Chapter 9	9.2, 9.3, 9.4, 9.5, 9.6, 9.7
	Chapter 10	10.2, 10.3, 10.4, 10.5
UNIT III	Chapter 11	11.3, 11.5, 11.6, 11.7, 11.8
	Chapter 12	12.2 TO 12.10
	Chapter 13	13.2 TO 13.7
UNIT IV	Chapter 14	14.3, 14.4, 14.5, 14.8, 14.9, 14.10, 14.16, 14.17
	Chapter 15	15.2 TO 15.7, 15.9

''Web Technology'' A Developer's perspective, N.P.Gopalan., J.Akilandeswari, PHI.

UNIT V	Chapter	10
	Chapter	11

CORE PAPER VII
NETWORK SECURITY

Semester : II	**Hours of Teaching : 4**
Subject Code :	**Credits : 4**

UNIT I

Introduction of the Concepts of Security: Introduction-Security Approaches-Principal of Security-Types Of attacks.-**Cryptography Techniques:** Plain Text and Chiper Text-Substitution Techniques-Transmission Techniques-Encryption and Decryption-**Symmetric and Asymmetric key Cryptography**: Diffie-Hellman Key Exchange/Agreement Algorithm-Steganography.

UNIT II

Computer-based Symmetric key Cryptographic Algorithms: Introduction- Algorithm Types and Modes-An Overview of symmetric key cryptographic-Data Encryption Standard (DES)-RC5-Blowish-Adavanced Encryption Standard (AES)-Differential and Linear Cryptanalysis

UNIT III

Computer-based Asymmetric key Cryptographic Algorithms: Introduction-An Overview of Asymmetric Key Cryptography-The RSA Algorithm-Digital Signatures-Some other Algorithms-Elliptic Curve Cryptography.

UNIT IV

Public key infrastructure: Private key management-public key cryptography standards-**Internet Security Protocols:** Basic concepts-Secure Socket layer (SSL)-Secure Hyper Text Transfer Protocol (SHTTP)-Time Stamping Protocol (TSP)-Secure Electronic Transaction (SET)-Email Security-Wireless Application Protocol (WAP)- Security.

UNIT V

User Authentication Mechanisms: Authentication Basics-Passwords. **Network Security:** Firewalls-IP Security-Virtual Private Networks (VPN). **Cryptography and Security:** Denial of Service (DOS)-Attacks.

Textbook(s):

1. Atul kahate **"Cryptography and Network Security",** Seventh Reprint 2006, Tata McGraw Hill.

Reference Book(s):

1. William Stalling **"Cryptography and Network Security"** Pearson Education

Atul kahate "Cryptography and Network Security"

UNIT I Chapter-1: 1.1, 1.3, 1.4, 1.5.
Chapter-2: 2.2, 2.3, 2.4, 2.5, 2.6, 2.7.

UNIT II Chapter-3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9.

UNIT III Chapter-4: 4.1, 4.3, 4.4, 4.6, 4.8.

UNIT IV Chapter-5: 5.3, 5.5.
Chapter-6: 6.1, 6.2, 6.3, 6.4, 6.5, 6.9, 6.10.

UNIT V Chapter-7: 7.2, 7.3.
Chapter-9: 9.2, 9.3, 9.4.
Chapter-10: 10.5

CORE PAPER VIII

SOFTWARE ENGINEERING

Semester	**: II**	**Hours of Teaching**	**: 4**
Subject Code	**:**	**Credits**	**: 4**

UNIT

Software Process Models: Waterfall Model- Incremental Process – Model Evolutionary Process Model Specialized Process Model- Unified Process.

UNIT II

Software Engineering Practice: Communication Practice-Planning Practice Modeling Practice-Constitution practice –Deployment **System Engineering**: Computer Based Systems-System Engineering Hierarchy-System Modeling

UNIT III

Requirements Engineering: Requirements Engineering Tasks-Initiating Requirements Engineering Process-Developing Use Cases. **Building Analysis Model** Requirement Analysis – Data Modeling Concepts – Object Oriented Analysis – Flow Oriented Analysis – Class Based Modeling – Behavioral Modeling.

UNIT IV

Design Engineering: Design Concepts-Design Model – Pattern-Based Software Design. **Architectural Design**: Data Design- Architectural Styles and Patterns-Architectural Design. **Modeling Component Level Design** : Designing Class Based Components-Designing Conventional Components.

UNIT V

User Interface Design : Golden Rules-User Interface Analysis and Design- Interface Analysis-Interface Design Steps. **Testing Strategies:** Test Strategy for Conventional Software-Test Strategies for Object Oriented Software-Validation Testing-System Testing. **Testing Tactics:** Black Box Testing –White Box Testing-Control Structure Testing-Inner Class Test Case Design-Testing Patterns

Text Book

1. *Roger S.Pressman , Software Engineering –A Practitioner 's Approach Sixth Edition " MCGraw –Hill International Editions , International Edition 2005*

Reference Book

1. *L.Shooman "Software Engineering Design, Reliabilty and Management", MCGraw Hill Internation Edn, Newyork, 1998*

*Roger S.Pressman , **Software Engineering –A Practitioner 's Approach Sixth Edition** " MCGraw –Hill International Editions , International Edition 2005*

UNIT I Chapter 3.2, 3.3, 3.4, 3.5, 3.6

UNIT II Chapter 5.2, 5.3, 5.4, 5.5, 5.6, 6.1, 6.2, 6.2.1

UNIT III Chapter 7.2, 7.3, 7.5, 8.1, 8.3, 8.4, 8.6, 8.7, 8.8

UNIT IV Chapter 9.3, 9.4, 9.5, 10.2, 10.3, 10.4, 11.2, 11.5

UNIT V Chapter 12.1, 12.2, 12.3, 12.4, 13.3, 13.4, 13.5, 13.6, 14.2, 14.3, 14.5, 14.9, 14.11

PRACTICAL III

DATA STRUCTURES USING C++

Semester	**: II**	**Hours of Teaching**	**: 6**
Subject Code :		**Credits**	**: 3**

Data Structure and C++

1. Programs Using Functions, Functions With Default Arguments, Implementation Of Call By Value, Call By Address And Call By Reference
2. Simple Classes For Understanding Objects, Member Functions And Constructors
3. Classes With Primitive Data Members, Classes With Arrays As Data Members
4. Classes With Pointers As Data Members , String Using Class , Classes With Constant Data Members, Classes With Static Member Functions
5. Compile Time Polymorphism , Operator Overloading Including Unary And Binary
6. Operators, Function Overloading
7. Runtime Polymorphism , Inheritance, Virtual Functions, Virtual Base Classes Templates
8. File Handling, Sequential Access, Random Access
9. Program To Implement The Linked List
10. Program For Adding And Displaying Node In A Doubly Linked List
11. Program To Implement Circularly Linked List
12. Program To Implement To Stacks Using Linked List
13. Program To Implement To Queues Using Linked List

Algorithm Techniques

14. Program To Illustrate The Linear Search
15. Program To Illustrate Binary Search
16. Program For Implementing Bubble Sort
17. Program For Implementing Insertion Sort
18. Program For Implementing Selection Sort
19. Program For Implementing Quick Sort
20. Program For Implementing Merge Sort
21. Program For Implementing Stack Using Arrays
22. Program For Implementing Queue Using Arrays
23. Program For Implementing Tree Traversal
24. Program To Convert Infix Expression To Postfix Expression By Using Stack Implementation
25. Program To Convert Infix Expression Infix To Prefix Form

CORE PRACTICAL IV

ADVANCED JAVA PROGRAMMING LAB

Semester : II **Hours of Teaching : 4**

Subject Code : **Credits : 2**

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1. CLASSES AND OBJECTS

A company wants to store all the in formations about the employee working. The details Consists of Employee Number, Name, Department, Salary, Age & Sex. Create a class named Emp with above details and create objects to access them.

2. INHERITANCE

Design a mark list which has a following details, Student Name, Major, Year of student, Marks, Total and Results using two classes.

3. MULTITHREADING

An interviews going on for the post of the system analysis's in a software company. The candidates are waiting in a queue, from the queue they turn to company and to be interview. Each candidate is questioned for 10 minutes. Between each candidates interview the interviewer takes two minutes break. Create a thread to calculate the waiting time of each candidate (There is 50 to 20 candidates)

4. PACKAGES AND INTERFACES

Create a package called PGM with the following details PGM name, Broadcast day, Station name, director name, PGM type, broadcasting time(in railway time).Create another package called charge details with the following details PGM type is "commercial" Rs.20 per minutes. If PGM type is "Drama Rs.100 per minutes "Education" Rs.50 per minute. Inherit the necessary details from "PGM ".Using an interface calculate amount to be paid by the programmers to the radio station,. if they want their programs to broadcast. Display full information about the given details by creating objects.

5. METHOD OVERLOADING

Write a program to calculate sum of two numbers. Use same method name to calculate. Create objects to call the methods, differentiated either by signature or by data type or both

6. STRING HANDLING

Write a program to perform at least 10 methods to handle the strings.

7. EXCEPTION HANDLING

Create a try block that is likely to generate any five exceptions and then incorporate necessary catch blocks to catch and handle them appropriately.

8. APPLET

Write a Java applet to create a layout

9. FRAMES

Write a Java program which will make the balls of various colors to move within the frame windows.

10. JDBC CONCEPTS

Write a Java programs to calculate the employee details using JDBC concepts.

11. JSP AND SERVLETS

1. Create a GenericServlet class and Print “Hello” to the browser using service() method?
2. Create a HttpServlet Class and Print “Hi World” to the browser using doGet() Method?
3. Create a HttpServlet class and Print “Hello World” to the browser using doPost() Method?
4. Create a HttpServlet class and Create a session inside the doGet()Method?
5. Create a GenericServlet class and Create a Session inside the service() method?

ELECTIVE PAPER II

AUTOMATA THEORY

Semester : II	**Hours of Teaching : 4**
Subject Code :	**Credits : 3**

UNIT I

Introduction – Strings – Alphabets – Languages – Graphs – Trees – Inductive proofs–Set notation – Relation – formal languages – Four classes of grammar – phrase structure – context sensitive – context free – Regular – Context free Language – generation tree – ambiguity.

UNIT II

Finite automat – Regular Expression – finite state System – Basic definition – NDFSA-Conversion of NDFSA to DFSA – Finite Automata with e-moves – Regular Expression – two way finite automata – finite automata with output – Application of finite automata.

UNIT III

Acceptance of a regular set by an FSA – construction of a right linear grammar from a finite automation – pushing lemma for regular sets – closure properties of regular sets – minimization of finite automation.

UNIT IV

Context free Grammar – Motivation and introduction – Context – free grammars – Derivation trees – Simplification of Context – free grammars – Chomsky normal form Greibach normal form – The existence of inherently ambiguous context – free languages Properties of Context – free Languages – The pumping lemma for CFL's – Closure Properties of CFL's – Decision algorithms for CFL's.

UNIT V

Pushdown Automata (PDA) – Definition – Acceptance of a work by a finite state – Empty store construction of a PDA to accept languages by empty store given a PDA to accept the language by finite state – Definition of a deterministic PDA

Text Book(s)

1. *"**Introduction To Automata Theory, Languages And Computation"** John E.Hopcroft, Jeffery D.Ullman Narosa Publishing House Pvt. Ltd.*
2. ***"Automation and Formal languages"** by Putumpekar.,*

Reference Book(s)

1. ***"Automata Theory and Formal Languages"** by Rani Sironmony.*

CORE PAPER IX
COMPILER DESIGN

Semester : III	**Hours of Teaching : 5**
Subject Code :	**Credits : 4**

UNIT I

Introduction to Compiler: Translator, the structure of compiler, Lexical Analysis, syntax analysis, intermediate code, code generation, code optimization, book keeping, error handling, and compiler writing tools.

UNIT II

Lexical analysis: The role of lexical analyzer, a simple approach to design of lexical of lexical analyzer, regular expressions, implementation of lexical analyzer. Basic parsing techniques: derivation & parse trees, parsers, shift reducing parsing, operator precedence parsing, top down parsing, predictive parsing.

UNIT III

Syntax Analysis Introduction: Role of parsers & issues of separating lexical & syntax analysis. Types of grammar, CFG introduction, expressing language through CFG. Basic concepts in parsing leftmost derivation, rightmost derivation, derivation tree, parse tree, Ambiguous grammar. Representation of CFG Tree.

UNIT IV

Parsing technique: LR parser, the canonical collection of LR (0) items, constructing.SLR parsing tables, constructing canonical LR parsing tables, constructing LALR parsing tables, using ambiguous grammars, an automatic parser generator.

UNIT V

Syntax directed translation: syntax directed translation schemes; implementation of syntax directed translators, intermediate code, postfix notation, three address code, quadruples, and triples, postfix translations. Symbol tables: the content of symbol table, data structure for symbol tables, representing scope information. Error detection and recovery: errors, lexical phase errors, syntax phase errors, semantic errors, introduction to code optimization: the principle source of optimization, loop optimization, the DAG representation of basic blocks.

Text Book(s)

1. Aho, A V R. Sethi and J.D Ulman, "**Compiler principle, techniques and tools"**, Addison Wesley.

Reference Book(s)

1. *Barrent W A ., J D Couch,* ***Compiler construction theory and practice-Computer science series****, Asian student edition.*
2. *Dhamdhere D. M., Compiler construction principles and practice -, MacMillan*
3. *Gress d., Compiler construction for digital computer, Wiley New York.*
4. *Holub A.j., Compiler Design in C-Printice hall*
5. *Trambley J.P and P.G Sorenson Theory and Practice of compiler*
   Lex and Yece-O'relly.

*Aho, A V R. Sethi and J.D Ulman, "**Compiler principle, techniques"***

UNIT I	Chapter	1.1 To 1.11
UNIT II	Chapter	3.1, 3.2, 3.3, 3.8, 5.1, 5.2, 5.3, 5.4, 5.5
UNIT III	Chapter	4.1, 4.2, 4.3
UNIT IV	Chapter	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7
UNIT V	Chapter	9, 11, 12.1, 12.2, 12.3

CORE PAPER X
WEB DESIGNING

Semester	**: III**	**Hours of Teaching**	**: 5**
Subject Code	**:**	**Credits**	**: 4**

UNIT I

HTML: Introduction – SGML – Outline of an HTML Document – Head Section – Body Section – HTML Forms. **DYNAMIC HTML (DHTML):** Introduction – Cascading Style Sheets (CSS) - DHTML Document Object Model and Collections – Event Handling – Filters and Transitions – Data Binding

UNIT II

EXTENSIBLE MARK-UP LANGUAGE (XML): Introduction – HTML vs XML – Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – The Building Blocks of XML Documents – DTD Elements – DTD Attributes – DTD Entities – DTD Validation – XSL – XSL Transformation – XML Namespace – XML Schema.

UNIT III

JAVA SCRIPT: Introduction – Language Elements – Objects of Java Script – Other Objects – Arrays – Worked Examples

VBSCRIPT: Introduction – Embedding VBScript Code in an HTML Document – Comments – Variables – Operators – Procedures – Conditional Statements – Looping Constructs – Objects and VBScript - Cookies

UNIT IV

Introduction To VB.NET – Data Types And Operators – Control Statement – Arrays – Procedures And Structures – Object Oriented Concept In VB.Net - Concept of Database - Relational Database – Special Features of ADO.Net - Difference between ADO and ADO.NET - XML and ADO.NET

UNIT V

ASP.NET APPLICATIONS – Code - Behind - The Global.aspx Application File – Understanding ASP.NET Classes - WEB FORM FUNDAMENTALS – A Simple Page Applet – Improving the Currency Converter – A Deeper Look at HTML Control Class - THE DATALIST, DATAGRID, AND REPEATER - Introducing Templates –Using Templates with the Data list - Data Binding With Multiple Templates - Comparing The Template Controls.

Text Book(s)

1. **"Web Technologies"** A Developer's Perspective, N.P.Gopalan., J.Akilandeswari, PHI.
2. **P.Radhaganesan,** "VB.NET"**, SCITECH Publication (INDIA) pvt.Ltd.**
3. Matthew MacDonald, **"ASP.NET - The Complete Reference",** TATA McGRAW-HILL EDUCATION pvt.Ltd

Reference Book(s)

1. **"Introduction and Web Technologies"**, Rajkamal, TMH

"Web Technologies" A Developer's Perspective, N.P.Gopalan., J.Akilandeswari, PHI

UNIT I

Chapter 4

Chapter 7

UNIT II

Chapter 8

UNIT III

Chapter 5

Chapter 6

P.Radhaganesan, **"VB.NET"**, SCITECH Publication (INDIA) pvt.Ltd.

UNIT IV

Chapter 2, 3, 4, 5, 6, 8

Chapter 10

Matthew MacDonald, "ASP.NET - The Complete Reference", **TATA McGRAW-HILL EDUCATION pvt.Ltd**

UNIT V

Chapter 5, 6, 15

CORE PAPER

DIGITAL IMAGE PROCESSING

Semester : III **Hours of Teaching : 4**

Subject Code : **Credits : 4**

UNIT I

What is Digital Image Processing – The Origins of Digital Image Processing – Examples of fields that use Digital Image Processing – Fundamental steps in Digital Image Processing – Components of an Image Processing System – Basic Image Transformations Introduction to Fourier Transform and DFT – Properties of two dimensional Fourier transforms – Walsh , Hadamard, Discrete cosine, Haar, slant, Karhunern – Leove transforms – Hotelling transform.

UNIT II

Digital Image Fundamentals - Elements of Visual Perception – Light and the Electromagnetic Spectrum – Image Sensing and Acquisition – Image Sampling and Quantization – Some Basic Relationships Between Pixels – Linear and Nonlinear Operations.

UNIT III

Image Enhancement in Spatial Domain - Some Basic Gray Level Transformations – Histogram Processing – Enhancement Using Arithmetic / Logic Operations – Basic of Spatial Filtering – Smoothing Spatial Filters – Sharpening Spatial Filters – Combining Spatial Enhancement methods.

UNIT IV

Color Image Processing - Color Fundamentals – Color Models – Pseudo color Image Processing – Basic of Full-Color Image Processing – Color Transformations – Smoothing and Sharpening – Color Segmentation – Noise in color Image – Color Image Compression.

UNIT V

Image Compression - Fundamentals – Image Compression Models – Elements of Information Theory- Error-free Compression – Lossy Compression – Image Compression Standards.

Text Book(s)

*1.Gonzalez and Woods : **"Digital Image Processing"**, Addision Wesley,*

Reference Book(s)

*1. Jain A.K. **"Fundamentals of Digital Images Processing",** PHI, Delhi Latest Edition*

*2. Prati, **"Digital Image Processing",** Wiley, Latest Edition.*

*3. Gregory A Baxes **"Digital Image Processing"**, John Willey, Latest*

Edition.

*Gonzalez and Woods **"Digital Image Processing"**, Addision Wesley*

UNIT I	Chapter	1, 4.1, 4.2, 4.6.1, 4.6.5
UNIT II	Chapter	2
UNIT III	Chapter	3
UNIT IV	Chapter	6
UNIT V	Chapter	8

CORE PAPER

DATA ANALYTICS

Semester : III	**Hours of Teaching : 4**
Subject code :	**Credit : 4**

UNIT I

Introduction to Data Mining: Data Miners – The Need of Human Direction of Data Mining – The Cross – Industry Standard Process for Data Mining – CRISP-DM: The Six Phases – Fallacies of Data Mining – Tasks – Data Preprocessing: Data Cleaning – Handling Missing Data – Identifying Misclassification – Graphical Methods for Identifying Outliers – Measures of Center and Spread – Data Transformation – Min-Max Normalization – Z-Score Standardization – Decimal Scaling – Transformations to Achieve Normality – Numerical Methods for Identifying Outliers – Flag Variables – Transforming Categorical Variables into Numerical Variables – Binning Numerical Variables – Reclassifying Categorical Variables – Removing Variables that are not Useful – Variables that should Probably not to be Removed – Removal of Duplicate Records.

UNIT II

Dimension – Reduction Methods: Need for Dimension – Reduction in Data Mining – Principal Components Analysis – Applying PCA to the Houses Data Set – The Eigenvalue Criterion – The Proportion of Variance Explained Criterion – The Minimum Communality Criterion – The Scree Plot Criterion – Profiling the Principal Components – Communalities – Validation of the Principal Components – Factor Analysis – Applying Factor Analysis to the Adult Data Set – Factor Rotation – User – Defined Composite.

UNIT III

Classification: Classification Task – k-Nearest Neighbor Algorithm: Distance Function – Combination Function – Simple Un weighted Voting – Weighted Voting – Quantifying Attribute Relevance: Stretching the Axes – Database Considerations – k-Nearest Neighbor Algorithm for Estimation and Prediction – choosing k – Application of k-|Nearest Neighbor Algorithm Using IBM/SPSS Modeler – Decision Tree: Requirements for Using Decision Trees – Classification and Regression Trees – C4.5 Algorithm – Decision Rules – Comparison of the C5.0 and CART Algorithms Applied to Real Data.

UNIT IV

Clustering: The Clustering Task – Hierarchical Cluster Methods – Single – Linkage Clustering – Complete – Linkage Clustering – k-Means Clustering – Example of k-Means Clustering at Work – Behavior of MSB, MSE, and Pseudo-F as the k-Means Algorithm Proceeds – Application of k-Means Clustering Using SAS Enterprise Miner – Using Cluster Membership to Predict Churn – **Kohonen Networks:** Self-Organizing Maps – Kohonen Networks – Example of a Kohonen Network Study – Cluster Validity – Application of Clustering Using Kohanen Networks – Interpreting the Clusters – Cluster Profiles – Measuring Cluster Goodness: Rational

for Measuring Cluster Goodness – The Silhouette Method – Silhouette Example – Silhouette Analysis of the IRIS Data Set – The Pseudo-F Statistic – Example of the Pseudo-F Statistic – Pseudo-F Statistic Applied to the IRIS Data Set – Cluster Validation – Cluster Validation Applied to the Loans Data Set.

UNIT V

Association Rules: Affinity Analysis and Market Basket Analysis – Data Representation for Market Basket Analysis – Support, Confidence, Frequent Items Sets, and the Priori Property – Generating Frequent Item sets – Generating Association Rules – Extension from Flag Data to General Categorical Data – Information-Theoretic Approach: Generalized Rule Induction Method – J-Measure – Association Rules are Easy to do Badly – Local Patterns Versus Global Models – Case Study: Business understanding, Data Preparation and EDA – Clustering and Principal Components analysis.

Text Book(s)

1. Daniel T.Larose, Chantal D.Larose, **"Data Mining and Predictive Analytics",** 2nd Edition, Wiley Publications, 2015

Reference Book(s)

1. David T.Olson Dursun Delen, **"Advanced Data Mining Techniques",** Springer – Verlag Berlin Heidelberg – 2018.
2. Jiwei Han, Michelien Kamber, **"Data Mining Concepts and Techniques",** Morgan Kaufmann Publishers an Imprint of Elsevier, 2006
3. John Wang, **"Encyclopedia of Data Warehousing and Mining ",** Idea Group Publishing, 2005

PRACTICAL V

LINUX PROGRAMMING LAB

Semester : III	**Hours of Teaching : 3**
Subject Code :	**Credits : 2**

1. Identify the character class
2. Shell script to display the name of process
3. Group the files in a directory
4. Program to search a pattern
5. Counting total number of users
6. Display roman value for numeric value
7. Calculator implementation by shell script
8. Create the user according to the system time
9. Implementation of cat command
10. Implementation of ls command
11. Implementation of mkdir command
12. Implementation of rm command
13. Implementation of chmod command
14. Implementation of cp command
15. To find factorial for the given number
16. Find total sizes in given file
17. Fine and replace a word in a given file
18. Students file creation and processing

PRACTICAL VI

WEB DESIGN and . NET TECHNOLOGIES LAB

Semester	**: III**	**Hours of Teaching**	**: 3**
Subject Code :		**Credits**	**: 2**

Objectives

To learn and implement the Scripting languages, design and develop the programs for web – sites

WEB DESIGN

16. Write a HTML program that displays an image as a hyperlink
17. Write a HTML program that displays the list of Coffee and Milk
18. Write a DHTML code that displays message to the user when the document is loaded in the browser
19. Use the onblur () method on text box and display a message when the textbox loses focus
20. Write a DHTML program which displays a blinking header
21. Write a DHTML code that can select or deselect five checkboxes on the click of a button
22. Write an XML program that displays the breakfast menu at a Hotel. Format the document with an XSL style sheet
23. Create an XML document whose root element is movies. It child elements are movie, title, writer, producer, director, actor, comments. Create a cascading style sheet document for the tag

.NET TECHNOLOGIES LAB

24. Write a .aspx program to display the welcome message.
25. Write a .aspx program to get the name and designation of an employee from the user and display the name and designation entered by the user.
26. Write a .aspx program to perform arithmetic operations.
27. Write a .aspx program to display current date and time.
28. Write a .aspx program to calculate simple interest.
29. Write a .asp program to calculate compound interest.
30. Write a .aspx program to maintain a book details.
31. Write a .net program to connect database the without using wizard.

PRACTICAL VI

DIGITAL IMAGE PROCESSING USING MATLAB

Semester : III **Hours of Teaching : 2**

Subject Code: **Credits : 2**

14. Write a program to Retrieve the Image
15. Write a program to Perform the following Operation with Images
    a. Addition
    b. Subtraction
    c. Multiplication
    d. AND
    e. OR
    f. Zooming, Rotation with various Separations
16. Write a program various types of Filters using MATLAB
17. Write a program to perform Edge Detection using MATLAB
18. Write a program to perform Histogram using MATLAB
19. Write a program to perform various compression Image using MATLAB
20. Write program to perform segmentation using MATLAB

ELECTIVE PAPER

SOFT COMPUTING

Semester : III	**Hours of Teaching : 4**
Subject Code:	**Credits : 4**

UNIT I

Introduction: Neural Networks – Application scope of Neural Networks – Fuzzy Logic. **Artificial Neural Networks:** Fundamental Concept – Evaluation Neural Networks **– Basic Models of Artificial Neural Networks:** Learning - Terminologies of ANNs – McCUlloch – Pitts Neuron – Linear Separability – Hebb Network.

UNIT II

Supervised Learning Network: Perceptron Networks – Adaptive Linear Neuron – Multiple Adaptive Linear Neurons – Back – Propagation Networks. Associative Memory Networks: Introduction – Training Algorithm for Pattern Association- Hopfield Networks: Discrete Hopfield Networks.

UNIT III

Unsupervised Learning Network: Introduction – Maxnet – Maxican Han Net – Hamming Network – Kohonen Self ff- Organizing Feature Maps – Learning Vector Quantization – Adaptive Resonance theory Network.

UNIT IV

Fuzzy logic: Introduction – Classical Sets – Fuzzy Sets. **Fuzzy Relations:** Cardinality of Fuzzy Relation – Operations and properties of Fuzzy Relations – Fuzzy Composition – Noninteractive fuzzy sets. **Membership Functions:** Introduction – Features of Membership functions – Fuzzification.

UNIT V

Defuzzification: Introduction – Lambda cut for Fuzzy Sets and Relations – Defuzzification Methods. **Fuzzy Arithmetic and Fuzzy Measures:** Introduction – Fuzzy Arithmetic – Fuzzy Measures

Text Book

1. Dr. S. N. Sivanandam and Dr. S. N. Deepa, **"Principles of Soft Computing",** Wiley, Second Edition, 2007.

Reference Books

1. Bart Kosko, **"A dynamical system approach to Machine Intelligence",** PHI, 1992.
2. George J. Klirl Bo Yuen, **"Fuzzy sets and Fuzzy Logic Theory and Application",** PHI, 1995.
3. Naresh H. Sinha, Madan M. Gupta, **"Soft Computing & Intelligent System – Theory & Application"** – Academic press serving in Engineering, 1999.

CORE PAPER

PHP (PHP Hypertext Preprocessor)

Semester : IV	**Hours of Teaching : 6**
Subject Code :	**Credits : 3**

UNIT I

The PHP Scripting Language: Introduction PHP-Conditions and branches- Loop-Function-Working with Types –User Defined Function

Array, String and Advanced Data Manipulation in PHP: Arrays –String-Regular Expressions-Dates and Times- Integer and Floats

Introduction to Object-Oriented Programming with **PHP 5:** Class and object-Inheritance-Throwing and Catching Exception

UNIT II

PEAR: Overview-Core Components-Packages

Writing to Web Database: Database Insert, Updates and Deletes-issues in Writing Data to Database

Validation with PHP and JavaScript: Validation and Error Reporting Principles-Server-Side Validation with PHP-JavaScript and Client0side Validation

UNIT III

Session: Introduction Session Management-PHP Session Management-case Study: Using Session in Validation-When to Use Session-PHP Session API and Configuration

Authentication and Security: HTTP Authentication –HTTP Authentication With PHP- Form-based Authentication-Protecting Data on the web

UNIT-IV

Error, Debugging and Deploying: Error –Common Programming Error -customs Error Handlers

Reporting: Creating a Report –Producing PDF –PDF-PHP Reference

Advance Features of Object –oriented Programming in PHP: working with class Hierarchies-class type Hints-Abstract Class and Interface –Freight Calculator Example

UNIT V

The Shopping Cart: Code Overview- The wine Store Home Page-The Shopping Cart Implementation. **Ordering and shipping at the Online Wine Store:** Code Overview-Credit Cart and shipping Instruction –Finalizing Orders-HTML and Email Receipts

Text Book(s)

1. **"Web Database Applications with PHP and MySQL ",** Hugh E.Willioms & David Lane. 2nd Edition Covers PEAR, SHROFF PUBLICATIONS &DISTRIBUTIONS PVT.LTD

"Web Database Applications with PHP and MySQL ", Hugh E.Willioms & David Lane

UNIT I	Chapter	2, 3, 4
UNIT II	Chapter	7, 8, 9
UNIT III	Chapter	10, 11
UNIT IV	Chapter	12, 13, 14
UNIT V	Chapter	18,19

CORE PAPER

CLOUD COMPUTING

Semester : IV **Hours of Teaching : 4**

Subject Code : **Credits : 3**

UNIT I

Introduction to Cloud Computing: Introduction – Characteristics of Cloud Computing – Cloud Models – Cloud Service Examples – Cloud Based Services & Applications – Cloud concepts and Technologies.

UNIT II

Cloud Services and Platforms: Compute Service - Storage Services – Cloud Database Services – Application Services – content Delivery Services – Analytics Services - Deployment And Management Service – Identity And Access Management Services – Open Source Private Cloud Software – Apache Hadoop – Hadoop Map Reduce Job Execution – Hadoop Schedulers – Hadoop Cluster Setup.

UNIT III

Application Design: Cloud Application Design – Reference Architecture for Cloud Application – Cloud Application Design Methodologies – Data Storage Approaches. **Development in Python:** Design Approaches – Image Processing App – Document Storage App – Map Reduce App – Social Media Analytics App.

UNIT IV

Python for Cloud: Python for Amazon Web services – Python for Google Cloud Platform – Python for Windows Azure – Python for Map Reduced – Python Packages of Interest – Python Web Application Frame Work – Django – Designing a RESTful Web API.

UNIT V

Big Data Analytics: Clustering Big data – Classification of Big Data – Recommendation systems. **Multimedia Cloud:** Live Video Stream App – Streaming Protocols – Video Transcoding App**. Cloud Security:** CSA Cloud Security Architecture – Authentication – Authorization – Identity and Access management – Data Security – Key Management**.**

Text Book(s)

1. Arshdeep Bahga, Vijay Madisetti, "Cloud Computing: A Hands – On Approach" Universities Press (India) pvt limited 2016.

Reference Book(s)

1. Michael Miller "Cloud Computing Web based application that change the way you work and collaborate onlice". Pearson edition, 2008.
2. Kris Jamsa "Cloud Computing Saas, PaaS, IaaS, Virtualization, Business Models, Security, And more", Jones & Bartlett Student Edition, 2014.

CORE PRACTICAL VII

PHP LAB

Semester : IV **Hours of Teaching: 4**

Subject Code: **Credits: 2**

1. Write a PHP Program to Factorial Numbers
2. Write a PHP Program to Armstrong Numbers and Checking
3. Write a PHP Program to Sum of Prime Numbers
4. Write a PHP Program to Number Palindrome Checking
5. Write a PHP Program to Sum of Digits
6. Write a PHP Program to find the value of 1/1! +2/2! + ….n/n!
7. Write a PHP Program to Multiplication Table
8. Write a PHP Program to Using case Statement
9. Write a PHP Program to String Manipulation
10. Write a PHP Program to Student Details
11. Write a PHP Program to an Employee Details
12. Write a PHP Program to Railway Reservation
13. Write a PHP Program to Banking System i) Deposit ii) Withdrawal
14. Write a PHP Program to Simple Interest Calculation
15. Write a PHP Program to Account Opening Form
16. Write a PHP Program to E-Mail ID Creation
17. Write a PHP Program to Cinema Ticket Reservation
18. Write a PHP Program to EB Bill Calculation
19. Write a PHP Program to Driving License Form
20. Write a PHP Program to Telephone Bill Calculation

RESEARCH

PROJECT VIVA - VOCE

Semester : IV **Hours of Teaching: 16**

Subject Code : **Credits: 08**

- Students must spend at least three months (90 days) in industry, Attendance certificate is must.
- Project Confirmation letter is send to the department within a month
- Three internal viva-voce will be arranged, Students may attend any two but the final internal viva-voce is must.
- Students can do the project at home institution also.

DEPARTMENT OF COMPUTER SCIENCE

YADAVA COLLEGE (AUTONOMOUS)

MADURAI -14

M.Sc COMPUTER SCIENCE

Choice Based Credit System Syllabus

Self – Study Papers
2018 onwards

Department of Computer Science
Yadava College (Autonomous)
Madurai -14

Scheme for Self – Study Paper for Earning Extra Credit by Brilliant Students

M.Sc COMPUTER SCIENCE

Semester	Sub Code	Paper Title	Credits	Exam Hours	Internal	External	Total
III		**UML** (Unified Modeling Language)	2	3	25	75	100
IV		Visual C++	2	3	25	75	100

Self – Study Paper

UNIFIED MODELING LANGUAGE (UML)

Semester : III **Credits: 2**

UNIT I

Overview of UML: History of before UML 1.x – UML 1.x – Development toward UML 2.0 – Software Development Methods – Modeling.

UNIT II

UML Diagrams Overview: Structure Diagrams – Behavior Diagrams – Interaction Diagrams – Meta Modeling – Object Management Group(OMG) – Meta Object facility(MOF)

UNIT III

Criticisms: Language bloat – Problems in Learning and adopting – Usage of Executable UML – Domain Chart – Class Diagram-State Diagram

UNIT IV

Action Language – Model testing and execution – Model Compilation – Executable UML Profile – Advantage of Executable UML

UNIT V

The OMG SysML V1.1 Is Now Available: OMG SysML Project portal – OMG System Modeling Language – SysML Diagram Summary – Structure, Behavior, Requirements and Parametrics

Text Book(s)

1. Jacobson Ivar Grady Booch James Rumbaugh(1998). The Unified Software Development process. Addition Wesley Longman.
2. Matrin Robert Cecil(2003) UML for java Programmers

Self – Study Paper

VISUAL C++

Semester : IV **Credits : 2**

UNIT I

WINDOWS PROGRAMMING 9 Windows environment – a simple windows program – windows and messages – creating the window – displaying the window – message loop – the window procedure – message processing – text output – painting and repainting – introduction to GDI – device context – basic drawing – child window controls

UNIT II

VISUAL C++ PROGRAMMING – INTRODUCTION 9 Application Framework – MFC Library – Visual C++ Components – Event Handling – Mapping – Mapping Modes – colors – fonts – modal and modeless dialog – windows common controls –bitmaps

UNIT III

THE DOCUMENT AND VIEW ARCHITECHTURE 9 Menus – Keyboard accelerators – rich edit control – toolbars – status bars – reusable frame window base class – separating document from its view – reading and writing SDI and MDI documents – splitter window and multiple views – creating SLLs – dialog bases applications

UNIT IV

ACTIVIEX AND OBJECT LINKING AND EMBEDDEDING(OLE) 9 ActiveX controls Vs, ORDINARY Windows Controls – Installing ActiveX controls – Calendar Control – ActiveX control container programming – create ActiveX control at runtime – Component Object Model(COM) – containment and aggregation Vs. inheritance – OLE drag and drop – OLE embedded component and containers –sample applications

UNIT V

ADVANCED CONCEPTS 9 Database Management Microsoft ODBC – Structured Query Language – MFC ODBC classes – sample database applications – filter and sort stings – DAO concepts – displaying database records in scrolling view – Threading – VC++ Networking issues – Winsock – Win Inet – Building a web client –Internet Information Server – ISAPI server extension –chat application –playing and multimedia (sound and video) files.

Text book(s)

1. Charles Petzold, “Windows Programming”, Microsoft press,1996 (Unit I Chapter 1-9)

2. David J. Kruglinski, George Shepherd and Scot Wingo, “Programming Visua C++”, 7Microsoft press, 1999 (Unit II-V)

References: Steve Holtzner, ”Visual C++ 6 Programming”, Wiley Dreamtech India Pvt.LTD. 2003.

SYLLABUS STATUS REPORT (2018 onwards)
M.Sc COMPUTER SCIENCE

Semester	Part	Title of the Paper	STATUS
-	**Core Theory**	Mathematical Foundations	***
		Advanced Operating Systems	Include as New Core Paper
		Relational Data Base Management System	Change
		Programming in C and C++	Change
	Core Practical	Practical – I C and C++ Programming Lab	Change
		Practical – II Oracle Lab	***
	Elective	Computer Networks	***
II	**Core Theory**	Data Structures using C++	Change
		Advanced Java Programming	Change
		Network Security	Change
		Software Engineering	***
	Core Practical	Practical – III Data Structures using C++ Lab	Change
		Practical – IV Advanced Java Programming Lab	***
	Elective	Automata Theory	Change
III	**Core Theory**	Compiler Design	***
		Web Designing	Include as New Core Paper
		Digital Image Processing	***
		Data Analytics	Include as New Core Paper
	Core Practical	Practical – V Linux Programming Lab	***
		Practical – VI Web Design and .Net Technologies Lab	Change
		Practical – VII Digital Image Processing Using MAT Lab	***
	Elective	Soft Computing	Include as New Elective Paper
IV	**Core Theory**	PHP (Hypertext Preprocessor)	***
		Cloud Computing	Include as New Core Paper
	Core Practical	Practical – VIII PHP Lab	***
	Research	Project Viva – Voce	***

***** No Change**

BLUE PRINT OF QUESTION PAPER

Section – A

Answer any 5 Questions **(5 * 2 = 10 Marks)**

26. U

NIT I

27. U

NIT I

28. U

NIT II

29. U

NIT II

30. U

NIT III

31. U

NIT III

32. U

NIT IV

33. U

NIT V

Section – B

Answer all the Questions **(5 * 5 = 25 Marks)**

Choose Either a) or b)

34. a) UNIT I **[OR]**

b) UNIT I

35. a) UNIT II **[OR]**

b) UNIT II

36. a) UNIT III **[OR]**

b) UNIT III

37. a) UNIT IV **[OR]**

b) UNIT IV

38. a) UNIT V **[OR]**

b) UNIT V

Section – C

Answer any Three Questions **(3 * 15 = 45 Marks)**

39. UNIT I
40. UNIT II
41. UNIT III
42. UNIT IV
43. UNIT V