PSGR
Krishnammal College for Women
Affiliated to Bharathiar University \ Autonomous \ College of Excellence \ Accredited with A++ Grade \ Ranked 9th in NIRF

DEPARTMENT OF INFORMATION TECHNOLOGY

CHOICE BASED CREDIT SYSTEM(CBCS)
&
LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

BACHELOR OF INFORMATION TECHNOLOGY

2025-2028 BATCH

PROGRAMME LEARNING OUTCOMES (PLO's)

After Completion of the programme, the student will be able to

PLO1: Design, implement, and evaluate a computing-based solution to meet the industrystandards.

PLO2: Apply computing theory and programming principles to real-time software design anddevelopment.

PLO3: Explore Current and emerging techniques and technologies to formulate solutions forsystems and organizations.

PLO4: Pursue higher studies in the specialized area and also promote life-long learning forprofessional development.

PLO5: Recognize as world class professionals in IT and produce women entrepreneurs to increasemore employability.

PROGRAMME SPECIFIC OUTCOMES (PSO's)

The students at the time of graduation will

PSO1: Professionally be equipped in the areas of programming, Cloud Infrastructure, Internet of Things, Mobile Application Development and to be ease with the recent technologies of various domains.

PSO2: Apply the knowledge of technology and soft skills to carry out societal software development.

PSO3: Analyze modern computer languages and applications for their successful Career, to create platforms to become an entrepreneur and a relish for higher studies.

Bachelor of Information Technology
Choice Based Credit System (CBCS)
Learning Outcomes Based Curriculum Framework LOCF)
Syllabus & Scheme of Examination
2025 -2028 Batch
Semester 1& II

Semester	Part	Course Code	Title of the Course	Course Type	Instruction Hours / Week	Contact Hours	Tutorial Hours	Duration of Examination	Examination Marks			Credits
									CA	ESE	Total	
I	I	TAM2501A/ HIN2501A/ FRE2501A	Tamil Paper I / Hindi Paper I/ French Paper I	L	4	58	2	3	25	75	100	3
I	II	ENG2501A	English Paper I	E	4	58	2	3	25	75	100	3
I	III	CY25C01	Programming in C	CC	4	58	2	3	25	75	100	3
I	III	PP22C02	Computational and Algorithmic Thinking for Problem Solving	CC	3	45	-	-	100	-	100	3
I	III	AP24C03	Operating Systems Fundamentals - Linux	CC	4	58	2	3	25	75	100	3
I	III	TH24A03	Numerical and Statistical Techniques	GE	6	88	2	3	25	75	100	5
I	III	IN24CP1	Programming in C Lab	CC	3	45	-	3	15*	35*	50	2
I	IV	NME25B1/ NME25A1	Basic Tamil I / Advance Tamil I	AEC	2	28	2	-	100	-	100	2

I	IV	NME23ES	Introduction to Entrepreneurship	AEC	2	30	-	-	100	-	100	
I-II	VI	NM25GAW	General Awareness	AECC	SS	-	-	-	100	-	100	Gr.
I-II	VI	COM25SER	Community Services 30 Hours	GC	-	-	-	-	-	-	-	-
I –V	V I	24BONL1 24BONL2 24BONL3	Online Course I Online Course II Online Course III	ACC	-	-	-	-	-	-	-	-
II	I	TAM2502A/ HIN2502A/ FRE2502A	Tamil Paper II/ Hindi Paper II/ French Paper II	L	4	58	2	3	25	75	100	3
II	II	ENG2502A	English Paper II	E	4	58	2	3	25	75	100	3
II	III	IN25C04	OOPs with C++	CC	5	73	2	3	25	75	100	3
II	III	IN23C05	Data Structure and Algorithm	CC	4	58	2	3	25	75	100	3
II	III	IN25CP2	OOPs with C++Lab	CC	5	75	-	3	15#	35#	50	3
II	III	TH24A11	Discrete Mathematics	GE	6	88	2	3	25	75	100	5
II	IV	NM25UHR	Universal Human Values and Human Rights	AEC	2	30	-	-	100	-	100	2
II	IV	*NME25B2 / NME25A2	Basic Tamil II / Advanced Tamil II	AEC	-	-	-	-	100	-	100	Gr.
I-II	VI	NM25GAW	General Awareness	AECC	SS	-	-	-	100	-	100	Gr.
I-II	VI	COM25SER	Community Services 30 Hours	GC	-	-	-	-	-	-	-	-
I-V	VI	24BONL1 24BONL2 24BONL3	Online Course I Online Course II Online Course II	ACC	-	-	-	-	-	-	-	-

*CA conducted for 25 and converted in to 15, ESE conducted for 75 and converted in to 35

CC: Core Courses	CA: Continuous Assessment
GE: Generic Elective	ESE : End Semester Examination
AEC: Ability Enhancement Course	ACC: Additional Credit Course
SS: Self Study	AECC: Ability Enhancement Compulsory Course
GC: General Course	

PROGRAMMING IN C – CY25C01

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	M	S	M
CLO3	S	S	S	S	S
CLO4	S	S	S	S	S

COMPUTATIONAL AND ALGORITHMIC THINKING FOR PROBLEM SOLVING - PP22C02

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	S	S	S	S
CLO2	S	S	S	M	S
CLO3	S	M	S	S	S
CLO4	S	S	M	S	S

PROGRAMMING IN C LAB -IN24CP1

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	M
CLO2	S	S	S	S	S
CLO3	S	S	S	S	M
CLO4	S	S	M	S	S

OPERATING SYSTEMS FUNDAMENTALS - LINUX –AP24C03

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	S	S
CLO2	S	S	S	S	S
CLO3	S	S	S	S	S
CLO4	S	S	M	S	S

OOPs with C++-IN23C04

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	M	S
CLO2	S	S	M	S	M
CLO3	M	S	S	S	S
CLO4	S	M	S	S	S

DATA STRUCTURE AND ALGORITHM- IN23C05

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	M	S	S
CLO2	S	M	S	M	M
CLO3	M	M	S	M	S
CLO4	S	S	S	M	S

OOPs with C++ LAB –IN25CP2

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	M
CLO2	S	S	S	S	S
CLO3	S	S	S	S	M
CLO4	S	S	M	S	S

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
CY25C01	PROGRAMMING IN C	Theory	58	2	-	3

Preamble

This course introduces fundamental programming constructs in C. It covers the concepts such as arrays, functions, structures, pointers and file handling. It provides comprehensive coverage on industry 4.0.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Recall the programming constructs and structure of C programming and Industry 4.0 technologies	K1
CLO2	Understand the purpose of arrays, strings, structures, pointers and files to solve problems	K2
CLO3	Apply functions to solve problems using procedure oriented approach	K3
CLO4	Analyze the problems and solve it by applying appropriate logic	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	M	S	M
CLO3	S	S	S	S	S
CLO4	S	S	S	S	S

S- Strong; M-Medium

PROGRAMMING IN C – CY25C01 58 Hrs

Syllabus

Unit I **12 Hrs**

Overview of C - Constants, Variables and Data types - Operators and Expressions - Managing Input and Output Operations -**Sulba Sutras-Decision Making and Branching - Decision Making and Looping**.

Unit II **12 Hrs**

Shloka Arrays: One-Dimensional - Two Dimensional - Multidimensional Arrays- Character Arrays and Strings: Declaring and Initializing String Variables - Reading Strings from Terminal - Writing Strings to Screen - String Handling Functions**.**

Unit III **12 Hrs**

Chandas -User-Defined Functions: Need - Return Values and Types - Function Calls - Function declaration - Category of Functions - No Arguments and No Return Values - Arguments but No Return Values - Arguments with Return Values - Recursion - Scope Visibility and Life time of Variables

Structures and Unions-Definition: Structure Initialization - Comparison of Structure Variables - Arrays of Structures - Arrays within Structures-Unions.

Unit IV **12 Hrs**

Pointers: Understanding Pointers - Accessing the Address of a Variable - Declaring and Initializing Pointers - Accessing a Variable through its Pointers - **Pointers and Arrays**.File Management in C: Defining and Opening a File - Closing File - **I/O Operations on Files** - Dynamic Memory allocation MALLOC,CALLOC,REALLOC.

Unit V **10 Hrs**

Introduction to Industry 4.0 - Need - Reasons for Adopting Industry 4.0 - Definition - Goals and Design Principles - **Technologies of Industry 4.0** - Skills required for Industry 4.0 - Advancements in Industry - **Impact of Industry 4.0 on Society, Business, Government and People - Introduction to 5.0.**

Text Book

S. No	Author	Title of the Book	Publisher	Year and Edition
1	E. Balagurusamy	Programming In ANSI C	Tata Mc Graw Hill	2019,8th Edn
2	P. Kaliraj, T. Devi	Higher Education for Industry 4.0 and Transformation to Education 5.0	CRC Press - Taylor & Francis Group	2021,1st Edn

Reference Books

S. No	Author	Title of the Book	Publisher	Year and Edition
1	Byron Gottfried	Programming with C	Tata McGraw Hill	2018,4th Edn
2	Yashwvant Kanetkar	Let Us C: Authentic Guide to C Programming Language	BPB Publications	2020,17th Edn

Pedagogy

- Lectures, Group discussions, Demonstrations

Course Designer

Dr. S. Beula Princy

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
PP22C02	COMPUTATIONAL AND ALGORITHMIC THINKING FOR PROBLEM SOLVING	Theory	45	-	-	3

Preamble

- *This course aims to kindle the young minds to think like a computer scientist, with the idea that Computing and computers will enable the spread of computational thinking.*
- *Computational thinking is thinking recursively, reformulating a seemingly difficult problem into one which we know how to solve and taking an approach to solving problems, designing systems, and understanding human behavior that draws on concepts fundamental to computer science.*

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Define the basic principles of logical reasoning, problem solving in computational thinking	K1
CLO2	Understanding the applications of propositional logic, problem representation and techniques	K2
CLO3	Apply algorithmic thinking to problem solving using tools	K3
CLO4	Apply and analyze to solve domain specific problems using computational thinking concepts	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	S	S	S	S
CLO2	S	S	S	M	S
CLO3	S	M	S	S	S
CLO4	S	S	M	S	S

S - Strong; M - Medium;

COMPUTATIONAL AND ALGORITHMIC THINKING FOR PROBLEM SOLVING - PP22C02

45 Hrs

Syllabus

Unit I **7 Hrs**

Basics: Introduction to Computational Thinking- Data Logic - History of Computational Thinking- Applications of Computational Thinking.

Unit II **8 Hrs**

Data- Information and Data - Data Encoding - Logic - Boolean logic - Applications of simple Propositional Logic. Tool: Flowgorithm and Scratch.

Unit III **10 Hrs**

Problem Solving and Algorithmic Thinking: Problem definition- Logical reasoning- Problem decomposition- Abstraction- Problem representation via Algorithmic thinking: Name binding- Selection- Repetition and Control Abstraction- Simple Algorithms – Comparison of performance of Algorithms.

Unit IV **8 Hrs**

Activities in Class: Sudoku-Towers of Hanoi- Graph Coloring-Geographical Map reading- Poem reading-Novel reading- Data analysis on news.

Unit V **12 Hrs**

Problem Solving Techniques- Factoring and Recursion Techniques- Greedy Techniques- Divide and Conquer- Search and Sort Algorithms- Text Processing and Pattern matching. Tool: iPython

Text Book

S. No	Author	Title of the Book	Publisher	Year and Edition
1	David Riley and Kenny Hunt	Computational Thinking for Modern Solver	Chapman & Hall/CRC	2014,1st Edn
2	Paolo Ferragina, Fabrizio Luccio	Computational Thinking First Algorithms	Springer	2018, 1st Edn
3	Karl Beecher	Computational Thinking – A beginner's guide to problem solving	BSC publication	2017, 1st Edn

Pedagogy

- Lectures, Group discussions, Demonstrations, Case studies

Course Designer
Dr. V. Deepa

Evaluation Pattern:

Assessment	Number	Marks
Quiz (online or offline)	5	50
Class Activity	5	25
Group Project (Domain Specific)	1	25
Total		100

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
IN24CP1	**PROGRAMMING IN C lab**	PRACTICAL	-	-	45	2

Preamble

- *The course gives hands-on experience on C Programming and improves the practical skillset.*
- *The learner will be able to develop the logic for the given problem, recognize and understandthe syntax and construction of C code.*
- *The course involved in compiling, linking and debugging C code and developing somecomplex programs.*

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Identify the basic terminologies of C programming such as data types, conditional statement, looping statements and functions.	K1
CLO2	Develop programs with implementation of arrays, string handling functions and parameter passing techniques.	K2
CLO3	Construct programs with features of Structure and Pointers.	K3
CLO4	Develop readable programs with files for reading input and storing the output with perform operations	K4

Mapping with Programme Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	M
CLO2	S	S	S	S	S
CLO3	S	S	S	S	M
CLO4	S	S	M	S	S

S- Strong; M-Medium;

PROGRAMMING IN C LAB- IN24CP1 **45 Hrs**

Program List

- Basic Operations Statement.
- Control Structures.
- Arrays.
- Structure.
- Arrays within structure
- String handling functions.

- User defined functions.
- Pointers.
- File operations.

Pedagogy

- Demonstration of working environment/Tools/Software/Program

Course Designer

Dr.R.Jeevitha

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
AP24C03	OPERATING SYSTEMS FUNDAMENTALS – LINUX	THEORY	58	2	-	3

Preamble

- This subject is designed to provide the students with a thorough discussion of the fundamentals of operating system.
- To explore the various memory management scheme and to perform administrative task on LINUX servers.

Course Learning Outcomes

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

CLOs Number	CLO Statement	Knowledge Level
CLO1	Recall the basic concepts with functions of operating systems and Linux system.	K1
CLO2	Understand the operating systems objectives and functionality along with system programs and system calls.	K2
CLO3	Compare and contrast various memory management schemes.	K2
CLO4	Demonstrate deadlock, prevention and avoidance algorithms, storage management, various scheduling algorithms and shell programming.	K3

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	S	S
CLO2	S	S	S	S	S
CLO3	S	S	S	S	S
CLO4	S	S	M	S	S

S- Strong; M-Medium;

SYLLABUS

OPERATING SYSTEMS FUNDAMENTALS - LINUX –AP24C03

(58 hours)

UNIT I **12 Hrs**

Introduction: What is operating systems do - **Computer System Architecture** - **Operating- System Operations.** Process Management: **Process Concept** - Process Scheduling - Interprocess communication.

UNIT II **12 Hrs**

Process Scheduling: **Basic Concepts- Preemptive and Nonpreemptive Scheduling** - Scheduling Algorithms (FCFS, SJF & Round Robin only). Synchronization: **Back ground**-The Critical Section Problem-Peterson's Solution- Semaphores- Deadlock: **Deadlock Characterization** - Methods Handling Deadlocks - Recovery from Deadlock.

UNIT III **11 Hrs**

Memory Management Strategies: **Background-Contiguous Memory Allocation**-Paging. Virtual Memory Management: Demand Paging - Page Replacement - Basic Page Replacement, **FIFO Page Replacement**, Optimal Page Replacement.

UNIT IV **11 Hrs**

What Linux Is – Becoming a Linux Power User : About Shells and Terminal Windows- Choosing your shell - **Running Commands - Recalling Commands Using Command History** - Connecting and Expanding Commands -Using Shell Variables.

UNIT V **12 Hrs**

Moving Around the File system : Using Basic File system Commands - Using Meta characters and Operators - **Listing Files and Directories** - Moving, Copying, and Removing Files.

Text Books

S.no	Author	Title of book	Publisher	Year and Edition
1	Abraham Silberschatz, Peter Baer Galvin, G Gagne	OPERATING SYSTEMS CONCEPTS	Wiley Publishers	2018 ,10th Edn
2	Christopher Negus	LINUX BIBLE	Wiley	2020 , 10th Edn

Reference Books

S.no	Author	Title of book	Publisher	Year and Edition
1	Archer J harries	Operating System	Tata Mc Graw Hill	2011, 2nd Edn
2	Williams E. Shotts	The Linux Command Line: A Complete Introduction	John Wiley & Sons	2019, 2nd Edn
3	Jason Cannon	Linux for Beginners	Createspace Independent Pub	2014 ,1st Edn

Pedagogy

Demonstration of working environment/Tools/Software/Program

Course Designer

Mrs. G. Rubadevi

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
IN25C04	**OOPs with C++**	Theory	73	2	-	3

Preamble

The course Object-Oriented Programming with C++ introduces students to the principles and practices of problem solving using the object-oriented paradigm. With the growing complexity of software systems, traditional procedural programming approaches often face challenges in modularity, reusability, and maintainability.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Apply object-oriented concepts such as classes, objects, abstraction, and encapsulation in C++ programming.	K1
CLO2	Demonstrate the use of constructors, destructors, function overloading, operator overloading, inheritance, and polymorphism.	K2
CLO3	Implement templates, exception handling, and file handling for creating efficient and reusable C++ programs.	K3
CLO4	Design and develop real-world applications using object-oriented principles with emphasis on robustness and maintainability.	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	M	S
CLO2	S	S	M	S	M
CLO3	M	S	S	S	S
CLO4	S	M	S	S	S

S- Strong; M-Medium;

OOPs with C++ -IN25C04 - 73Hrs

UNIT I **(14 Hrs)**

OOPs Foundations & C++ Basics: Need for OOP vs. POP- objects, classes, abstraction, encapsulation, inheritance, polymorphism, message passing-Advantages and applications of OOP-C++ overview: Program structure- namespaces- Identifiers,-basic types- literals, const, operators, type casting- control structures: basic I/O with cin, cout, manipulators.

UNIT II **(15 Hrs)**

Functions, Classes & Objects: Functions in C++-Prototypes-Call by value and reference- Inline functions, Default arguments- Function Overloading- Static and Storage classes, scope and visibility- Classes & objects: data and function members- Access Specifiers- This pointer-Static members, Friend functions-Constructors and its types-destructors.

UNIT III **(15 Hrs)**

Operator Overloading & Inheritance: Operator overloading: rules & restrictions- Overloading unary and binary operators- Overloading stream operators- type conversion.

Inheritance: purpose and design: single, multiple, multilevel, hierarchical, hybrid; constructors, destructors and Inheritance- Overriding & Name hiding-Virtual base classes.

UNIT IV **(14 Hrs)**

Pointers, Runtime Polymorphism, Exceptions & Templates: Pointers and dynamic memory (new/delete)-Pointers to objects-. Virtual functions- Abstract classes- Runtime polymorphism and late binding. Exception handling: try, catch, throw, standard exceptions, custom exceptions. Templates: function & class templates- basics of generic programming.

UNIT V **(15 Hrs)**

Streams, Files & STL: Streams & file handling: text/binary files-Opening modes, reading/writing-fstream, Error handling-Random access-Standard Template Library: overview of containers (vector, list, map)-Iterators, using STL with user-defined types.

Text Book

Sno	Author	Title of the Book	Publisher	Year and Edition
1	E. Balagurusamy	Object-Oriented Programming with C++	McGraw-Hill publication	2020,8th Edn
2	Ashok N Kamthane	Object oriented Programming with ANSI & Turbo C++	Pearson Education	2022,3rd Edn

Books for Reference

S.No	Authors	Title	Publishers	Year and Edition
1	**Reema Thareja**	Object Oriented Programming with C++	Oxford University Press (OUP India)	2025, 2nd Edn
2	**Ronald Mak**	Object-Oriented Software Design in C++	Python Software Foundation, Network Theory Ltd	2024, 1st Edn
3	**Wayne Murphy**	C++ Cookbook: How to Write Great Code with the Latest C++ Releases	O'Reilly Media	2024, 1st Edn

Pedagogy

- Chalk and Talk PPT, Discussion, Assignment, Demo, Quiz, Case study.

Course Designer
Dr.V.DEEPA

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
IN23C05	DATA STRUCTURE AND ALGORITHM	THEORY	58	2	-	3

Preamble

To provide an overview of data structures and algorithm design methods for programming andproblem-solving process.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Recall about the concepts of Arrays, Stack, Queue, Link List, Trees and Graph.	K1
CLO2	Understand sorting, searching and hashing algorithm	K2
CLO3	Apply the data structures to solve various computing algorithms and sorting algorithms.	K3
CLO4	Analyze lists, queues, stacks, trees and graph according to the needs of different applications	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	M	S	S
CLO2	S	M	S	M	M
CLO3	M	M	S	M	S
CLO4	S	S	S	M	S

S- Strong; M-Medium;

DATA STRUCTURE AND ALGORITHM- IN23C05- 58 Hrs

UNIT-I (12 Hrs)

Introduction to Data Structure: Definition, Basic Terminology, Elementary Data Organization - Types of Data Structures- Linear & Non-Linear Data Structures-Data Structure Operations. Algorithm Specifications: Performance Analysis and Measurement (Time and space analysis). Abstract Data Types- Advantages of ADT. Array: Representation of arrays, Types of arrays, Applications of arrays, Sparse matrix and its representation.

UNIT-II (12 Hrs)

Stacks and Queues: Stack-Stack Representation & Implementation-Stack Operations-Applications of Stack. Queue-Queue Representation & Implementation-Queue Operations-Types of Queues.

UNIT-III **(11 Hrs)**

Linked List: Linked List as Data Structures- Representation of Linked List-Operations on Linked List-Stack as Linked List-Queue as Linked List-Doubly Linked List-Circular List.

UNIT-IV **(13 Hrs)**

Trees: Preliminaries-Binary Trees-B-Trees. Graph: Graph Terminologies-Types of Graphs-Graph Representation. Hashing: Hash Functions. Sorting: Bubble Sort-Selection Sort-Quick Sort-Heap Sort-Merge Sort.

UNIT-V **(10 Hrs)**

Algorithm Design Techniques: Greedy Algorithms - Prim's Algorithm, Kruskal's Algorithm. Divide and Conquer: Running Time of Divide and conquer algorithms. Decrease and Conquer- Depth First Search and Breadth First Search. Backtracking Algorithms - n Queens Problem, Branch and Bound – Traveling Salesman Problem.

Text Books

S.No.	Authors	Title	Publishers	Year and Edition
1.	Rajesh K. Shukla	Data Structures using C & C++	Wiley India	2009,1st Edn
2.	Seymour Lipschutz, G A Vijayalakshmi Pai	Data Structures	Tata McGraw-Hill	2014,1 st Edn

Books for Reference

S.No.	Authors	Title	Publishers	Year and Edition
1.	Anany Levitin	Introduction to Design and Analysis of Algorithms	Pearson Education	2009,3 rd Edn
2.	Wisnu Anggoro	C++ Data Structures and Algorithms	Packt Publishing	2018, 1st Edn
3.	YedidyahLangsam, Moshe J.Augentein, aron M.Tenenbaum	Data Structures using C & C++	PHI Learning, 2nd Edition	2009, 2nd Edn

Pedagogy

- Chalk & talk, PPT, Group Discussion, Assignment, Demo, Quiz, Role play.

Course Designer
Dr. R. JEEVITHA

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
IN25CP2	OOPs with C++ LAB	PRACTICAL	-	-	75	3

Preamble

The Object-Oriented Programming with C++ Laboratory is designed to complement the theoretical concepts of object-oriented programming by providing students with practical, hands-on experience in implementing C++ programs.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Apply the principles of object-oriented programming to design and implement programs using C++.	K1
CLO2	Develop modular solutions through the use of classes, objects, constructors, and operator overloading	K2
CLO3	Implement inheritance and polymorphism to build reusable and extensible applications.	K3
CLO4	Demonstrate proficiency in file handling, exception handling, and practical debugging techniques.	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	M
CLO2	S	S	S	S	S
CLO3	S	S	S	S	M
CLO4	S	S	M	S	S

S- Strong; M-Medium;

OOPs with C++ LAB - IN25CP2- 75Hrs

Program List

- Basic C++ Program Structure (namespace, identifiers, constants, operators, type casting).
- Control Structures (if-else, switch, loops).
- User Defined Functions (inline, default arguments, function overloading).
- Classes & Objects (data members, access specifiers, constructors, destructors).
- Friend Functions & Static Members.
- Operator Overloading (unary, binary, stream operators).

- Inheritance (single, multiple, multilevel, hierarchical, hybrid).
- Pointers (basic, pointer to object, dynamic memory allocation).
- Virtual Functions & Runtime Polymorphism.
- Exception Handling (built-in and user-defined).
- Templates (function and class templates).
- File Operations (text file, binary file, random access).
- Standard Template Library (vector, list, map, algorithms).

Pedagogy

Demonstration of working environment/Tools/Software/Program

Course Designer

Dr. V.DEEPA