I Year – I Semester	Programming through C (Common to all branches)	L	T	P	C
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Course Objectives:
The objectives of Programming for Problem Solving Using C are
1. To learn about the computer systems, computing environments, developing of a computer program and Structure of a C Program
2. To gain knowledge of the operators, selection, control statements and repetition in C
3. To learn about the design concepts of arrays, strings, enumerated structure and union types and their usage.
4. To assimilate about pointers, dynamic memory allocation and know the significance of Preprocessor.
5. To assimilate about File I/O and significance of functions

Course Outcomes:
Upon the completion of the course the student will learn

CO No.	Course Outcome Statement
CO 1	Write algorithms and to draw flowcharts for solving problems
CO 2	Use different operators, data types and write programs that use two-way/ multi-way selection
CO 3	Implementation of different arrays and strings concepts and programs
CO 4	Design and implement programs to analyze the different pointer applications
CO 5	Decompose a problem into functions and to develop modular reusable code
CO 6	Apply File I/O operations

UNIT I
Introduction to Computers: Creating and running Programs, Algorithm, Flow charts, Structure of C program.

Introduction to the C Language: Background, C Programs, Identifiers, Data Types, Variable, Constants, Input/output, Programming Examples.

UNIT II
Operators: Expressions Precedence and Associativity, Evaluating Expressions, Type Conversion Statements, Simple Programs. Selection & Making Decisions: Logical Data and Operators, Two Way Selection, Multiway Selection, More Standard Functions.

Repetition: Concept of Loop, Pre-test and Post-test Loops, Initialization and Updating, Event and Counter Controlled Loops, Loops in C, Other Statements Related to Looping.

UNIT III
Arrays: Concepts, Using Array in C, Array Application, Two Dimensional Arrays, Multidimensional Arrays, Programming Example.

Strings: String Concepts, C String, String Input / Output Functions, Arrays of Strings, String Manipulation Functions.

Enumerated, Structure, and Union: The Type Definition (Type def), Enumerated Types, Structure, Unions, and Programming Application.

UNIT IV
Pointers: Introduction, Pointers to pointers, Compatibility, scope and storage classes.

Pointer Applications: Arrays, and Pointers, Pointer Arithmetic and Arrays, Memory Allocation Function, Array of Pointers, Programming Application.

UNIT V
Functions: Designing, Structured Programs, Function in C, User Defined Functions, Inter-Function Communication, Standard Functions, Passing Array to Functions, Passing Pointers to Functions, Recursion

Text Input / Output: Files, Streams, Standard Library Input / Output Functions, Formatting Input / Output Functions, Character Input / Output Functions

Text Books:
1) Programming for Problem Solving, Behrouz A. Forouzan, Richard F. Gilberg, CENGAGE.
2) The C Programming Language, Brian W. Kernighan, Dennis M. Ritchie, 2e, Pearson.

Reference Books:
1) Computer Fundamentals and Programming, Sumithabha Das, Mc Graw Hill.
2) Programming in C, Ashok N. Kamthane, Amit Kamthane, Pearson.
3) Computer Fundamentals and Programming in C, Pradip Dey, Manas Ghosh, OXFORD.