Course Code	24EE01TH0103/24EE01PR0103			
Category	Engineering Science Course			
Course Title	Fundamentals of Programming			
Scheme & Credits	L	P	Credits	Semester
	3	2	4	I

Course Outcomes

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

1. Develop the fundamentals of C programming and choose the loops and decision-making statements to solveand execute the given problem.
2. Formulate simple algorithms for arithmetic and logical problems, translate the algorithms to programs, testand execute the programs and correct syntax and logical errors.
3. Use arrays, pointers, structures and I/O operations for the formulation of algorithms and programs.
4. Apply programming concepts to solve matrix addition, multiplication problems and searching &Sorting problems.
5. Implement iterations and recursions, to decompose a problem into functions and synthesize a completeprogram using divide and conquer approach.

Syllabus

Module 1 Introduction to Programming

Introduction to components of a computer system (disks, memory, processor, where a program is stored and executed, operating system, compilers etc.) Idea of Algorithm: Steps to solve logical and numerical problems. Representation of Algorithm: Flowchart/Pseudo code with examples. Arithmetic expressions and precedence.

Module 2 C Programming Language

Introduction to C language: Keywords, Constant, Variable, Data types, Operators, Types of Statements, Pre- processor Directives, Decision Control Statement-if, if-else, nested if-else statement, switch case, Loops and Writing and evaluation of conditionals and consequent branching.

Module 3 Arrays and Basic Algorithms

Arrays:1-D,2-D, Character arrays and Strings. Searching, Basic Sorting Algorithms, Finding roots of equations, notion of order of complexity through example programs (no formal definition required)

Module 4 Functions and Recursion

User defined and Library Functions, Parameter passing in functions, call by value, passing arrays to functions: idea of call by reference. Recursion: As a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series.

Module 5 Pointers and Structures

Structures, Defining structures, Array of Structures, Introduction to pointers, Defining pointers, Pointer arithmetic, pointer operators, Use of Pointers in self-referential structures.

Module 6 File handling

Streams in C, Types of Files, File Input /Output Operations: Modes of file opening, Reading and writing the file,Closing the files using f flush ().

Text Books

1. Programming in ANSIC: E. Balguruswami Mc GrawHill
2. Mastering C: K. R. Venugopal and S.R. Prasad, Tata Mc GrawHill

Reference Books

1. Programming with C: Byron Gottfried, Schaums Outline Series.
2. Let Us C: Yashwant Kanetkar, B P B Publication