CAP172:PROGRAMMING METHODOLOGIES

L:3 T:0 P:0 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: define the different data types and use them in simple data processing applications

CO2 :: understand the computer programming language concepts

CO3 :: apply algorithm and flowcharts for solving mathematical and engineering problems

CO4 :: analyze problem by developing algorithms based on modern programming techniques

Unit I

Introduction to Programming : Introduction to Programming, Program concept, Characteristics of programming, stages in program development, Algorithms, Notations, Flowchart, Types of programming methodologies, Top Down and Bottom UP Program Development Cycle with case study

Unit II

Principles of programming : C Program Structure, Character Set, Identifiers and Keywords, Constants and Variables, Data types, Unformatted and formatted I/O functions- printf(), scanf(), puts (), gets(), getchar(), putchar(), Expressions, Arithmetic operators, Unary operator, Relational Operator, logical operator, Assignment and Conditional Operator, Bitwise operators

Unit III

Control Statements and Decision Making : Introduction of control statement, Condition statements, if, if-else, Nested if and switch statement, Looping Statements-While and do-while, For Statement, Break and Continue statements, Goto statement, Type Conversion and Type Modifiers

Unit IV

Functions : Function Definition, predefined functions and User defined functions, Scope Rules - Local and global scope, Basics of Pointers: Pointer declaration, Initialization, Accessing values using pointers, Passing arguments by value and passing arguments by reference, Recursion, Library Functions

Unit V

Introduction to Arrays : Declaring arrays in C, Defining and processing 1D and 2D arrays, Array applications: Sorting and searching, Character arrays, Declaration and initialization of string, String Handling Functions

Unit VI

File Handling : Categories of files, Opening and closing files, Text and binary files, Reading and writing in files, Structure and Union: declaration, definition and initialization

Text Books:

1. C: THE COMPLETE REFERENCE by SCHILDT AND HERBERT, MC GRAW HILL

References:

1. PROGRAMMING IN ANSIC by BALAGURUSAMY, KINDLE EDITION