BCSC1001 PROGRAMMING AND PROBLEM SOLVING TECHNIQUES (3-0-0)

Course Objectives:

* To gain experience about structured programming.
* To help students to understand the implementation of Programming language.
* To understand various features in Programming Language.

Module - I (10 Hours)

Programming fundamentals and Basics of C Introduction to programming paradigms, Algorithm and flowcharts, Structure of C program : Compilation process, C programming: Data Types, Storage classes, Constants, Enumeration Constants, Keywords, Operators: Precedence and Associativity – Expressions, Input/Output statements, Assignment statements, Decision making statements, Switch statement, Looping statements, Pre-processor directives,

Module - II (08 Hours)

Arrays and strings: Introduction to Arrays: Declaration, Initialization, One dimensional arrays, Two dimensional arrays, Concept of Strings and String operations: length, compare, concatenate, copy

Module - III (10 Hours)

Functions and pointers: Introduction to functions: Function prototype, function definition, function call, Built-in functions, Recursion, Binary Search using recursive functions, Pointers, Pointer operators, Pointer arithmetic Arrays and pointers, Array of pointers, Parameter passing: Pass by value, Pass by address

Module - IV (09 Hours)

Structures: Nested structures, Pointer and Structures, Array of structures, Example Program using structures and pointers, Self referential structures, Dynamic memory allocation, typedef.

Module - V (08 Hours)

File Processing: Types of file processing: Sequential access, Random access, Sequential access file, Command line arguments, Sample Programs

Course Outcomes: (CO)

The students will be able to:

1. Illustrate the flowchart and to develop efficient C programs.
2. Develop conditional and iterative statements to write C programs and exercise user defined functions to solve real time problems
3. Inscribe C programs that use Pointers to access arrays, strings and functions.
4. Exercise user defined data types including structures and unions to solve problems.

Text Books:

1. The C Programming Language, B.W. Kernighan and D.M. Ritchie (PHI)
2. Programming using the C language, R.C. Hutchinson and S.B. Just (McGraw Hill)
3. Outline of Theory and Problems of Programming with C, B.S. Gottfried (Schaum McGraw Hill)
4. C: The Complete Reference, H. Schildt (McGraw Hill)