BCSC 0001: COMPUTER PROGRAMMING

Objective: *To impart adequate knowledge on the need of problem solving techniques and develop programming skills to implements applications using the concepts of C Language. Also by learning the programming constructs they can easily switch over to any other language in future.*

Credits: 03 **L-T-P-J: 3-0-0-0**

Module No.	Content	Teaching Hours
I	**Basics of C:** Overview, Structure of a C program, Identifier, Keywords, Variables, Data types, Formatted Input and output. **Operators and Expression:** Assignment, Unary, Arithmetic, Relational, Logical, Bitwise, Conditional, Special operators and their precedence & Associativity , Lvalue and Rvalue . **Type Conversion:** Type Promotion in expression, Conversion by Assignment, Truncation and Casting Arithmetic expression. **Decision and Case Control Structure:** if, if-else, nested if-else, Decisions using switch, switch versus if-else ladder. **Loop Control Structure:** For loop, while loop, do-while loop, nesting of loops, break, and continue. **Arrays:** Introduction, one dimensional and two dimensional Array- Declaration, Initialization, Address Calculation. **Operations on Arrays:** Insertion, Deletion, Linear Search & Bubble Sort.	**20**
II	**String:** Introduction, One dimensional and two dimensional Array- Declarations, Initialization. **Operations on String:** Length, Copy, Reverse, Concatenate, Compare with & without built-in functions. **Functions:** Declaration and Definition, Category of Functions, Parameter Passing Techniques – Call by Value, Passing Arrays to Functions. **Pointers:** Declaration and Initialization of Pointer Variables, Accessing a Variable through its Pointer, Arrays and Pointers, Pointer and Strings, Pointer Arithmetic, Pointers to Pointers, Array of Pointers, Pointer to an Array, Two Dimensional Array and Pointers, Pointers to Functions, Dynamic Memory Allocation, void Pointer and Null Pointer. **User Defined Types:** Structure - Declaration, Initialization, Nested Structures, Arrays of Structures, Structure and Pointer, Passing Structure Through Function , Difference between Structures and Union.	**20**

Text Books:

• Behrouz A. Forouzan and Richard F. Gilberg, "*Computer Science – A Structured Programming Approach Using C*", C Language Learning, 2007

Reference Books:

• Herbert Schildt , "*C: The Complete Reference*", 5th Edition, McGraw Hill Education