

(4 Lect./Week)  
(4 hrs. Lab/Week)  
(1 Student's presentation /Week)

(Total Credits -7)

## **Paper 804 Computer programming and fundamentals**

### **Unit I**

Computer Fundamentals: Introduction to Computers - Characteristics of Computers, Uses of computers, Types and generations of Computers.

Basic Computer Organization - Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices

User Interface with the Operating System, System Tools.

Programming Types

### **Unit II**

Introduction to programming in C/C++: Fundamental data types- integer, floating point and enumerated data types, Expressions: arithmetic, relational and logic operators, access to standard library, standard I/O-getchar, putchar, Formatted I/O, scanf, printf, error handling, line input and output.

### **Unit-III**

Statements: simple and compound statement, control structures, variable, loop and conditional statement, BREAK, COINTINUE, DO WHILE, FOR, GO TO, IF, RETURN, SWITCH, WHILE statements.

### **Unit IV**

Functions in C/C++ programming: Function structure, Declarations and library built in functions, parameter mechanism, storage classes-scope, function arguments, visibility, string function and life time of variables, AUTO, EXTERN, STATIC and REGISTER modifiers, Recursion.

### **Unit V**

Data structure-Arrays and Pointers:

Arrays: Types and size of arrays, sorting, selection sort, search-linear search and binary search, Structures and union.

Pointers: Pointers types and addresses of variables, arrays of pointer, function returning pointers, pointers to function, pointer arithmetic, pointers to structures, array of structures, preprocessor directive, command line arguments, pointer structure.

### **References:**

- 1.Computer Fundamentals & Programming in C : Pradip Dey &Manas Ghosh (OXFORD)
- 2.Computer Fundamentals :Dr. Varghese Paul (EPD)
- 3.Programming in C :B.S. Gotfried (Schaum series, TMH)

### **COMPUTER PROGRAMMING LABORATORY**

1. Study of commands use in C/C++. Broad introduction.
- 2 Programming using Control structures & pointers.
3. Searching & sorting
4. Creation and use of databases
5. Writing exercises of programming in C.