

B.Sc. Computer Science/Information Technology (IT) Syllabus Under CBCS
Structure of Computer Science/Information Technology (IT) Syllabus
B.Sc. – FIRST YEAR 1 SEMESTER
Computer Fundamentals & Programming in C
Course Outcome

UNIT-I

Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations.
Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory. Windows basics: desktop, start menu, icons.

UNIT II

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting.

UNIT III

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive function

UNIT IV

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays

Strings: Introduction String and Character functions

UNIT V

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function –

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions - Unions – Enumerated Data Types

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file –Close a file – Random Access Files – Binary Files – Command line arguments

I B.SC; II SEMESTER
Object Oriented Programming with C++

Unit-1

Introduction:- Programming Language generations, Object Oriented Paradigm, Basics of OOPs, Benefits, Applications of OOPs, Object Oriented Languages, Difference between OOPs and Procedure Oriented Programming

Unit - 2

Introduction to C++, General Structure of a C++ program, cin and cout objects, Keywords, identifiers, Constants, variables, Data types in C++, Operators-scope resolution operator, Control structures: Conditional statements and Looping statements, Functions –function with default arguments, inline functions, function overloading, reference variables Arrays - Single and multidimensional arrays.

Unit-3

Object and Classes-Structure and Class, Defining a class, defining member functions, member function with object as arguments and argument as return type, array of objects, static member data and member function, friend function and friend class.Constructor and destructors-characteristics of constructor, constructor types-default, parameterized, copy and dynamic, constructor overloading.

Unit-4

Operator overloading, defining operator function, overloading unary, binary and relational operators Inheritance-benefits of inheritance, types of inheritance, methods overriding, virtual functions.

Unit- 5

C++ Streams and File handling-Stream class, unformatted i/o operations, formatting of output-ios class functions and flags, manipulators, Files-File classes, file types, file functions. Error handling in file operations, command line arguments

Reference Books

1. Object Oriented Programming with C++ - M.T. Somashekara, D.S.Guru, H.S. Nagendraswamy, K.S. Manjunatha, PHI 2nd Edition
2. Object Oriented Programming with C++ - E. Balagurusamy, 4th Edition, Tata Mc Graw Hill Publication
3. Object Oriented Programming in C++ - Robert Lafore, 4th Edition, Pearson Education
4. Object-Oriented Programming with ANSI and Turbo C++.