**Module: 1: [ 14 Hrs ]**

**Introduction to C Language.**

Introduction to Programming – Algorithms – Pseudo Code - Flow Chart – Compilation – Execution – Preprocessor Directives (#define, #include, #undef) - Overview of C – Constants, Variables and Data types – Operators and Expressions – Managing Input and Output Operations – Decision Making and Branching - Decision Making and Looping.

**Module: 2: [15 Hrs ]**

**Introduction to Arrays and Strings**

**Arrays:** Introduction – One Dimensional Array – Initialization of One Dimensional Arrays – Example Programs – Sorting (Bubble Sort, Selection Sort) – Searching (Linear Search) - Two Dimensional Arrays – Initialization of Two Dimensional Arrays. Example Programs – Matrix operations. **Strings:** Introduction – Declaring and Initializing String Variables – Reading Strings from Terminal – Writing String to Screen – String Handling Functions.

**Module: 3: [ 15 Hrs ]**

**Functions and Pointers**

**Functions:** Introduction – Need for User-defined functions – Elements of User-Defined Functions: declaration, definition and function call–Categories of Functions – Recursion. **Pointers:** Introduction – Declaring Pointer Variables – Initialization of Variables – Pointer Operators – Pointer Arithmetic – Arrays and Pointers – Parameter Passing: Pass by Value, Pass by Reference.

**Module: 4: [ 13 Hrs ]**

**Structures and Union**

**Structures:** Introduction – Defining a Structure – Declaring Structure Variable – Accessing Structure Members – Array of Structures – Arrays within Structures – **Union:** Introduction – Defining and Declaring Union – Difference Between Union and Structure.

**Module: 5: [ 6 Hrs ]**

**File handling**

Files: Defining and Opening a File – Closing a File – Input / Output Operations on File – Random Access Files

**SKILL SETS TO BE DEVELOPED:**

Graduate of the B.Tech. Program in Computer Science and Engineering shall be able to:

1. **An attitude of enquiry.**
2. **Confidence and ability to tackle new problems.**
3. **Ability to interpret events and results**.
4. Ability to work as a leader and as a member of a team.
5. **Assess errors in systems/processes/programs/computations and eliminate them.**
6. Observe and measure physical phenomena.
7. Write reports.
8. Select suitable equipment, instrument, materials & software
9. **Locate faults in system/Processes/software.**
10. Manipulative skills for setting and handling systems/Process/ Issues
11. The ability to follow standard /Legal procedures.
12. An awareness of the Professional Ethics.
13. Need to observe safety/General precautions.
14. To judge magnitudes/Results/issues without actual measurement/actual contacts.