

COURSE CONTENTS

Introduction to Computers & Programming

- Hardware & Software.
- What is a Program?
- What is programming language?
- Steps in Programming
- Operating System
- Skills needed to do programming
- Block Diagram & I/O Devices
- Different Programming Techniques
- Computer Generations
- Procedural Programming
- Modular Programming
- Getting started with compiler

Introduction to Computers & Programming

- History of C and Features
- Algorithms
- Flowcharts
- Language and Generation of Languages

Basics in 'C'

- Character Set
- Identifiers
- Variables
- Constants
- Keywords
- Basic Data types in 'C'
- Declaration of Variables
- C program structure
- Execution of 'C' program under Linux/Unix

C Operators:

- Operators- introduction
- Classification
 - Unary
 - Binary
 - Ternary
- Special Operators
- Order of Evaluation

Control Statements

- If
- If-else
- If-else-If
- Nested if-else
- Switch case statement

Loop Control Instructions

- For loop
- While loop
- Do ... while loop
- Break and continue statement

String Manipulation

- What are strings?
- String I/O
- String Formatted Specifiers
- String Manipulation Functions
- gets() and puts()

Arrays:

- What is an array?
- Rules of using array
- Array Declaration
- Array Initialization
- Accessing individual elements of an array
- Types of Arrays
- Single Dimensional Arrays
- Two Dimensional Arrays
- Multi Dimensional Arrays

Pointers

- What is a pointer?
- Declaring a pointer Variable
- Initializing a pointer Variable
- Using pointer Variables
- Pointer Arithmetic
- Why use pointers Array of Pointers & pointer to array
- Passing an entire array to a function
- Functions returning a Pointer Variable
- Pointers to pointers
- Call by value and call by reference

- Pointer with Structures
- Dynamic memory allocation

Structures and Unions

- Introduction to Structures
- Arrays of Structures
- Nested Structure
- Structures and functions
- Pointers with Structures
- Introduction to Union
- Declaring Union
- Difference between Structure and Union
- Type def
- Preprocessor and Macro
- Enumerations

Functions

- Why use Functions
- Components of Function
- Name of a function
- Body of a function
- Calling a function
- Local variables of a function
- Parameters or Arguments to a function
- Function with arrays
- Return Values
- Function with Strings
- Rules of using a function
- Recursive Functions
- What is Header File?
- How to create User defined header files

Storage Classes

- Automatic
- Register
- Static
- Etern

File Handling

- Introduction to files
- File Pointer

- Opening a File
- Closing a File
- Types of files
- File input, Output Operators
- Seeking in a file
- Sequential Files
- Random access files
- Command Line Arguments
- File Handling errors

DATA STRUCTURES:

Linear Data Structures

Stacks

- Using Arrays
- Using structures & Pointers
- Conversions from Infix to postfix & prefix expressions

Queues

- Linear Queue
- Using Arrays
- Using structures and pointers
- Circular Queues
- De Queues
- Priority Queues

Linked List

- Single or singly Linked List
- Double or Doubly Linked List
- Circular Linked List
- Header Linked List
- Stacks using Linked List
- Queues using Linked List

Sortings

- Bubble sort
- Selection sort
- Insertion sort
- Quick sort
- Merge sort
- Heap sort
- Shell sort

Searchings

Linear search technique

Binary search technique

Non Linear Data Structures

Trees

Simple Tree

Binary Tree

Complete Binary Tree

Full Binary Tree

Tree traversals

Inorder Tree Traversal

Preorder Tree Traversal

Post order Tree Traversal

Level order Tree Traversal

Recursive & Non Recursive

Operations on Binary Trees

Binary search Tree

Threaded Binary Tree

Graphs

Types of Graphs

Graph representations

Graph Traversals

Introduction to Device Driver Programming

FAQ