C Programming

C

SYLLABUS

COVERAGE

- Introduction to Programming
- Fundamentals in C
- Operators and Expressions
- Data types
- Input-Output Library Functions
- Control statements
- Function
- Storage class
- Pointer
- Pointer and Function
- Array
- Pointer and array
- Array and function
- Dynamic memory allocation
- String
- String and function
- Command line arguments
- Preprocessor
- Structure
- Structure and function
- File Handling
- ODBC Programming
- Process and threads
- Graphics
- Socket and Network programming
- Project

SYLLABUS IN DETAILS

Introduction to Programming

- Program and Programming
- Programming Languages
- Types of software's
- Operating Systems
- Dos commands
- Basic Linux commands and vi editor
- Compiler, Interpreter, Loader and Linker

Fundamentals in C

- History of 'C'
- A Simple C Program
- Program execution phases
- Backslash character constants
- Character set
- Constants
- Number systems
- Format specifiers
- Identifiers
- Keywords
- Variables
- Data Types
- Declaration of Variable
- Assigning Values to Variables
- Initialization
- Comments
- Const Qualifier
- Basic Structure of a 'C' program
- Programming Examples

Operators and Expressions

- Dealing with all 45 operators
- Arithmetic operators
- Increment and decrement operators
- Relational operators
- Logical operators
- The bitwise operators

- The assignment operators
- The conditional operator
- The size of operator
- The comma operator
- Type casting operator
- Other operators
- Precedence and order of evaluation
- Programming Examples
- FAQ's

Data types

- Modifiers
- Format specifiers
- Dealing with each data types
- Memory representation of each type
- Programming Examples

Input-Output Library Functions

- Unformatted I-O Functions
- Single Character Input-Output
- String Input-Output
- Formatted I-O Functions
- printf() Width Specifier
- scanf() Width Specifier
- Programming Examples

Control statements

- Conditional Control Statements
- if
- if-else
- nested if-else
- else-if ladder
- Multiple Branching Control Statement
- switch-case
- Loop Control Statements
- while
- do-while
- for
- Nested Loops
- Jump Control statements
- break
- continue
- goto
- exit
- return
- Programming Examples
- FAQ's

Function

- What is function?
- Why function?
- Advantages of using functions
- Function Prototype
- Defining a function
- Calling a function
- Return statement
- Types of functions
- Recursion
- Nested functions
- main() function
- Library Function
- Local and global variables
- Programming Examples
- FAQ's

Storage class

- Types of storage class
- Scoping rules
- Dealing with all storage classes
- Programming Examples
- FAQ's

Pointer

- Def of Pointer
- Declaration of Pointer Variables
- Assigning Address to Pointer Variables
- De-referencing Pointer Variables
- Pointer to Pointer
- Pointer Arithmetic
- Pointer comparisons
- De-reference and increment pointer
- pointer to const data
- const pointer
- const pointer to const data
- Void pointer or Generic Pointer
- Null pointer
- wild pointer
- Programming Examples
- FAQ's

Pointer and Function

- Parameter Passing Techniques – call by value, call by address
- Using Pointers as Arguments
- Function Returning value
- Returning More than one value From A Function
- Functions Returning Address
- Function Returning Pointers
- Dangling pointer
- Pointer to a Function
- Calling A function through function pointer
- passing A function's address as an Argument to other function
- Functions with variable number of arguments
- Programming Examples
- FAQ's

Array

- One dimensional arrays
- Declaration of 1D arrays
- Initialization of 1D arrays
- Accessing element of 1D arrays
- Reading and displaying elements
- Two dimensional arrays
- Declaration of 2D arrays
- Initialization of 2D arrays
- Accessing element of 2D arrays
- Reading and displaying elements
- Programming Examples

FAQ's**Pointer and Array**

- Pointer and one dimensional arrays
- Subscripting pointer variables
- Pointer to an array
- Array of pointers
- Pointers and two dimensional arrays
- Subscripting pointer To an array
- Programming Examples
- FAQ's

Array and Function

- 1D array and function
- Passing individual array elements to a function
- passing individual array elements address to a function
- passing whole 1d array to a function
- 2D array and function
- Passing individual array elements to a function
- passing individual array elements address to a function
- passing whole 2d array to a function
- using arrays of function pointer
- Programming Examples
- FAQ's

Dynamic memory allocation

- malloc()
- calloc()
- realloc() .
- free()
- Core dump
- Memory leak
- Dynamic 1D and 2D Arrays
- Programming Examples
- FAQ's

Strings

- strings versus character arrays
- Initializing strings
- Reading string
- Displaying string
- The %s format specifier
- The gets() and puts() functions
- string handling functions
- string pointers
- Two-dimensional character arrays or array of string
- array of pointers to strings
- Programming Examples
- FAQ's

Command line arguments

- what is command prompt?
- why command line?
- What are command line arguments?
- Programs using command line

Preprocessor

- What is preprocessing?
- Macro expansions
- File inclusions
- Conditional compilation
- The stringification(#)and token passing operator

(##) operators

- Programming Examples
- FAQ's

Structure

- Why is structure used?
- What is structure?
- Advantages of structures
- Defining a Structure
- Declaration of Structure Variables
- Initialization of Structure Variables
- Accessing Structure Members
- Storage of Structures in Memory
- Size of Structures
- Reading and Displaying Structure Variables
- Assignment of Structure Variables
- Pointers to structures
- Array of structures
- Arrays within structures
- Nested structures
- Self-referential structures
- memory link(linked list)
- Bit fields
- Programming Examples
- FAQ's

Structure and Function

- Passing structure member to a function
- Passing structure variable to a function
- Passing structure variable address to a function
- Passing array of structure to a function
- Returning a structure variable from function
- Returning a structure variable address from function
- Returning structure variable from a function
- Programming Examples
- FAQ's

Union and Enumeration and typedef

- What are unions?
- Structures versus unions
- Working with unions
- Initializing unions
- Advantages of unions
- enum keyword
- typedef keyword
- Programming Examples
- FAQ's

File Handling

- Using files in C
- Buffer and streams
- Working with text files and Binary Files
- File operations using std. library and system calls
- File management I/O functions
- Random Access Files
- Programming Examples
- FAQ's

ODBC Programming

- ODBC rules and regulation
- Introduction to MYSQL and Oracle
- Creating, inserting and retrieving records for different Data bases.
- Programming Examples
- FAQ's

Process and Threads

- What is process & Threads
- Use of fork, vfork
- Daemon process
- Programming Examples
- FAQ's

Graphics & Curses

- Graphics
- Programming Examples
- FAQ's

Socket and

Network

programming

Project