

Webgurukul Programming Language Course

*“Take One step towards
IT profession with us”*

1. C Programming

- **Introduction to “ C ” Language**

- > Data Types
- > Indentation
- > The ‘WHILE’ loop
- > The ‘FOR’ loop
- > Nested Loop Statements
- > The “BREAK“ & “CONTINUE” Statements
- > Bitwise Operators

- **Functions**

- > Introduction to Functions
- > Need for Functions
- > Standard & User Defined Functions
- > How to Create our own header file
- > Difference between Source file & exe file
- > How to create exe file
- > Storage classes
- > Pass by value & Pass by Reference
- > Return by value & Return by address
- > Recursive Functions

- **Pointers**

- > Memory Concepts
- > Pointer to variable
- > Pointers to Pointers
- > Pointers with Operations

- **Arrays**

- > Introduction to Arrays
- > Need for Arrays

- > Arrays with Pointers
- > Arrays with Functions
- > Types of Arrays
- > One dimensional Arrays
- > Two dimensional Arrays
- > Multi dimensional Arrays

- **Strings**

- > Char Pointers
- > Char Array (String)
- > Declaring & initializing string Variables
- > String with pointers
- > String with Functions
- > Creation of Our own string.h
- > Array of strings
- > #define (preprocessing work)

- **Structure,Unions,Enum and typedef**

- > Enum and typedef
- > Introduction to Structures
- > Defining Structures
- > Struct with pointers,arrays,string & Function
- > Arrays ,string as Structures Members
- > Containership
- > Union, Difference between Structure & Union

- **Graphics Programming**

- > In text mode
- > In graphics mode

- **File Operations**

- > Introduction to files
- > Types of files
- > File pointers
- > Opening and closing Files
- > Modifying & deleting files
- > Creating database with file operation
- > Command line Arguments

- **Dynamic memory allocation (DS)**

- > Purpose of dynamic memory allocation
- > Malloc , calloc ,realloc and free
- > Sorting
- > Recursion
- > Lists
- > Single linked lists
- > Double linked lists
- > Circular linked lists
- > Stacks
- > Queues
- > Adding 2 lists
- > Inserting a node in required position
- > Deleting a node from required position

2. C++ Programming

- **Graduating to C++ (Beginning)**

- > Oops
- > Function Prototypes
- > Comments
- > Typecasting
- > Void Pointers
- > The :: operator
- > The Const Qualifier
- > Reference variables

- **Functions**

- > Function Prototypes
- > Function Overloading
- > Default Arguments in Functions
- > Call by value, address & reference
- > Return by value, by address & By reference
- > Inline Functions

- **Classes in C++**

- > Member function
- > Function Definition Outside The Class
- > Classes and Constructors
- > Destructors
- > Copy Constructor
- > The this Pointer
- > New and delete Operators
- > Using new and delete
- > Malloc () / free () versus new/delete
- > Classes, Objects and Memory
- > Structures vs. Classes

- **Miscellaneous Class Issues**

- > Static Class Data
- > Static Member Functions
- > Data Conversion
- > Friend functions & friend Classes
- > Data Conversion between Objects of Different Classes

- **Overloading operators**

- > Introduction
- > Overloading assignment operator
- > Overloading ++, --, +, -, *, /, <, > & Logical operators
- > Overloading operators between different objects
- > Overloading << and >> (stream operators)

- **Inheritance**

- > Constructors in Inheritance
- > Private Inheritance
- > Protected Inheritance
- > Functions That Are Not inherited
- > Virtual Function
- > Pure virtual functions
- > Virtual Functions in Derived Classes
- > Virtual Functions and Constructors
- > Destructors and virtual Destructors
- > Virtual Base Classes
- > Abstract class
- > Abstract base class

- **Advanced Features**

- > Classes Within Classes
- > Friend Functions
- > Friend classes
- > Overloading << and >>.

- **Input / Output In C++ (File operations)**

- > Manipulators
- > File I/O with Streams
- > Opening and closing files
- > Creating database with file Operation
- > Binary I/O
- > Elementary Database Management
- > Interacting with
 - Text files (ex: .txt, .c, .cpp) / Non-text files
- > Creating database with file operation

- **New Advanced Features**

- > Templates
- > Function templates
- > Class templates
- > Exception handling
- > Namespaces
- > RTTI (Runtime type information)
- > STL (Standard Template library)
- > Dynamic cast operator
- > typeid operator
- > typeid class

- **Data Structures with C++**

- > Sorting
- > Recursion

- > Lists
- > Single linked lists
- > Double linked lists
- > Circular linked lists
- > Traversing of linked lists
- > Stacks
- > Queues
- > Adding 2 lists
- > Inserting a node in required position
- > Deleting a node from required position

Features



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