Hewlett Packard Enterprise

Course Datasheet

Programming Techniques Using 'C' and 'C++'

Education Services course product number – HPE-ProgC-v1.1
Course length – 60 Hrs.
Delivery mode – Instructor Led Training (ILT)
Virtual Instructor Led Training (vILT)

In computing, 'C' is a general-purpose programming language initially developed by Dennis Ritchie between 1969 and 1973 at AT&T Bell Labs. Its design provides constructs that map efficiently to typical machine instructions, and therefore it has found lasting use in applications that had formerly been coded in assembly language, most notably system software like the Unix computer operating system. C is one of the most widely used programming languages of all time and many later languages have borrowed directly or indirectly from C, including C++, C#, Java, JavaScript, Perl, PHP and Unix's C shell etc.

Course Objective

The 60 hours training program will help the learner to explore various tools and techniques used by C programmers. On completion of the training, a learner will have good understanding on concepts of data types, control statements, array, strings, function, structure etc. and working knowledge of C & C++ Programming.

Prerequisite

No prior knowledge or experience is required

Course Modules

Chapter 01 – Introduction to Programming language

- Programming language, Types of programming Language
- Introduction of C, History of C
- Structure of C Program , Compilation and Execution of Program

Chapter 02 – Data Types and Operators

- Data Types , Storage Class
- Type Casting
- Operators and Types of Operators
- Operators precedence and Associativity

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Chapter 03 – Control Statements and Looping

- if, if-else, if-else ladder, nested if-else
- switch, goto
- while, do-while, for
- break, continue
- Nested Loop

Chapter 04 – Array, String

- Introduction to Arrays
- Types of Arrays
- Declaration and Initialization of string
- String Handling Function

Chapter 05 – Function

- Function and its Components
- Types of Function
- Types of Calling , Recursion
- Function with Array

Chapter 06 – Pointer and Dynamic Memory Allocation

- Declaration and Initialization of Pointer
- Pointer Expression, Scale Factor
- Constant Pointer , Generic Pointer
- Pointers with String , Structure and Union
- Malloc , calloc, free function for dynamic allocation

Chapter 07 – Structure and Union

- Structure
- Array of Structure
- Array within Structure
- Nested Structure
- Union

Chapter 08 – File Handling

- File Handling Concept
- File Opening Modes
- File Handling Functions
- File Input/ Output

Chapter 09 – C++ - An Overview

Introduction to Programming Language

- OOPS Programming Language
- Programming Techniques Using 'C' & "C++"
- Features of OOPS Languages
- Introduction to C++
- Structure of a C++ Program

Data Types and Operators

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- Data Types
- Storage Class
- Typecasting
- Operators and Types of Operators
- Operators Precedence and Associativity

Control Statements and Looping

- Branching Statements
- Looping Statements
- Nested Looping Statements

Array and String

- Array and Types of Array
- String

Functions

- Components of a Function
- Declaring a Function
- Calling a Function
- Types of Function, Reference Variable
- Reference Variable
- Types of Function Calling

Basic OOP Concepts

- Classes and Objects
- Accessing Class Members
- Static Member Data and Function
- Array within Class and Array of Objects
- Function Overloading

Constructor and Destructor

- Constructor
- Parameterized Constructor
- Copy Constructor
- Constructor Overloading
- Destructors

Operator Overloading and Friend Function

- Operator Overloading
- Friend Function
- Operator Overloading using a Friend Function

Inheritance and Polymorphism

- What is Inheritance?
- Types of Inheritance
- Visibility of Inherited Members
- Constructor and Destructor in Inheritance
- Virtual Base Class
- What is Polymorphism?

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- Types of Polymorphism
- This Pointer
- Virtual Function
- Abstract Class and Pure Virtual Function