C Programming

Course Description:

This hands on C programming course provides a comprehensive introduction to the ANSI C language, emphasizing portability and structured design. Students are introduced to all major language elements including fundamental data types, flow control, and standard function libraries.

Thorough treatment is given to the topics of string and character manipulation, dynamic memory allocation, standard I/O, macro definition, and the C runtime library. The course explains the use of aggregate structures, unions, and pointers early on so the students can practice extensively in the hands on labs.

Structured programming constructs and varargs functions are also covered. Emphasis is given to the processing of command line arguments and environment variables so students will be able to write flexible, user-friendly programs. The course also includes coverage of portability tips drawn from experienced programmers working in production environments. Comprehensive hands on exercises are integrated throughout to reinforce learning and develop real competency.

Course Prerequisites:

Understanding of fundamental programming concepts.

Target Audience:

This course is specially designed for the B.Tech/B.E (CSE/IT/EEE/ECE/Mech) and all other IT related Graduates and Post Graduate students. Mission Professionalism has conquered the job scenario and companies seek for well qualified, professional and skilled manpower. Quality Education and Performance Oriented Training is our motto.

What Student/Professionals Will Learn?

- Using the C preprocessor
- Using standard runtime libraries
- Using make to build programs
- Working with debugger utilities
- Using data types, storage classes and scope
- Using typedef to make code more readable and portable
- Using operators and expressions
- Working with conditional and looping constructs
- Initializing a pointer
- Accessing the value addressed by a pointer
- Returning the value of a function
- Declaring argument data types
- ANSI function prototype syntax
- Declaring and initializing arrays and multidimensional arrays
- Using Strings and character manipulation
- Declaring and instancing a structure
- Defining a union
- Accessing command line arguments and environment variables
- C runtime library standard I/O functions
- Components of a C program

COURSE-CONTENT:

Module –1: INTRODUCTION TO C

- History of C
- Features of C
- Importance of C
- About procedural language

Module –2: INTRODUCTION TO

- Roles of compiler
- Role of Interpreter
- Compiling & Linking

Module–3: AN OVERVIEW OF C AND BUZZWORDS

- Data types ,variable
- Operators
- Control Statement
- Preprocessor Directives

Module 4: I/O OPERATORS

- Reading/Writing Characters
- Formatted I/O function

Module 5: DECION MAKING AND LOOPING

- The if /else Statements
- Nesting of if/else
- Switch statements
- While statements
- Do and for loops

Module 6: ARRAY AND STRING

- One/two/multi-dimensional Arrays
- Dynamic Arrays
- Reading String from terminal
- String handling functions
- Table of strings

Module 7: FUNCTION

- Defining function

- Benefit of function
- Nesting of function
- Recursion
- Variable storage classes
- Variable arguments function

Module 8: POINTERS

- Understanding pointers
- Pointers expressions
- Pointers and arrays
- Pointers and character string
- Pointer to functions
- Pointers and structures

Module 9: STRUCTURES AND UNION

- Defining a structure
- Benefit of structure
- Size of structure
- Arrays of structure
- Structures and functions
- Defining UNIONS

Module 10: DYNAMIC MEMORY ALLOCATION

- Introduction to dynamic memory allocation
- Malloc ,calloc ,realloc ,free
- Concepts of linked lists
- Creating a linked list
- Inserting/deleting an item
- Application of linked lists

Module 11: FILE MANAGEMENT IN C

- Introduction to file management
- Opening/closing a file

- I/O operations on files
- Error handling during I/O operations
- Command line arguments

Module 12: THE PREPROCESSOR

- Macro substitution
- File inclusion
- Complier control directives

Module 13: DATA STRUCTURE WITH C

- Introduction of link list & array
- Stack with array & link list
- Queue with array & link list
- Sorting like bubbles, insertion, quick sort, merge sort...etc.
- Searching

INTEGER Innovation will provide:

- Training Slides taught during training by trainers
- Programmatic Examples
- Assignments of each topic in a module
- Demos executed during training session.
- Software's and installation guide (for future help)
- E-books for further reading in depth
- Reference links
- 24X7 online support for any queries or doubts.