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## Course Syllabus: Language C

Batch Name: Language C

Eligibility: 10th

Course Start: 1st of Every Month

Course Duration: 30Hours

### Courses / Modules Paper

Paper 1
Language C

### Module 1:

#### 1: Introduction of C

- 1.1 History
- 1.2 Why C language
- 1.3 Getting started with C
- 1.4 Writing first program: hello world
- 1.5 Algorithm and flowchart
- 1.6 Understanding the structure and syntax of C
- 1.7 C programming style

- Return type with no arguments
- No return type with arguments
- Return type with arguments
- 5.4 Need of functions
- 5.5 Scope rules
- 5.6 Recursion
- 5.7 Function using arguments
  - Call by value
  - Call by reference

- Passing structure variable as an argument
- Passing structures pointer as an argument
- 8.8 Array within structure
- 8.9 Nested structure
- 8.10 typedef keyword
  - Typedef vs #define

#### 2: Fundamentals of C

- 2.1 Introduction
- 2.2 Character set
- 2.3 Keywords
- 2.4 Identifiers
- 2.5 Variables
- 2.6 Data types
- 2.7 Constants
- 2.8 Declaring a keyword
- 2.9 Reading data from keyboard

#### 6: Array in C

- 6.1 Introduction
  - Declaration of Array
  - Initializing an array
  - Accessing an Array
- 6.2 One-dimensional array
- 6.3 Two-dimensional array
  - Nesting of loops
- 6.4 Multi-dimensional array
- 6.5 Dynamic Array

#### 9: Union in C

- 9.1 Introduction
- 9.2 Declaration of union
- 9.3 Accessing union member
- 9.4 Bit field

#### 10: Input and output

- 10.1 Introduction
- 10.2 Standard files
- 10.3 Formatted input output
  - scanf()
  - printf()
- 10.4 Unformatted input output
  - getchar()
  - Getch()
  - gets()
  - putchar()
  - puts()
- 10.5 Error Handling
  - errno
  - strerror
  - Perror

#### 3: Operators and expressions

- 3.1 Introduction
- 3.2 Arithmetic operator
- 3.3 Increment and Decrement operator
- 3.4 Assignment operator
- 3.5 Relational operator
- 3.6 Logical operator
- 3.7 Conditional operator
- 3.8 Bitwise operator
- 3.9 Special operators

#### 7: Pointers in C

- 7.1 Introduction
- 7.2 Declaration of pointers
- 7.3 Initialization of pointers
- 7.4 Accessing variable through pointer
- 7.5 Pointer to a pointer
  - Declaring a double pointer
- 7.6 Operation on pointer
  - Increment and decrement operator
  - Addition and subtractions of constant value
  - Subtracting two pointers
  - Comparison between two pointers
- 7.7 Pointer to array
- 7.8 Array to pointer
- 7.9 Passing pointer as a function
- 7.10 Pointer to structure
  - Pointer pointing to a function

#### 11: File I/O

- 11.1 Introduction
- 11.2 Needs of files
- 11.3 Types of files
  - Text files
  - Binary files
- 11.4 Files operations
  - File creation
  - Opening a file
  - Reading data from file
  - Writing data to file
  - Closing a file
- 11.5 Reading writing text files
  - getc()
  - putc()
  - getw()
  - putw()
  - getchar()
  - putchar()
  - fprintf()
  - fscanf()
- 11.6 Reading writing binary files
  - fread()
  - Fwrite()

#### 4: Control Statements

- 4.1 Introduction
- 4.2 Branching statements
  - If
  - Nested if
  - If else
  - Nested if else
- 4.3 Looping statement
  - For loop
  - While loop
  - Do while loop
- 4.4 Jumping statement
  - Goto
  - Break
  - Continue

#### 8: Structures in C

- 8.1 Introduction
- 8.2 Defining a structure
- 8.3 Declaring a structure member
  - Declaring structure variable separately
  - Declaring structure variable along with definition
- 8.4 Accessing structure member
  - With Dot operator
  - With arrow operator
- 8.5 Structure initialization
- 8.6 Array of structure
- 8.7 Using structure as a function argument
  - Passing structure member as an argument

#### 5: Function in C

- 5.1 Introduction
- 5.2 Types of functions
- 5.3 Types of user define functions
  - No return type with no arguments