**Syllabus : C Languege**

**Duration : 60 hrs (Each Session 1 hour)**

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| **Session 1** |
| * Why You Should Learn Programming Language * How You Should Learn Programming Langauge * Different Types of Sofwtare * Different Types of Programming Paradigms * Introduction to C * History of C * Features of C * Applications of C |
| **Session 2-4** |
| * Constants,Backslash character constants * Identifiers, Keywords,printf function * Compiler, Interpreter. Program execution phases, * Linker ,Loader and preprocessing * Data Types , Format specifiers , scanf function |
| **Session 5-8** |
| * Dealing with all 45 operators. Precedence and order of evaluation ,Arithmetic operators * ,Increment and decrement operators ,Relational operators ,Logical operators * bitwise operators ,assignment operators ,conditional operator , sizeof operator ,Other operators |
| **Session 9-10** |
| * If * if-else * else-if ladder * switch-case * Assignments |
| **Session 11 - 15** |
| * While * do-while * for Loop * Nested loop break ,continue , goto ,exit ,return * Assignment |
| **Session 16-20** |
| * One dimensional arrays, Accessing element of 1D arrays, * Declaration of 2D arrays. * Assignments |
| **Session 21-24** |
| * Strings versus character arrays ,Initializing strings * String handling functions * Two-dimensional character arrays or array of string * Assignments |
| **Session 25-29** |
| * Why is structure used, What is structure, Advantages of structures * Storage of Structures in Memory * Array of structures Arrays within structures * Nested structure , Bit fields program * What are unions? Structures versus unions * Typedef * What is enum |
| **Session 30-32** |
| * What is function? * Types and category of function, actual and formal arguments , returntype * Assignments |
| **Session 33-34** |
| * Types of storage class, Scoping rules ,Dealing with all storage classes, * Assignments |
| **Session 35-38** |
| * Def of Pointer, Dereferencing Pointer Variables * Pointer to Pointer, Pointer Arithmetic, Dereference and increment pointer * pointer to const data, const pointer ,const pointer to const data, Void pointer or Generic Pointer ,Null pointer and wild pointer * Pointer to a Function , call by value, call by address ,Function Returning value and Address * Pointer to an array, Array of pointers * passing whole 1d array to a function ,passing whole 2d array to a function, * Pointer to structure, Self-referential structures Passing structure member to a function * Pointer to string, passing string to function, * passing string into function, array of pointer to string |
| **Session 39** |
| * What is command line arguments * Assignments |
| **Session 40- 45** |
| * malloc(), calloc(), realloc(), free() * Dynamic array * memory leak and link , linked list, * What is preprocessing ,Dealing with all preprocessor directives * File management I/O functions ,Random Access Files * Command line arguments |
| **Session – 46 – 53** |
| * Live Project |