

C Programming

Mode: Classroom

Duration: 40 hours

Pre-requisite:

- Basic of knowledge of programming

Course Outline

Topics	Approx. Duration
1. Introduction to C language <ul style="list-style-type: none"> • Constants, variables and keywords, types and rules. • Data types • Some simple programs 	2hrs.
2. Decision control structures <ul style="list-style-type: none"> • If statement • If-else statement • Nested if-else statement • Use of logical/conditional operators 	4hrs.
3. Loop control structures <ul style="list-style-type: none"> • The while loop • The for loop • Do-while loop 	3hrs.
4. Case control structures <ul style="list-style-type: none"> • Switch-case statement • Goto statement 	1hr.
5. Functions <ul style="list-style-type: none"> • Standard library functions • User defined functions 	3hrs
6. Arrays	1hr.
7. Structure, union, pointers	1hr.
C++ and Object Oriented Programming	
1. Introduction <ul style="list-style-type: none"> • Objects, constants, variables • Input/output operators • Some simple programs 	2hrs.
2. Data types <ul style="list-style-type: none"> • Numeric, Boolean • Enumeration • Character, integer • Arithmetic operator • Increment/decrement operator • Composite assignment operator • Data type conversion 	2hrs.

Topics	Approx. Duration
3. Selection <ul style="list-style-type: none"> • The if statement • If-else statement • Nested selection statement • Switch-case statement 	4hrs.
4. Iteration <ul style="list-style-type: none"> • While statement, Do-while statement • For statement, Goto statement • Break statement, Continue statement 	6hrs.
5. Functions <ul style="list-style-type: none"> • Standard C++ library functions • User defined functions • Function overloading 	2hrs.
6. Arrays and pointers <ul style="list-style-type: none"> • Single dimensional • Multi dimensional 	2hrs.
7. Classes <ul style="list-style-type: none"> • Public/private/protected • Constructors • Destructors 	2hrs.
8. Operators Overloading	1hr.
9. Data File Handling	4hrs.
10. Composition and Inheritance <ul style="list-style-type: none"> • Single and multiple inheritance • Virtual functions • Polymorphism 	6hrs.
11. Templates	1hr.
12. Vectors	1hr.
13. This pointer, friends and static function s	2hrs.
14. Exception handling	1hr.
Data Structure using C	
1. Array, Pointers, Structures	2hrs.
2. Introduction to data structures	1hr.
3. Recursion	1hr.
4. Linked List <ul style="list-style-type: none"> • Building a linked list • Traversing, Insertion, Deletion • Searching, Sorting • Doubly linked list 	6hrs.
5. Stacks <ul style="list-style-type: none"> • Array implementation • Push, Pop, Peep • Update • Linked list implementation 	4hrs.
6. Queue <ul style="list-style-type: none"> • Array implementation • Double ended queue (deque) 	6hrs.

Topics	Approx. Duration
<ul style="list-style-type: none">• Circular queue• Linked list implementation	
7. Tree <ul style="list-style-type: none">• Binary tree• B-tree• Minimum spanning tree• Splay tree• Red Black tree• Avl tree	6hrs.
8. Graphs	6hrs.
9. Sorting and searching	8 hrs.