

C++ COURSE CONTENTS

5th Semester Electronics and Telecommunication Engineering

Introduction of C++

- Syntax of C++
- Why we use C++?
- Structure of a C++ program
- Compiling a Simple C++ Program
- How C++ Compilation Works
- Variables
- Simple Input/output statements
- Memory
- Integer Numbers
- Characters
- Strings
- Names

Data Types, Operators & Expressions

- Integer, Float and Character data types
- Parentheses
- Arithmetic and Relational Operators
- Logical Operators
- Bitwise Operators
- Increment/Decrement Operators
- Assignment Operator
- Conditional Operator
- Comma Operator
- The size of Operator
- Operator Precedence

Statements and OOP's Concepts

- Knowledge about OOP's
- OOP's Concept
- Abstract data types
- Polymorphism and Virtual functions
- Simple and Compound Statements
- If Statement
- Switch case Statement
- Iteration structures-While statement, Do-while statement, For statement
- The break statement
- The go to statement
- Break Statement
- Return Statement

Functions

- A C++ Simple Function program
- Parameter and Arguments
- Global and Local Scope
- Scope Resolution Operator
- Auto Variables
- Register Variables
- Static Variables and Functions
- Extern Variables and Functions



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Arrays, Pointers, and References

- Overview of arrays
- Accessing the values of an array
- Multidimensional Arrays
- Define Pointers
- Dereference operator(*)
- Reference operator(&)
- Dynamic Memory and static memory
- Declaring variables of pointer types
- Pointer Arithmetic
- Function Pointers
- References
- Type defs

Classes and Objects

- A Simple Class
- Objects, Classes methods and properties
- Inline Member Functions
- Constructors
- Destructors
- Friends

- Default Arguments
- Implicit Member Argument
- Scope Operator
- Class Scope
- Classes defined with struct and union

Overloading

- Function Overloading and Characteristic
- Operator Overloading
- Type conversion
- Inline functions
- Constructors and destructors
- Declaring functions
- Overloading->,*,and&
- Member wise initialization
- Member wise assignment
- Overloading new and delet

Exception Handling

- Flow Control
- The Throw Clause
- The Try Block and Catch Clauses
- Function Throw Lists



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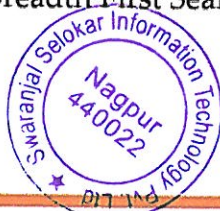
DATA STRUCTURE COURSE CONTENT

5th Semester Electronics and Telecommunication Engineering

1. Introduction to Data Structures
 - Arrays and Strings
2. Introduction to Algorithms
 - Algorithm Development
 - Complexity analysis
 - Recursion
3. Linear Data Structures
 - Stacks: Operations and Applications
 - Queues: Operations and Applications
 - Circular Queues: Operations and Applications
4. Links Lists
 - Operation – Creations, insertion, Deletion
 - Circular Lists
 - Doubly Linked List
5. Sorting
 - Insertion Sort
 - Merge Sort
 - Quick Sort
6. Searching
 - Binary Search
 - Selection
7. Graphs I: Representation and Traversal
 - Representation: Matrix, Adjacency list
 - Traversal: Depth First Search, Breadth First Search

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8. Graphs II: Basic Algorithms
 - Minimum Spanning Tree
 - Shortest Path
 - All pairs Shortest Path, Transitive Closer

9. Binary Trees • Representation
 - Operations: Insert, Delete
 - Traversal: Preorder, Inorder, Postorder

10. Heap Sort
 - Method and Complexity
 - Priority Queue

11. Search Trees
 - AVI-trees
 - B-tree
 - External Search

12. Tables
 - Hashing Techniques

13. Sets
 - Representation
 - Operations: Union and Find

14. String Algorithms
 - Pattern Matching
 - Text Editor

15. Program Development
 - Program Specification
 - Pre and post Condition
 - Program Documentations

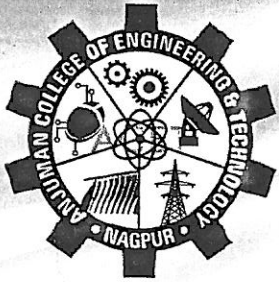
16. Program Testing and Verification
 - Testing Methods
 - Verification Procedures

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Certificate



**ANJUMAN COLLEGE OF ENGINEERING & TECHNOLOGY
NAGPUR
DEPARTMENT OF ELECTRONIC & TELECOMMUNICATION ENGINEERING**

This is to certify that

Certificate No. : SS4800

Mr./Ms. VAISHNAVI LAXMI PRASAD CHOUDHARY
*has successfully completed training programme on C++, DS
from 29th June to 29th September, 2017 at Anjuman College
of Engineering & Technology, Nagpur.*

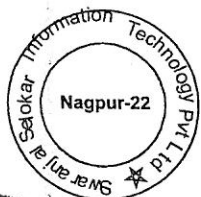
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