

**ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY, CHIRALA**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**LECTURE SCHEDULE**

**Subject: Data Structures Through C++**  
**Name: T.Y.Srinivasa Rao**  
**No. of Lectures per Week: 4+1\* (Tutorial)**

**Academic Year: 2018 – 2019**  
**Year & Sem/Section: II - I 'A'**

S. No.	Date	Unit No.	Topics to be Covered
1	11-Jun-18	<b>UNIT-1</b>	Introduction to Class
2	12-Jun-18		Data Abstraction & Encapsulation
3	13-Jun-18		Declaring Class Objects and Invoking Member Functions
4	14-Jun-18		Special Class Operations
5	18-Jun-18		ADTs and C++Classes
6	19-Jun-18		The Array as an Abstract Data Type
7	20-Jun-18		Tutorial
8	21-Jun-18		The Polynomial ADT - Its Representation & Addition
9	22-Jun-18		Sparse Matrices, Introduction - Its Representation
10	23-Jun-18		Transposing a Matrix
11	25-Jun-18		Matrix Multiplication
12	26-Jun-18		Representation of Arrays
13	27-Jun-18		Tutorial
14	28-Jun-18		Revision
15	29-Jun-18		Unit - I Test
16	30-Jun-18	<b>UNIT-2</b>	Templates in C++
17	2-Jul-18		Template Functions
18	3-Jul-18		Using Templates to Represent Container Classes
19	4-Jul-18		Tutorial
20	5-Jul-18		The Stack Abstract Data Type
21	6-Jul-18		Stack Operations
22	7-Jul-18		The Queue Abstract Data Type
23	9-Jul-18		Queue Operations
24	10-Jul-18		Subtyping in C++
25	11-Jul-18		Tutorial
26	12-Jul-18		Inheritance in C++
27	13-Jul-18		Evaluation of Expressions, Postfix Notation
28	14-Jul-18		Infix to Postfix
29	16-Jul-18	Revision	
30	17-Jul-18	<b>UNIT-3</b>	SLL and Chains, Representing Chains in C++
31	18-Jul-18		Tutorial
32	19-Jul-18		Unit - II Test
33	20-Jul-18		Defining a Node in C++, Designing a Chain Class in C++
34	21-Jul-18		Pointer manipulation in C++
35	23-Jul-18		Chain Manipulation Operations, The Template Class Chain, Implementing Chains with Templates
36	24-Jul-18		Chain Iterators- Chain Operations- Reusing a Class
37	25-Jul-18		Tutorial
38	26-Jul-18		CLL, Available Space Lists
39	27-Jul-18		Linked Stacks and Queues
40	28-Jul-18		Polynomials, Polynomial Representation- Adding Polynomials- Circular List Representation of Polynomials
41	30-Jul-18		Equivalence Classes, Sparse Matrices, Sparse Matrix Representation - Sparse Matrix Input- Deleting a Sparse Matrix
42	31-Jul-18		Doubly Linked Lists
43	1-Aug-18		Tutorial
44	2-Aug-18		Generalized Lists, Representation of Generalized Lists
45	3-Aug-18		Recursive Algorithms for Lists- Reference Counts, Shared and Recursive Lists
46	4-Aug-18		Revision
47	6-Aug-18		<b>UNIT-4</b>
48	7-Aug-18	Revision	
49	8-Aug-18	Tutorial	
50	9-Aug-18	Revision	
51	10-Aug-18	Binary Trees, The ADT, Properties of Binary Trees	
52	11-Aug-18	Revision	
53	13-Aug-18	Binary Tree Representations	
54	14-Aug-18	Binary Tree Traversal and Tree Iterators	
55	16-Aug-18	In-order, Preorder and Post-order Traversals	
56	17-Aug-18	Threaded Binary Trees, Threads	
57	18-Aug-18	In-order Traversal of a Threaded Binary Tree	
58	20-Aug-18	Inserting a Node into a Threaded Binary Tree	

59	21-Aug-18		Heaps, Priority Queues, Definition of a Max Heap
60	23-Aug-18		Insertion into a Max Heap, Deletion from a Max Heap
61	24-Aug-18		Binary Search Trees Definition, Searching a BST
62	25-Aug-18		Insertion into a Binary Search Tree
63	27-Aug-18		Deletion from a BST
64	28-Aug-18		Height of Binary Search Tree
65	29-Aug-18		Tutorial
66	30-Aug-18		Revision
67	31-Aug-18		Unit - IV Test
68	4-Sep-18	<b>UNIT-5</b>	The Graph ADT, Introduction, Definition
69	5-Sep-18		Tutorial
70	6-Sep-18		Graph Representation, Elementary Graph Operation
71	7-Sep-18		Depth First Search
72	8-Sep-18		Breadth First Search
73	10-Sep-18		Connected Components, Spanning Trees
74	11-Sep-18		Biconnected Components
75	12-Sep-18		Tutorial
76	15-Sep-18		Minimum Cost Spanning Trees, Kruskal's Algorithm
77	17-Sep-18		Prim's Algorithm, Sollin's Algorithm
78	18-Sep-18		Single Source/All Destination: Nonnegative Edge Cost
79	19-Sep-18		Tutorial
80	20-Sep-18		Single Source/All Destination: General Weights
81	22-Sep-18		All-Pairs Shortest Path
82	24-Sep-18		Transitive Closure
83	25-Sep-18		Revision
84	26-Sep-18		Tutorial
85	27-Sep-18	Unit - V Test	
86	28-Sep-18	<b>UNIT-6</b>	Insertion Sort
87	29-Sep-18		Quick Sort
88	1-Oct-18		Merge Sort Merging, Iterative Merge Sort
89	3-Oct-18		Tutorial
90	4-Oct-18		Recursive Merge Sort
91	5-Oct-18		Heap Sort
92	6-Oct-18		Revision
93	8-Oct-18		Revision
94	9-Oct-18		Revision
95	10-Oct-18		Revision
96	11-Oct-18		Revision
97	12-Oct-18		Revision
98	13-Oct-18		Revision

**TEXT BOOKS:**

1. Fundamentals of Data Structures in C++, Ellis Horowitz, Sartaj Sahni and Dinesh Mehta, 2<sup>nd</sup> Edition, Universities Press (India) Pvt. Ltd.
2. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.
3. Data structures and Algorithms in C++, Michael T. Goodrich, R. Tamassia and Mount, Wiley student edition, John Wiley and Sons.

**REFERENCE BOOKS:**

1. Data structures and algorithms in C++, 3rd Edition, Adam Drozdek, Thomson.
2. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.
3. Problem solving with C++, The OOP, Fourth edition, W. Savitch, Pearson education.

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