

**Semester Plan
(Theory)**

TCET/FRM/IP-02/09

Semester: III

Subject: Data Structures

Revision: A

Course: CMPN

Class: SE CMPN-B

Sr.No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	C Programming concept: Selection statement, Iterative statement, 1-D and 2-D numeric and non numeric array, function structure, pointer, pointer to structure, Fundamental Algorithms: Design and Analysis	6 hours	Self Learning/ Revision	Textbooks: 1. Data Structures in C, Reema Thereja. 2. Programming in C, Pradip dey, Oxford Publication

Class Room Teaching

Sr. No	Module No.	Lesson No	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1		L1.1	SOP-Theory	Power point presentation, Chalk & Board	10/7/2017	1.1, 2.1	
2		L1.2	SOP-OBE	Power point presentation, Chalk & Board	12/7/2017	1.1,2.2	
3	Module 1	L1.3	Types of Data Structures – Linear and Nonlinear,	Power point presentation, Chalk & Board	13/7/2017	1.1,2.1	
4	Module 1	L1.4	Operations on Data Structures,	Power point presentation, Chalk & Board	14/7/2017	1.1	
5	Module 1	L2.1	Concept of ADT, Arrays.	Power point presentation, Chalk & Board	17/7/2017	1.1,2.2	
6	Module 2	L2.2	Introduction, ADT of Stack,	Power point presentation, Chalk & Board	18/7/2017	1.1,2.2	
7	Module 2	L2.3	Operations on Stack, Array Implementation of Stack,	Power point presentation, Chalk & Board	19/7/2017	1.1,2.2	
8	Module 2	L2.4	Applications of Stack – Well form-ness of Parenthesis	Power point presentation, Chalk & Board	19/7/2017	1.1,2.2	
9	Module 2	L2.5	Infix to Postfix Conversion	Power point presentation, Chalk & Board	20/7/2017	1.1,2.1	
10	Module 2	L3.1	Postfix Evaluation, Recursion	Power point presentation, Chalk & Board	24/7/2017	1.1,2.1	
11	Module 2	L3.2	ADT of Queue, Operations on Queue,	Power point presentation, Chalk & Board	26/7/2017	1.1,2.2	

12	Module 2	L 3.3	Array Implementation of Queue,	Power point presentation, Chalk & Board	26/7/2017	1.1,2.2	
13	Module 2	L 3.4	Circular Queue, Priority Queue	Power point presentation, Chalk & Board	27/7/2017	1.1,2.2	
14	Module 2	L 4.1	Double Ended Queue,	Power point presentation, Chalk & Board	31/7/2017	1.1,2.1	
15	Module 2	L 4.2	Applications of Queue.	Power point presentation, Chalk & Board	2/8/2017	1.1,2.2	
16	Module 3	L 4.3	Introduction, Representation of Linked List	Power point presentation, Chalk & Board	2/8/2017	1.1,2.2	
17	Module 3	L 4.4	Linked List v/s Array,	Power point presentation, Chalk & Board	3/8/2017	1.1,2.2	
18	Module 3	L 5.1	Implementation of Linked List-Concept	Power point presentation, Chalk & Board	7/8/2017	1.1,2.2	
19	Module 3	L 5.2	Linked Implementation of Stack	Power point presentation, Chalk & Board	9/8/2017	1.1,2.2	
20	Module 3	L 5.3	Linked Implementation of Queue	Power point presentation, Chalk & Board	9/8/2017	1.1,2.2	
21	Module 3	L 5.4	Circular Linked List	Power point presentation, Chalk & Board	10/8/2017	1.1,2.2	
22	Module 3	L 6.1	Doubly Linked List.	Power point presentation, Chalk & Board	14/8/2017	1.1,2.1	
23	Module 3	L 6.2	Doubly Linked List(continued)	Power point presentation, Chalk & Board	16/8/2017	1.1,2.2	
24	Module 3	L 6.3	Application – Polynomial Representation	Power point presentation, Chalk & Board	16/8/2017	1.1,2.2	
25	Module 3	L 7.1	Polynomial Addition	Power point presentation, Chalk & Board	24/8/2017	1.1,2.2	
26	Module 4	L 7.2	Introduction, Tree Terminologies	Power point presentation, Chalk & Board	31/8/2017	1.1,2.2	
27	Module 4	L 8.1	, Binary Tree, Representation, Types of Binary Tree	Power point presentation, Chalk & Board	4/9/2017	1.1,2.2	
28	Module 4	L 8.2	Binary Tree Traversals,	Power point presentation, Chalk & Board	4/9/2017	1.1,2.2	
29	Module 4	L 8.3	Binary Search Tree,	Power point presentation, Chalk & Board	6/9/2017	1.1,2.2	
30	Module 4	L 8.4	Implementation of Binary Search Tree	Power point presentation, Chalk & Board	6/9/2017	1.1,2.1	
31	Module 4	L 8.5	Applications – Expression Tree	Power point presentation, Chalk & Board	7/9/2017	1.1,2.2	

32	Module 4	L 9.1	Huffman Encoding	Power point presentation, Chalk & Board	11/9/2017	1.1,2.2	
33	Module 4	L 9.2	Search Trees – AVL	Power point presentation, Chalk & Board	11/9/2017	1.1,2.2	
34	Module 4	L 9.3	AVL Rotation,Operation	Power point presentation, Chalk & Board	13/9/2017	1.1,2.2	
35	Module 4	L 9.4	B Tree,Operations	Power point presentation, Chalk & Board	13/9/2017	1.1,2.2	
36	Module 4	L 9.5	B+ Tree,Operations	Power point presentation, Chalk & Board	14/9/2017	1.1,2.2	
37	Module 4	L 9.6	Splay Tree and Trie.	Power point presentation, Chalk & Board	14/9/2017	1.1,2.2	
38	Module 5	L 10.1	Introduction, Graph Terminologies	Power point presentation, Chalk & Board	18/9/2017	1.1,2.2	
39	Module 5	L 10.2	Graph Representation	Power point presentation, Chalk & Board	20/9/2017	1.1,2.1	
40	Module 5	L 10.3	Graph Traversals – Depth First Search	Power point presentation, Chalk & Board	20/9/2017	1.1,2.2	
41	Module 5	L 10.4	(DFS) and Breadth First Search (BFS)	Power point presentation, Chalk & Board	21/9/2017	1.1,2.2	
42	Module 5	L 10.5	Application – Topological Sorting	Power point presentation, Chalk & Board	21/9/2017	1.1,2.2	
43	Module 5	L 11.1	Application – Topological Sorting	Power point presentation, Chalk & Board	25/9/2017	1.1,2.2	
44	Module 6	L 11.2	Introduction, Bubble Sort	Power point presentation, Chalk & Board	25/9/2017	1.1,2.2	
45	Module 6	L 12.1	Insertion Sort, Merge Sort,	Power point presentation, Chalk & Board	4/10/2017	1.1,2.2	
46	Module 6	L 12.2	Quick Sort	Power point presentation, Chalk & Board	4/10/2017	1.1,2.2	
47	Module 6	L 12.3	Linear Search, Binary Search,	Power point presentation, Chalk & Board	5/10/2017	1.1,2.2	
48	Module 6	L 12.4	Hashing – Concept,	Power point presentation, Chalk & Board	6/10/2017	1.1,2.2	
49	Module 6	L 12.5	Hash Functions	Power point presentation, Chalk & Board	6/10/2017	1.1,2.2	
50	Module 6	L 13.1	Collision Handling Techniques.	Power point presentation, Chalk & Board	12/10/2017	1.1,2.2	

51		L 13.2	Revision / Practice Session for Logic	Chalk & Board	13/10/2017		
52		L 14.1	University Paper Discussion	Chalk & Board	16/10/2017		
Remark:						Content Beyond Syllabus:	
Course:		Syllabus Coverage:		Practice Session: 2		Application of Linked List to organize the data on harddisk and Use of tree in File System	
No. of (lectures planned)/(lecture taken): 52							

Sr.No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	Advanced course: Data Structure Using Python	20 Hours	Online udacity course CS101 videos with Hands on Training in Laboratory	Web sources: 1. NPTEL- https://onlinecourses.nptel.ac.in 2. Textbook reference: 1. Core Python Programming, Dreamtech Publication

Text Books :

1. Data Structures using C, Reema Thareja, Oxford
2. Data Structures using C and C++, Rajesh K Shukla, Wiley - India
3. Data Structures Using C, Aaron M Tenenbaum, Yedidiah Langsam, Moshe J Augenstein, Pearson
4. Data Structures: A Pseudocode Approach with C, Richard F. Gilberg & Behrouz A., Forouzan, Second Edition, CENGAGE Learning
5. Introduction to Data Structure and Its Applications, JeanPaul Tremblay, P. G. Sorenson

Reference Books:

1. C & Data Structures, Prof. P.S. Deshpande, Prof. O.G. Kakde, DreamTech press.
2. Data Structure Using C, Balagurusamy.
3. Data Structures Using C, ISRD Group, Second Edition, Tata McGraw-Hill.
4. Data Structures, Adapted by: GAV PAI, Schaum's Outlines.

Digital Reference:

3.1 www.nptel.ac.in

Sd/-

Sd/-

Sd/-

Mr.Nitin Harane

Name & Signature of Faculty

Signature of HOD

Signature of Principal /Dean (Academics)

Date:

Date:

Date:

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non -digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.