



TCET
DEPARTMENT OF COMPUTER ENGINEERING (CMPN)
 Choice Based Credit and Grading Scheme (Revised - 2016) - University of Mumbai
CBCGS-2016(R)



TCET/FRM/IP-02/09

Semester Plan (Theory)

Sem:III

Revision: A

Subject: Data Structures

Course: CMPN

Faculty In-Charge: **Prachi Janrao**

Class: SE CMPN (A)

Note: **The Lectures are planned as per University Curriculum**

Sr. No	Pre-requisit/Bridge course	Duration /Week	Mode of learning	Recommended sources
1	C Programming concept: Selection statement, Iterative statement, function structure, pointer, pointer to structures	2 weeks	Self learning	Textbooks: 1. Programming in C , Pradip dey, Oxford

Class room teaching/ Syllabus

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-Subject Introduction, syllabus structure, teaching scheme.	PPT	07-10-17	
2		L1.2	SOP-Practical-List of practical, Mini project, teaching scheme for lab.	PPT	07-10-17	
3		L1.3	SOP-Theory-OBE	PPT	07-11-17	
4		L1.4	SOP-Practical-List of practical, Mini project, teaching scheme for lab.	PPT	07-12-17	
5	I	L1.5	Introduction to Data Structures: Introduction, Types of Data Structures – Linear and Nonlinear	Black board and PPT	13/07/2017	1.1	
6	I	L1.6	Operations on Data Structures	Black board and PPT	14/07/2017	1.1	
7	I	L2.1	Concept of ADT, Arrays.	Black board and PPT	17/07/2017	1.1	
8	II	L2.2	Stack and Queues: Introduction, ADT of Stack	Black board and PPT	17/07/2017	1.4	
9	II	L2.3	Operations on Stack, Array Implementation of Stack	Black board and PPT	18/07/2017	1.4	
10	II	L2.4	Applications of Stack – Well form-ness of Parenthesis	Black board and PPT	19/07/2017	1.4	
11	II	L2.5	Infix to Postfix Conversion and Postfix Evaluation	Black board and PPT	20/07/2017	1.4	
12	II	L2.6	Recursion	Black board and PPT	21/07/2017	1.4	
13	II	L3.1	ADT of Queue, Operations on Queue	Black board and PPT	24/07/2017	1.4	
14	II	L3.2	Array Implementation of Queue	Black board and PPT	25/07/2017	1.4	

15	II	L3.3	Circular Queue,	Black board and PPT	26/07/2017	1.4	
16	II	L3.4	Priority Queue, Double Ended Queue	Black board and PPT	27/07/2017	1.4	
17	II	L4.1	Applications of Queue	Black board and PPT	31/07/2017	1.4	
18	III	L4.2	Linked List: Introduction, Representation of Linked List, Linked List v/s Array	Black board and PPT	08-01-17	2.2	
19	III	L4.3	Implementation of Linked List	Black board and PPT	08-02-17	2.2	
20	III	L4.4	Implementation of Linked List	Black board and PPT	08-03-17	2.2	
21	III	L5.1	Linked Implementation of Stack	Black board and PPT	08-07-17	2.2	
22	III	L5.2	Linked Implementation of Queues	Black board and PPT	08-08-17	2.2	
23	III	L5.3	Circular Linked List	Black board and PPT	08-09-17	2.2	
24	III	L5.4	Circular Linked List	Black board and PPT	08-10-17	2.2	
25	III	L6.1	Doubly Linked List	Black board and PPT	14/08/2017	2.2	
26	III	L6.2	Application – Polynomial Representation and Addition	Black board and PPT	16/08/2017	2.2	
27	III	L6.3	Application – Polynomial Representation and Addition	Black board and PPT	16/08/2017	2.2	
28	IV	L7.1	Trees: Introduction, Tree Terminologies	Black board and PPT	24/08/2017	1.1	
29	IV	L8.1	Binary Tree, Representation	Black board and PPT	30/08/2017	1.1	
30	IV	L8.2	Types of Binary Tree	Black board and PPT	31/08/2017	1.1	
31	IV	L9.1	Binary Tree Traversals	Black board and PPT	09-04-17	1.1	
32	IV	L9.2	Binary Search Tree	Black board and PPT	09-05-17	1.1	
33	IV	L9.3	Implementation of Binary Search Tree,	Black board and PPT	09-06-17	1.1	
34	IV	L9.4	Applications – Expression Tree	Black board and PPT	09-07-17	1.1	
35	IV	L10.1	Huffman Encoding	Black board and PPT	09-11-17	1.1	

36	IV	L10.2	Search Trees – AVL	Black board and PPT	09-12-17	1.1	
37	IV	L10.3	B Tree,	Black board and PPT	13/09/2017	1.1	
38	IV	L10.4	B Tree,	Black board and PPT	14/09/2017	1.1	
39	IV	L10.5	Splay Tree and Trie	Black board and PPT	16/09/2017	1.1	
40	V	L11.1	Graphs: Introduction, Graph Terminologies	Black board and PPT	18/09/2017	1.1	
41	V	L11.2	Representation	Black board and PPT	19/09/2017	1.1	
42	V	L11.3	Graph Traversals – Depth First Search (DFS)	Black board and PPT	20/09/2017	1.1	
43	V	L11.4	Breadth First Search (BFS)	Black board and PPT	20/09/2017	1.1	
44	V	L11.5	Application – Topological Sorting	Black board and PPT	21/09/2017	1.1	
45	V	L12.1	Sorting and Searching: Introduction, Bubble Sort	Black board and PPT	25/09/2017	1.1	
46	VI	L12.2	Insertion Sort, Merge Sort	Black board and PPT	26/09/2017	1.1	
47	VI	L13.1	Quick Sort	Black board and PPT	10-03-17	1.1	
48	VI	L13.2	Linear Search,	Black board and PPT	10-03-17	1.1	
49	VI	L13.3	Binary Search	Black board and PPT	10-04-17	1.1	
50	VI	L13.4	Hashing – Concept, Hash Functions	Black board and PPT	10-04-17	1.1	
51	VI	L13.5	Collision Handling Techniques	Black board and PPT	10-05-17	1.1	
52			Revision		16/10/2017		
53			Revision		16/10/2017		

Remedial Assignments & Compliance (for Defaulter Students):

Note:

1. The Remedial Assignments & Compliance for defaulter students is to be conducted **every Friday** from **3:30 PM to 5:00 PM**.
2. The **faculty** should **conduct, evaluate and notify the students** regarding the Remedial Assignments **within 15 days** of the date of the assignment.

Sr. No\Criteria	Less than 50 % Attendance	Less than 65% Attendance	Less than 75% Attendance
1	3 Remedial Assignments from Module 1 and Module 2	2 Remedial Assignments from Module 1 and Module 2	1 Remedial Assignment from Module 1 and Module 2
2	3 Remedial Assignments from Module 3 and Module 4	2 Remedial Assignments from Module 3 and Module 4	1 Remedial Assignment from Module 3 and Module 4
3	3 Remedial Assignments from Module 5 and Module 6	2 Remedial Assignments from Module 5 and Module 6	1 Remedial Assignment from Module 5 and Module 6

Remark Course	Syllabus Coverage	Practice session	Beyond Syllabus: Threaded binary tree, Bucket sort, Radix sort
Number of lectures planned /taken:50/			
Advanced course: Data structure programming using Python		20 Hours	Web sources: 1. NPTEL https://onlinecourses.nptel.ac.in 2. www.tutorialpoint.com 1. Instructor's study material

Text Book:

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

Reference Book:

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

Name & Signature of Faculty

Signature of HOD

Signature of Principal /Dean (Academic)

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.