

Credit Based Grading Scheme(Revised - 2012) - University of Mumbai

TCET

CBGS-2012(R)



Semester Plan (Theory)

TCET/FRM/IP-02/09

ENGINEERS

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Semester: III

Subject: ITC- 303: Data Structure and Algorithm

Revision: A

Course: IT

Class: SE IT -A

S.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. C and Data structures, Dreamtech Press. 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 /Completio n Date	Resource Book Reference	Remarks
1	Module 1	L1.1	SOP-Theory,Introduction to Data structures,	Power point	10/7/2017	1.7.1	
			Need of Data structures	presentation, Chalk & Board			
2	Module 1	L1.2	SOP-OBE: Types of Data structures :		10/7/2017	1.7.2	
			linear data structures Arrays	Chalk & Board, Animation	l,		
3	Module 1	L13	Stack and queues,Linked list		11/7/2017	173	
			and Tree,	Animation			
4	Module 1	I 1 A	Graph, Recursion, ADT (Abstract Data		11/7/2017	174	
	Would 1	L1. 4	type).Introduction to Analysis,Algorithms	Chalk & Board, Animation		1.7.4	
5	Madula 1	115	Time and Space complexities		14/07/2017	175	
5	wodule I	L1.3	Time and Space complexities	Chalk & Board, Animation		1.7.3	
6	Module 1	L1.6	Order of growth functions, Asymptotic notations		14/07/2017	1.7.5	
-				Chalk & Board, Animation			

7	Module	2	L2.1	Order of growth functions, Asymptotic notations	Chalk & Board,	17/07/17	1.7.5	
8	Module	2	L1.1	Introduction to Stack	Power point presentation, Chalk	18/07/17	2.7	
9	Module	2	L1.2	Stack as ADT, Operations on stack,	Chalk & Board, Animation	19/07/17	2.8	
10	Module	2	L1.3	Application of stack	Chalk & Board, Animation	20/7/2017	2.9	
11	Module	2	L2.2	Reversing string	Chalk & Board, Animation	21/7/2017	2.9	

12	Module 2	Polish notations	Chalk & Board, Animation	2.9	
13	Module 2	Polish notations	Power point presentation, Chalk & Board	2.9	
14	Module 3	Introduction to QueueQue as ADT	cue Chalk & Board, Animation	3.7	
15	Module 3	Operations on Queue	Chalk & Board, Animation	3.8	
16	Module 3	Linear representation of queue	, Chalk & Board, Animation	3.9	
17	Module 3	Circular Queue	Chalk & Board, Animation	310	
18	Module 3	Priority Queue	Power point presentation, Chalk & Board	3.11	
19	Module 3	De-queue, Application of Queues	Chalk & Board, Animation	3.12 and 3.13	
20	Module 4	Introduction to Linked L	ist Chalk & Board, Animation	4.8.1	
21	Module 4	Basic concept of Linked List	Chalk & Board, Animation	4.8.1	
22	Module 4	Memory allocation & de allocation Linked list	of Chalk & Board, Animation	4.8.2 and 4.8.3	
23	Module 4	Singly Linked list	Power point presentation, Chalk & Board	4.8.3	
24	Module 4	Doubly Linked list	Chalk & Board, Animation	4.8.4	
25	Module 4	Circular linked list, Operations on linked	list Chalk & Board, Animation	4.8.5	
		1 1			

26	Module 4	Linked representation of stack	Chalk & Board, Animation	4.8.6	
27	Module 4	Linked representation of Queue,	Chalk & Board, Animation	4.8.6	
28	Module 4	Application of linked list.	Power point presentation, Chalk & Board	4.8.7	
29	Module 5	Introduction to Sorting: Bubble Sort	Chalk & Board, Animation	5.8.1	

30	Module 5	Selection Sort	Chalk & Board, Animation	5.8.2	
31	Module 5	Insertion Sort,	Chalk & Board, Animation	5.8.3	
32	Module 5	Merge Sort	Chalk & Board, Animation	5.8.4	
33	Module 5	Quick Sort	Chalk & Board, Animation	5.8.5	
35	Module 5	Shell Sort	Chalk & Board, Animation	5.8.8	
36	Module 5	Radix sort	Chalk & Board, Animation	5.8.6	
37	Module 5	Analysis of Sorting Techniques. Comparison of sorting Techniques	Chalk & Board, Animation	5.9	
38	Module 5	Introduction to Searching: Linear search, Binary search	Chalk & Board, Animation	5.14	
39	Module 5	Hashing Techniques, Different Hash functions	Chalk & Board, Animation	5.15	
40	Module 5	Collision& Collision resolution techniques, Analysis of searching Techniques	Power point presentation, Chalk & Board	5.15	
41	Module 6	Introduction to Trees, Definitions& Tree terminologies	Chalk & Board, Animation	6.6	
42	Module 6	Binary tree representation, Operations on binary tree	Chalk & Board, Animation	6.6.1	
43	Module 6	Traversal of binary trees	Chalk & Board, Animation	6.6.1	
44	Module 6	Binary search tree, Threaded Binary tree,	Chalk & Board, Animation	6.6.2 6.6.8	
45	Module 6	Expression tree, Application of Trees	Chalk & Board, Animation	6.6.8	
46	Module 6	Introduction to Graph, Introduction Graph Terminologies, Graph Representation	Power point presentation, Chalk & Board	610	
	I	I spe of graphs,	1		

47	Module	6	Graph traversal:Depth first search(DFS)&	Chalk & Board, Animation	6.10 and 6.10.2.1	
48	Module	6	Breadth First search(BFS)	Chalk & Board, Animation	6.10.2.1	
49	Module	6	Minimum Spanning Tree	Chalk & Board, Animation	6.10.3	
50	Module	6	Prim's & Kruskal's Shortest Path Algorithm	Chalk & Board, Animation	6.10.3.1	
51	Module	6	Dijkstra's Algorithm. Applications of graph	Chalk & Board, Animation	6.10.3.2	
52			Revison / Practice Session for DSA Code	Chalk & Board		

53			Revison / Practice Session for DSA Code	Chalk & Board					
54			University Paper Discussion	Chalk & Board					
Remark: Course:		Syllabus C	Coverage:	Practice Session: 2		Content Beyon Linked List to a and Use of tree	nd Syllabus: Application of organize the data on harddisk in File System		
	No. of (lectures planned)/(lecture taken): 54								

Advanced course: Data structure programming using Python	20 Hours	Online NPTEL videos with Hands on Training in Laboratory	Web sources: 1. NPTEL-https://onlinecourses.nptel.ac.in 2. www.tutorialpoint.com1. Instructor's study material, Textbook reference: 1. Core Python Programming, Dreamtech Publication
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Text Books:

1. Data structures using C by Tenenbaum, Langsam, Augenstein , Pearson.

2. Data Structures using C, ReemaThareja, Oxford.

3. C and Data structures, Prof. P.S.Deshpande, Prof. O.G.Kakde, Dreamtech Press.

4. Introduction to Data Structure and its Applications Jean-Paul Tremblay, P. G. Sorenson

Reference Books:

- 1. Data Structures Using C & C++, Rajesh K. Shukla, Wiley- India.
- 2. Data Structures and Algorithm Analysis in C ,Mark A.Weiss ,Pearson
- 3. ALGORITHMS Design and Analysis, Bhasin, OXFORD.
- 4. Computer Algorithms by Ellis Horowitz and Sartaj Sahni, Universities Press

Digital Reference:

3.1 www.nptel.ac.in

3.2 www.tutorialpoint.com

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.



TCET DEPARTMENT OF INFORMATION TECHNOLOGY (IT) Credit Based Grading Scheme(Revised - 2012) - University of Mumbai

Semester Plan

(Theory)

CBGS-2012(R)



Revision: A

Course: IT

Class: BE IT-A

TCET/FRM/IP-02/09

Semester: VII

Subject: Cloud Computing

S.No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	Distributed System , Computer Network, advanced internet Programming	6 hours	Self Learning/ Revision	W. Stallings, "Computer Organization and Architecture" William Stallings "Data & Computer Communications"

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	Module 1	L1.1	SOP-Theory Introduction to Cloud Computing	Power point presentation, Chalk & Board	10/7/2017	TB: 1 RB:1.6.1	
2	Module 1	L1.2	SOP-Practical Introduction to Cloud Computing	Power point presentation,Ch alk & Board, Animation	11/7/2017	TB: 1 RB:1.6.1	
3	Module 1	L1.3	SOP-OBE Introduction & benefits of Virtualization	Chalk & Board, Animation	13/7/2017	TB: 1 RB:1.6.2	
4	Module 1	L1.4	Virtualization structure/tools and mechanisms	Chalk & Board, Animation	17/7/2017	TB: 1 RB:1.6.3	
5	Module 1	L2.1	XaaS, laaS, PaaS-	Chalk & Board, Animation	18/07/2017	TB: 1 RB:2.6.1	
6	Module 2	L2.2	DBaaS SaaS (Software as a service)	Chalk & Board, Animation	20/07/2017	TB: 1 RB:2.6.2	
7	Module 2	L2.3	Eucalyptus and Open Stack Architecture	Chalk & Board, Animation	21/07/17	TB: 1,3 RB:2.6.3	
8	Module 2	L2.4	Features Components – Various mode of operations	Power point presentation, Chalk & Board	25/07/17	TB: 1 RB:2.6.4	
9	Module 2	L2.5	Installation and Administration configuration process	Chalk & Board, Animation	26/07/17	TB: 1 RB:2.6.5	
10	Module 2	L2.6	Cloud Administration and Management Task	Chalk & Board, Animation	27/7/2017	TB: 1 RB:2.6.6	
11	Module 2	L2.7	Creating User Interface(Web Interface) of Private cloud.	Chalk & Board, Animation	1/8/2017	TB: 1 RB:2.6.7	
12	Module 2	L2.8	Various mode of operations	Chalk & Board, Animation	2/8/2017	TB:1 RB:2.6.8	
13	Module 3	L3.1	Factors for Successful Cloud Deployment	Power point presentation, Chalk & Board	3/8/2017	TB: 1 RB:3.6.1	

14	Module	3	L3.2	Cloud Network Topologies	Chalk & Board, Animation	8/8/2017	TB: 1 RB:3.6.2	
15	Module	3	L3.3	Security for Virtualization Platform	Chalk & Board, Animation	9/8/2017	TB: 1 RB:3.6.3	
16	Module	3	L3.4	Data Security	Chalk & Board, Animation	10/8/2017	TB: 3 RB:3.6.4	
17	Module	3	L3.5	Data Confidentiality and Encryption	Chalk & Board, Animation	16/8/2017	TB: 3 RB:3.6.5	
18	Module	3	L3.6	Cloud Storage Gateways- Cloud Firewall	Power point presentation, Chalk & Board	19/08/2017	TB: 3 RB:3.6.6	
19	Module	4	L4.1	Cloud Application requirements	Chalk & Board, Animation	24/8/2017	TB: 1 RB:4.6.1	
20	Module	4	L4.2	Multi-ties Application Architecture	Chalk & Board, Animation	30/8/2017	TB: 3 RB:54.6.2	
21	Module	4	L4.3	SOA for Cloud applications	Chalk & Board, Animation	31/8/2017	TB: 3 RB:4.6.3	
22	Module	4	L4.4	Parallelization within Cloud Applications Programming Support for Google Apps engine	Chalk & Board, Animation	5/9/2017	TB: 1 RB:4.6.4	
23	Module	4	L4.5	Programming Support for Google Apps engine	Power point presentation, Chalk & Board	6/9/2017	TB: 1 ,3 RB:4.6.5	
24	Module	4	L4.6	Google Distibuted Lock Service	Chalk & Board, Animation	7/9/2017	TB: 1 RB:4.6.6	
25	Module	4	L4.7	Programming Support for Amazon EC2	Chalk & Board, Animation	12/9/2017	TB: 1 RB:4.6.7	
26	Module	4	L4.8	Googles NO SQL System	Chalk & Board, Animation	13/9/2017	TB: 1 RB:4.6.8	
27	Module	5	L5.1	Adoption of Public cloud by SMBs	Chalk & Board, Animation	14/9/2017	TB: 1 RB:5.6.1	
28	Module	5	L5.2	Adoption process of Public clouds by Enterprises,	Power point presentation, Chalk & Board	16/9/2017	TB: 1 RB:5.6.2	
29	Module	5	L5.3	Migrating Application to the cloud	Chalk & Board, Animation	19/9/2017	TB: 1 RB:5.6.3	
30	Module	5	L5.4	Resources and Multi- Tenancy on cloud Applications,	Chalk & Board, Animation	20/9/2017	TB: 1 RB:5.6.4	
31	Module	5	L5.5	Risk Assessment and Management	Chalk & Board, Animation	21/9/2017	TB: 1 RB:5.6.5	
32	Module	5	L5.6	Risk failure of cloud provider	Chalk & Board, Animation	26/9/2017	TB: 1 RB:5.6.6	
33	Module	6	L6.1	AAA model	Chalk & Board, Animation	3/10/2017	TB: 1 RB:6.6.1	

34	Module	6	L6.2	Authorization management in clouds	Power point presentation, Chalk & Board	4/10/2017	- TB: 1 RB:6.6.2		
35	Module	6	L6.3	Mobile Cloud Architecture, Benefits	Chalk & Board, Animation	5/10/2017	TB: 1,3 RB:6.6.3		
36	Module		L6.4	- Mobile Cloud Challenges	Chalk & Board, Animation	7/10/2017	TB: 1,3		
		5					RB:6.6.4		
27				Revison / Practice Session	Chalk & Board, Animation	12/10/2017			
37	Module	5							
38	Module	6		University Paper Discussion	Chalk & Board, Animation	17/10/2017			
	Wiodale								
Remark:			Syllabus Coverage:		Practice Session: 2		Content Beyond Syllabus: Metal as a Service(MaaS), big data and cloud file		
Course	e:						systems such as HDFS		
	No. of (lectures planned)/(lecture taken): 38								

Text Books:

1. Cloud Computing Principles and Paradigms, Rajkumar Buyya Wiley

2. Distributed and Cloud Computing, Kai Hwang, Mk Publication

3. Cloud computing Black Book Dreamtech Publication

Reference Books:

1. Using Goolgle Apps engine O'reilly Publication

2. Programming Amazon EC2, O'reilly Publication

3. Cloud security, Ronald L. Wiley Publication

Digital Reference:

3.1 www.nptel.ac.in

3.2 www.coursera.org/specializations/cloud-computing

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Ms. Vandana Munde	Dr. Rajesh Bansode	Dr. R.R. Sedamkar
Name & Signature of Faculty	Signature of HOD	Signature of Principal /Dean (Academics)
Date:	Date:	Date:

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