TCET

DEPARTMENT OF INFORMATION TECHNOLOGY (IT)

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

CBGS-2012(R)

TCET/FRM/IP-02/09			Revision: A
Semester Plan (Theory)			
Semester: V			**Course: IT**
Subject: ITC-504 Advanced Database Management System	**2 Lectures / Week**		**Class: TE IT B**

Sr. No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	**Database Management Systemt**	**6**	**Self Learning/ Revision**	**Text Books:** 1. Korth, Slberchatz, Sudarshan, "Database System Concepts", 6th Edition, McGraw Hill 2. Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3rd Edition, McGraw Hill **Course Links:** 1.http://nptel.ac.in/courses/106106093/ 2.http://nptel.ac.in/courses/106104135/

Sr. No.	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned / Completion Date	Resource Book Reference
1	3	L2.1	Introduction to Database Security Issues, Discretionary Access Control Based on Granting and Revoking Privileges	Power point presentation, Chalk & Board	18/7/17	RB Section 4.9.1, 4.9.2, Text Book 1.2
2		L2.2	Mandatory Access Control and Role-Based Access Control for Multilevel Security	Power point presentation, Chalk & Board	20/7/17	RB Section 4.9.3, Text Book 1.2
3		L3.1	SQL Injection; Introduction to Statistical Database Security	Power point presentation, Chalk & Board	24/7/17	RB Section 4.9.4, Text Book 1.2
4		L3.2	Introduction to Flow Control, Privacy versus Security and their techniques	Power point presentation, Chalk & Board	26/7/2017	RB Section 4.9.5, 4.9.6, Text Book 1.2
5		L4.1	Operation on Files; hashing Techniques	Power point presentation, Chalk & Board	31/7/2017	RB Section 5.9.1, 5.9.2, Text Book 1.2
6		L4.2	Types of Single-Level Ordered Indexes; Multilevel Indexes	Power point presentation, Chalk & Board	2/8/2017	RB Section 5.9.3, 5.9.4, Text Book 1.2
7		L5.1	Dynamic Multilevel Indexes Using B- Trees and B+-Trees	Power point presentation, Chalk & Board	7/8/2017	RB Section 5.9.5, Text Book 1.2
8		L5.2	Indexes on Multiple Keys	Power point presentation, Chalk & Board	9/8/2017	RB Section 5.9.6, Text Book 1.2
9	4	L6.1	Types of Distributed Database Systems	Power point presentation, Chalk & Board	14/8/17	RB Section 6.9.1, RB Section 6.9.2, RB Section 6.9.3, RB Section 6.9.4, RB Section 6.9.5, RB Section6.9.6, Text Book 1.2
10		L.6.2	Distributed Database Architectures	Power point presentation, Chalk & Board	16/8/2017	RB Section 6.9.7, RB Section 6.9.8, Text Book 1.2
11		L6.3	Data Fragmentation, Replication and Allocation Techniques for Distributed Database Design	Power point presentation, Chalk & Board	16/8/2017	RB Section 6.9.9, Text Book 1.2

12		L8.1	The Need for Data Warehousing; Increasing Demand for Strategic Information; Inability of Past Decision Support System; Operational Vs Decisional Support System	Power point presentation, Chalk & Board	30/8/2017	RB Section 8.9.1, 8.9.2, 8.9.3, Text Book 1.1, 1.2, Ref. Book 2.2
13		L9.1	Data Warehouse Basics, Benefits, Features, Strategies Design, The Information Flow Mechanism; Role and Classification of Metadata, Data Warehouse Architecture, Data Marts	Power point presentation, Chalk & Board	4/9/2017	RB Section 8.9.4 to 8.9.16, Text Book 1.1, 1.2, Ref. Book 2.2
14		L9.2	Data Warehouse Modeling Vs Operational Database Modeling;	Power point presentation, Chalk & Board	6/9/2017	RB Section 9.9.1, 9.9.2, Text Book 1.3, Ref. Book 2.1
15	5	L10.1	Dimensional Model Vs ER Model; Features of a Good Dimensional Model	Power point presentation, Chalk & Board	11/9/2017	RB Section 9.9.3, Text Book 1.3, Ref. Book 2.1
16		L10.2	The Star Schema; How Does a Query Execute? The Snowflake Schema	Power point presentation, Chalk & Board	13/9/2017	RB Section 9.9.4, RB Section 9.9.5, Text Book 1.3, Ref. Book 2.1
17		L10.3	Fact Tables and Dimension Tables, Factless Fact Table; Updates To Dimension Tables: Slowly Changing Dimensions, Type 1, 2, 3 Changes	Power point presentation, Chalk & Board	13/9/2017	RB Section 9.9.6 to 9.9.9, Text Book 1.3, Ref. Book 2.1
18		L11.1	Large Dimension Tables, Rapidly Changing or Large Slowly Changing Dimensions, Junk Dimensions	Power point presentation, Chalk & Board	18/9/17	RB Section 9.9.10, Text Book 1.3, Ref. Book 2.1
19		L11.2	Keys in the Data Warehouse Schema, Aggregate Tables; Fact Constellation Schema or Families of Star	Power point presentation, Chalk & Board	20/9/17	RB Section 9.9.10 to 9.9.15, Text Book 1.3, Ref. Book 2.1
20		L11.3	Challenges in ETL Functions; Data Extraction, KDD Process	Power point presentation, Chalk & Board	20/9/17	RB Section 10.9.1, RB Section 10.9.2, RB Section 10.9.3, Text Book 1.3, Ref. Book 2.1
21		L12.1	Identification of Data Sources; Extracting Data: Immediate Data Extraction, Deferred Data Extraction	Power point presentation, Chalk & Board	25/9/17	RB Section 10.9.4, RB Section 10.9.5Text Book 1.3, Ref. Book 2.1
22	6	L12.2	Data Transformation: Tasks Involved in Data Transformation, Perform Data Loading, Cleansing and retrieval using MySQL.	Power point presentation, Chalk & Board	26/9/2017	RB Section 10.9.6,Text Book 1.3, Ref. Book 2.1, Text Book 1.3, Ref. Book 2.1
23		L13.1	Data Loading: Techniques of Data Loading, Loading the Fact Tables and Dimension Tables Data Quality; Issues in Data Cleansing	Power point presentation, Chalk & Board	4/10/2017	RB Section 10.9.7, RB Section 10.9.8, Text Book 1.3, Ref. Book 2.1
24	--	L15.1	Revision and University Exam Paper Solving	Power point presentation, Chalk & Board	16/10/2017	--
25		L15.2	Revision	Power point presentation, Chalk & Board	18/10/2017	--
Remarks: Course:		Syllabus Coverage:		Practice Session: 2 L 15.1, L 15.2		Beyond Syllabus: 3 L3.2, L11.3, L 12.2
No. of (lectures planned)/(lecture taken): 25						

Advanced course: Database Application development using open source database.	**20 Hours**	**Online NPTEL videos with Hands on Training in Laboratory**	**Web sources:** **• http://blog.capterra.com/free-database-software/** **• http://opensourceforu.com/2015/01/developing-applications-using-nosql-databases/** **• https://www.mongodb.com/scale/open-source-software-development** **• https://www.osalt.com/databases** **• https://www.mysql.com/**

Text Books:

1.1. Elmasri and Navathe, "Fundamentals of Database Systems", 6th Edition, PEARSON Education.

1.2. Korth, Slberchatz, Sudarshan, "Database System Concepts", 6th Edition, McGraw Hill

1.3. Theraja Reema, "Data Warehousing", Oxford University Press, 2009

References:

2.1. Paulraj Ponniah, "Data Warehousing: Fundamentals for IT Professionals", Wiley India.

2.2. C. J. Date, A. Kannan, S. Swamynathan "An Introduction To Database Systems", 8th Edition, Pearson Education.

2.3. Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3rd Edition, McGraw Hill

2.4. Ralph Kimball, Margy Ross, "The Data Warehouse Toolkit: The Definitive Guide To Dimensional Modeling", 3rd Edition, Wiley India.

Digital Reference:

3.1. http://datawarehouse4u.info/ETL-process.html

3.2. http://nptel.ac.in/courses/106106093/

3.3. http://datawarehouse4u.info/OLTP-vs-OLAP.html

3.4. http://nptel.ac.in/courses/106104135/

3.5. http://research.cs.wisc.edu/coral/mini_doc/logMgr/report/node2.html

3.6. http://www.dbta.com/Columns/DBA-Corner/The-DBAs-Guide-to-Application-Development-92526.aspx

Mrs. Radhika Kotecha — Name & Signature of Faculty — Date:

Dr. Rajesh Bansode — Signature of HOD — Date:

Signature of Principal /Dean (Academics) — 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.