

College of IT and Management Education

Lesson Plan

Subject : DATABASE SYSTEMS (MCC304)

Branch : MCA

Semester : 3rd Semester (July – Dec, 2016)

Name of the Faculty : Deepak Ranjan Panda

Total Credit Point: 4:

Total Number of Classes: 47

Sl. No.	TOPIC PLANNED	SESSION
MODULE-I		13 Hours
1	Data & Information, Evolution of DBMS	1
2	DBMS Overview, Schema & Instances, 3-Schema Architecture, Data Abstraction and Independence	1
3	Data Models, Relational, Network, Hierarchical, Object Oriented Data Models, Database Languages and Interfaces	1
4	ER Model: Entity Type & Sets, Attributes, Key, Relationship Types, Roles, Constraints and their notations.	2
5	Weak Entity types, Identifying Relationships and Example of ER diagram.	1
6	Relational Model concepts, Codd's 12 Rules, Schemas & constraints	1
7	Relational Algebra	2
8	Relational Calculus, ER & EER to Relational Mapping	2
9	SQL & QBE (Intro and Details will cover in Labs.)	1
10	SQL Programming (Intro and details will cover in Labs)	1
MODULE-II		18 Hours
11	Functional Dependency, Armstrong's Axioms & other Inference Rules	1
12	Closure, Cover, Canonical cover.	1
13	Key Finding Procedures & Introduction to Normalization	1
14	1NF, 2NF (with decomposition)	1
15	3NF with its Decomposition Algorithm	1
16	BCNF with Decomposition Algorithm, Lossless Decomposition and Dependency Preserving Scheme	1
17	MVD & 4NF, JD & 5NF, Denormalization	1
18	Disc storage and File Storage	2
19	Hashing Techniques	1
20	Indexing	1
21	B-tree & B+-trees	1
22	Introduction to Query Processing and Optimization, Translating SQL Queries to Relational Algebra.	1

23	Algorithm for Sorting and Selection.	1
24	Join strategies & Implementation	2
25	Heuristic Query Optimization Rules and Heuristic Algebraic Optimization Algorithm	1
26	Heuristic Optimization of Query Trees	1
MODULE-III		16 Hours
27	Transaction Processing Concepts, Transaction States, ACID Properties	1
28	Concurrency Control and its need	1
29	Serializable Schedule, Concepts of Serializability (Conflict & view)	1
30	Dealing with Deadlock and Starvation	1
31	Timestamp Ordering Protocol	1
32	Multi version and validation Concurrency control	2
33	Database Recovery (Deferred, Immediate, Checkpoints)	1
34	ARIES ,shadow paging	2
35	Introduction to Database Security Measures	1
36	Outline of Information Integration. Data Mining, Data Warehousing and OLAP	1
37	Outline of Database System and Internet, Search Engines,	1
38	Outline of Semi structured Data model, XML & Web Databases	1
39	Object and Object Relational Databases	1
40	Distributed Databases Deductive Databases, Mobile Databases, Multimedia databases, GIS	1

Text book:

1. Ramez **Elmasri** and Shamkant B. **Navathe**, "*Fundamentals of Database Systems*" Pearson Education Inc.
2. Abraham **Silberschatz**, Henry F. **Korth** and S. **Sudarshan**, "*Database Systems Concepts*" McGraw-Hill Education

Reference books:

1. Hector **Garcia-Molina**, Jeffret D. **Ullman**, Jenniffer **Widom**, "*Database Systems: A Complete Book*", Pearson Education Inc.
2. Nilesh **Shah**, "*Database Systems Using Oracle*", PHI Learning Pvt. Ltd.
3. **Raghu** Ramakrishnan, Johannes **Gehrke**, "*Database Management Systems*", McGraw-Hill Education (India), New Delhi.


Faculty


Course Coordinator


Principal