

L. D. College of Engineering, Ahmedabad – 15
LESSON PLAN

Over all Term Planning	
Branch:	Information Technology
Semester:	B.E 3 rd SEM
Subject Name:	Database Management System
Subject Code:	2130703
Affiliating University:	Gujarat Technological University
Starting date of the term:	18/6/2018
Ending date of the term:	17/10/2018
Course Teacher:	Prof. Pradip R. Patel

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks	
L	T	P		C	Theory Marks			Practical Marks			
					ESE (E)	PA (M)		PA (V)			PA (I)
					PA	ALA	ESE	OEP			
4	0	4	8	70	20	10	20	10	20	150	

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment;

Syllabus

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	Introductory concepts of DBMS : Introduction and applications of DBMS, Purpose of data base, Data, Independence, Database System architecture- levels, Mappings, Database, users and DBA	02	05
2	Relational Model : Structure of relational databases, Domains, Relations, Relational algebra – fundamental operators and syntax, relational algebra queries, tuple relational calculus	03	10
3	Entity-Relationship model : Basic concepts, Design process, constraints, Keys, Design issues, E-R diagrams, weak entity sets, extended E-R features – generalization, specialization, aggregation, reduction to E-R database schema	04	10
4	Relational Database design : Functional Dependency – definition, trivial and non-trivial FD, closure of FD set, closure of attributes, irreducible set of FD, Normalization – 1Nf, 2NF, 3NF, Decomposition using FD-dependency preservation, BCNF, Multi- valued dependency, 4NF, Join dependency and 5NF	05	15
5	Query Processing & Query Optimization : Overview, measures of query cost, selection operation, sorting, join, evaluation of expressions, transformation of relational expressions, estimating statistics of expression results, evaluation plans, materialized views	04	10

6	Transaction Management : Transaction concepts, properties of transactions, serializability of transactions, testing for serializability, System recovery, Two-Phase Commit protocol, Recovery and Atomicity, Log-based recovery, concurrent executions of transactions and related problems, Locking mechanism, solution to concurrency related problems, deadlock, , two-phase locking protocol, Isolation, Intent locking	09	20
7	Security: Introduction, Discretionary access control, Mandatory Access Control, Data Encryption	02	05
8	SQL Concepts : Basics of SQL, DDL,DML,DCL, structure – creation, alteration, defining constraints – Primary key, foreign key, unique, not null, check, IN operator, Functions - aggregate functions, Built-in functions –numeric, date, string functions, set operations, sub-queries, correlated sub-queries, Use of group by, having, order by, join and its types, Exist, Any, All , view and its types. transaction control commands – Commit, Rollback, Savepoint	10	20
9	PL/SQL Concepts : Cursors, Stored Procedures, Stored Function, Database Triggers	03	05

Reference Books:

1. An introduction to Database Systems, C J Date, Addition-Wesley.
2. Database System Concepts, Abraham Silberschatz, Henry F. Korth & S. Sudarshan, McGraw Hill.
3. Understanding SQL by Martin Gruber, BPB
4. SQL- PL/SQL by Ivan bayross

Lesson Plan

No of lectures: 2

Sr. No	Topic	Planned Date	Actual Date	Mode of Delivery	Resources required
1	Introductory concepts of DBMS : Introduction and applications of DBMS, Purpose of data base, Data	21/06/18 22/06/18 28/06/18			
2	Independence, Database System architecture- levels, Mappings, Database, users and DBA Quiz	29/06/18 05/07/18 06/07/18			
3	Entity-Relationship model : Basic concepts, Design process, constraints, Keys, Design issues, E-R diagrams, weak entity sets	12/07/18 13/07/18 19/07/18			
4	Extended E-R features – generalization, specialization, aggregation, reduction to E-R database schema Quiz	20/07/18 26/07/18 27/07/18			

5	Relational Database design : Functional Dependency – definition, trivial and non-trivial FD, closure of FD set, closure of attributes, irreducible set of FD	02/08/18 03/08/18 09/08/18 10/08/18			
6	Normalization – 1NF, 2NF, 3NF, Decomposition using FD- dependency preservation, BCNF, Multi- valued dependency, 4NF, Join dependency and 5NF Quiz	16/08/18 23/08/18 24/08/18 30/08/18			
7	Query Processing & Query Optimization : Overview, measures of query cost, selection operation, sorting, join,	31/08/18 06/09/18 07/09/18			
8	Evaluation of expressions, transformation of relational expressions, estimating statistics of expression results, evaluation plans, materialized views Quiz	14/09/18 20/09/18 27/09/18			
9	Revision and Question Paper Solving	28/09/18 04/10/18 05/10/18			

Faculty Sign