

Database Modelling and Design	L	P	C
	4		4

Discipline(s) / EAE / OAE	Semester	Group	Sub-group	Paper Code
IT	6	PCE	PCE-1	CIE-316

Marking Scheme:
1. Teachers Continuous Evaluation: 25 marks
2. Term end Theory Examinations: 75 marks

Instructions for paper setter:
1. There should be 9 questions in the term end examinations question paper.
2. The first (1st) question should be compulsory and cover the entire syllabus. This question should be objective, single line answers or short answer type question of total 15 marks.
3. Apart from question 1 which is compulsory, rest of the paper shall consist of 4 units as per the syllabus. Every unit shall have two questions covering the corresponding unit of the syllabus. However, the student shall be asked to attempt only one of the two questions in the unit. Individual questions may contain upto 5 sub-parts / sub-questions. Each Unit shall have a marks weightage of 15.
4. The questions are to be framed keeping in view the learning outcomes of the course / paper. The standard / level of the questions to be asked should be at the level of the prescribed textbook.
5. The requirement of (scientific) calculators / log-tables / data – tables may be specified if required.

Course Objectives :
1. To understand the database design life cycle and design conceptual model of database system.
2. To design logical model of database system.
3. To physically implement the database.
4. To understand the need of database tuning and security.

Course Outcomes (CO)
CO 1 Able to understand the database design life cycle and design conceptual model of database system.
CO 2 Able to design logical model of database system.
CO 3 Able to physically implement the database.
CO 4 Able to perform database tuning.

Course Outcomes (CO) to Programme Outcomes (PO) mapping (scale 1: low, 2: Medium, 3: High)												
	PO01	PO02	PO03	PO04	PO05	PO06	PO07	PO08	PO09	PO10	PO11	PO12
CO 1	3	3	2	2	2	-	-	-	3	2	2	3
CO 2	3	3	2	2	2	-	-	-	3	2	2	3
CO 3	3	3	2	3	3	-	-	-	3	2	2	3
CO 4	3	3	2	3	3	-	-	-	3	2	2	3

UNIT-I
Introduction: Overview of database systems architecture and components, database design life cycle Conceptual data modelling: ER Modeling, EER Modeling, Modeling complex relationships, Design issues in ER & EER modeling
UNIT-II
Logical data modelling: Overview of relational data model, Integrity constraints, Mapping ER Model to a logical schema, Mapping EER Model to a logical schema, Mapping of higher degree relationships, Mapping of Aggregation, Mapping complex ER Model Constructs to a logical schema Normalization: Introduction, Anomalies, Normal forms – 1NF, 2NF, 3NF, BCNF, 4NF & 5NF
UNIT-III
Database implementation and physical database design: Database creation using SQL, SQL commands – DDL &

DML; Views; Advanced data manipulation using SQL

Database Programming: Cursor, Exception Handling, Procedures, Functions, Packages, Triggers

UNIT - IV

Database tuning and maintenance: Introduction, Clustering and indexing, guidelines for index selection, de-normalization, database tuning

Database security: Introduction, Access control DCL Commands, views

Textbook(s):

1. Database Modelling and Database Design. Narayan S. Umanath and Richard W. Scamell. Cengage Learning, 2nd Edition.
2. Database Management Systems. Raghu Ramakrishnana and Johannes Gehrke, Mc Graw Hill, 3rd Edition.

References:

1. Database Modelling and Design. Toby Teorey, Sam Lightstone, Tom Nadeau and H. V. Jagadish. Morgan Kaufmann Publishers, 5th Edition
2. Elmasri, Navathe, Fundamentals of Database Systems, 5th Edition, Pearson Education, India.
3. Database System Concepts, Silberschatz, Korth, McGraw hill, V edition.