Name of the Course: Database Management System

Sr.No.	Heading	Particulars	
1	**Description the course : Including but Not limited to:**	The objective of the course is to present an introduction to fundamentals of database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively -information from a DBMS.	
2	**Vertical :**	Major	
3	**Type :**	Theory	
4	**Credits:**	2 credits (1 credit = 15 Hours for Theory)	
5	**Hours Allotted :**	30 Hours	
6	**Marks Allotted:**	50 Marks	
7	**Course Objectives(CO):** CO 1. To make students aware fundamentals of database system. CO 2. To give idea how ERD components helpful in database design and implementation. CO 3. To experience the students working with database using MySQL. CO 4. To familiarize the student with normalization, database protection and different DDL, DML, DQL, DCL Statements CO 5. To make students aware about importance of protecting data from unauthorized users.		
8	**Course Outcomes (OC):** OC 1. Define and describe the fundamental elements of relational database management system. OC 2. To relate the basic concepts of relational data model, entity-relationship model, relational database OC 3. Design ER-models to represent simple database application scenarios. OC 4. Understand the normalization and its role in the database design process OC 5. Transform the ER-model to relational tables, populate relational database and formulate SQL OC 6. Understand basic database storage structures and access techniques: file and page organizations, indexing methods and hashing.		
9	**Modules:-** **Module 1:**		
	1. Introduction to Databases and transactions What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management **2. Data Models** The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction **3. Database Design, ER-Diagram** Database design and ER Model: overview, ER-Model, Constraints, ER-Diagrams, ERD Issues, Codd's rules, Relational Schemas **4. Relational database model** Logical view of data, keys, integrity rules		**15 Hrs**

	Module 2:	
	1. Database Design theory and normalization: Basics of functional dependencies and normalization for relational databases. Relational database design and further dependencies. **2. SQL, Indexing:** Introduction to SQL, Complex queries, triggers, views, joining database tables and schema modification. Query Processing and optimization. File structure, hashing and indexing **3. Transaction management and concurrency control and recovery:** Introduction to transaction processing concepts and theory. Concurrency control technique. Database recovery technique	. **15 Hrs**
10	**Text Books** 1. "Fundamentals of Database System", Elmasri Ramez, Navathe Shamkant, Pearson Education, Seventh edition, 2017 2. Database Management Systems", Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition, 2014 3. Database Systems: Design implementation and management by Carlos Coronel, Steven Morris, Peter Rob	
11	**Reference Books** 1. "Database System Concepts", Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw Hill, 2017 2. "MySQL: The Complete Reference", Vikram Vaswani , McGraw Hill, 2017 3. "Learn SQL with MySQL: Retrieve and Manipulate Data Using SQL Commands with Ease", Ashwin Pajankar, BPB Publications, 2020	
12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	**Continuous Evaluation through:** Class test of 1 of 15 marks Class test of 2 of 15 marks Average of the two: 15 marks Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	**Format of Question Paper: External Examination (30 Marks)– 1 hr duration**
14	**Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour)** Q1: Attempt any two (out of four) from Module 1 (15 marks) Q2: Attempt any two (out of four) from Module 2 (15 marks)	