Database management systems

1.1 Course Number: CS212

1.2 Contact Hours 3-0-2 Credits: 11

1.3 Semester-offered:

1.4 Prerequisite: Discrete Maths

1.5 Syllabus Committee Member:

2. **Objective:** To introduce students to the fundamentals of Database Systems. Focus will be from the viewpoint of database designer. This course exposes students to conceptual and logical design of Database Systems. Relational data model will be introduced and discussed in-length.

3. **Course Content:**

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction to DBMS	Introduction, Definition and Notations	3
2	Introduction to the Relational Model	Database Design and the E-R Model	8
3	Relational Database Design	Relational Calculus and algebra, Database Normalization	15
4	Introduction to SQL	Intermediate SQL, Formal Relational Query Languages	8
5	Storage and File Structure	Indexing and Hashing, Query Processing, Transactions	6
		Total	**40**

4. **Readings**

4.1 Textbook: *Avi Silberschatz, Henry F. Korth and S. Sudarshan "Database and System Concepts" Sixth Edition, McGraw-Hill*

4.2 Reference books:

i. Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", 6rd Edition, Addison-Wesley, 2010

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

5 Outcome of the Course:

Upon successful completion of this course, students will:

i. have a broad understanding of database concepts and database management system software.

ii. have a high-level understanding of major DBMS components and their function. iii. be able to model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model. iv. be able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS