**CAMI13 DATABASE MANAGEMENT SYSTEMS**

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| ***Objective:***   * *To learn different database models and design of databases and to study query languages.* |

File System versus DBMS – Advantages – Database Languages. ER-Model: Entities – Relationships – Additional Features of ER Model – Conceptual Design with ER Model

Relational Model – Keys - Constraints – Querying – Views - Relational Algebra – Relational Calculus – SQL

File Organization-Fixed Length Records-Variable length records – Organization of records in files – Sequential –Clustering.

Indexing – Ordered Indices - B + Tree Index files – Hashing- Static Hashing-Dynamic hashing.

Database Design – Pitfalls in Relational Database Design – Functional Dependencies – Decomposition – Normalization – I to V Normal Forms

**References:**

1. Raghu Ramakrishnan and Johannes Gehrke, “Data Base Management Systems”, 3rd Edition, McGraw-Hill, 2003.

2. Silberschatz, Korth and Sudarshan, “Data Base System Concepts”, McGraw-Hill, 6th Edition, 2010.

3. C. J. Date, “An Introduction to Database Systems”, 8th Edition, Addison-Wesley, 2003.

4. R. Elmasri, S.B. Navathe, “Fundamentals of Database Systems”, 5thEdition, Pearson Education/Addison Wesley, 2007.

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| ***Outcomes:***  *Students will be able to:*   * *Illustrate the features of DBMS & Models for designing databases* * *Describe the nuances of Data retrieval methods* * *Apply normalization techniques in DB design* |