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| srm_logo.gif | **COURSEFILE(COURSEPLAN)** | Year:**2016–17** |
| Semester: **ODD** |
| Course Name/Code: Database Management Systems/IT1015Date : 27-06-2016  Faculty: Mr.L.N.B.Srinivas,Mrs.M.Thenmozhi, Mrs.D.Hemavathi,[Mr. P.Rajasekar](http://www.srmuniv.ac.in/content/prajasekar), [Mrs.Saranya](http://www.srmuniv.ac.in/content/saranya).G,Mrs.S.SindhuL/T/P/C : 3/0/2/4  Program/Branch : B.Tech / IT Semester/Year: 5/3rd yr | | |

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| **SI. No.** | **Unit**  **No.** | **Topics / Sub - Topics** | **No. of**  **Periods required** | **Objective**  **No.** | **References (Text/Ref. Book, Others)** |
| 1 | 1 | Data, Database, DBMS | 1 | 1 | TB1Chapter 1 |
| 2 | File Processing System Vs. DBMS, Approaches to build a database | 1 | 1 | TB1Chapter 1 |
| 3 | Data Independence, Data Catalog | 1 | 1 | TB1Chapter 1 |
| 4 | Three schema architecture of database | 1 | 1 | TB1Chapter 1 |
| 5 | Functional components of DBMS | 1 | 1 | TB1Chapter 1 |
| 6 | DBMS Languages | 1 | 1 | TB1Chapter 1 |
| 7 | ER Model: objects, Attributes and its types, Entity and Relationship | 1 | 1 | TB1Chapter 7 |
| 8 | Design issues of ER model; Constraints | 1 | 1 | TB1Chapter 7 |
| 9 | ER model of University database | 1 | 1 | TB1Chapter 7 |
| 10 | 2 | Keys; TabularRepresentation of Various ERSchema | 1 | 2 | TB1Chapter 2 |
| 11 | Overview of Query Processing | 1 | 2 | TB1Chapter 3 |
| 12 | Relational Algebra; Fundamental operations | 1 | 2 | TB1Chapter 6 |
| 13 | Views; SQL: Overview; The Form of Basic SQL Query | 1 | 2 | TB1Chapter 3 |
| 14 | Nested queries; Correlated and uncorrelated queries | 1 | 2 | TB1Chapter 3 |
| 15 | UNION- INTERSECT And EXCEPT | 1 | 2 | TB1Chapter 3 |
| 16 | Aggregate Functions | 1 | 2 | TB1Chapter 3 |
| 17 | Integrity Constraints in SQL | 1 | 2 | TB1Chapter 4 |
| 18 | Embedded SQL | 1 | 2 | TB1Chapter 4 |
| 19 | 3 | Importance of a good schema design, - Problems encountered with bad schema designs | 1 | 2 | TB1Chapter 8 |
| 20 | Motivation for normal forms- functional dependencies | 1 | 2 | TB1Chapter 8 |
| 21 | Armstrong's axioms for FD's- Closure of a set of FD's- Minimal covers- desirable properties | 1 | 2 | TB1Chapter 8 |
| 22 | Definitions of 1NF- 2NF-3NF and BCNF- Decompositions | 1 | 2 | TB1Chapter 8 |
| 23 | Algorithms for 3NF and BCNF normalization | 1 | 2 | TB1Chapter 8 |
| 24 | Multivalued dependencies-4NF-5NF | 1 | 2 | TB1Chapter 8 |
| 25 | 4 | Overview of Primary and secondary storage media | 1 | 3 | TB1Chapter 10 |
| 26 | File organization | 1 | 3 | TB1Chapter 10 |
| 27 | RAIDTransactions-concepts | 1 | 3 | TB1 Chapter 10 |
| 28 | ACID Properties | 2 | 3 | TB1 Chapter 14 |
| 29 | Serializability | 1 | 3 | TB1 Chapter 14 |
| 30 | Concurrency control techniques | 2 | 3 | TB1 Chapter 15 |
| 31 | Two phase locking mechanism | 2 | 3 | TB1Chapter 15 |
| 32 | 5 | Deadlock management; Prevention methods | 1 | 3 | TB1Chapter 15 |
| 33 | Detection and Recovery methods | 1 | 3 | TB1 Chapter 16 |
| 34 | Types of Failures-UndoRedo techniques | 1 | 3 | TB1Chapter 16 |
| 35 | Log based Recovery | 1 | 3 | TB1 Chapter 16 |
| 36 | Shadow paging Techniques | 1 | 3 | TB1Chapter 16 |
| 37 | ARIES Recovery algorithm | 2 | 3 | TB1 Chapter 16 |
| 38 | Introduction to parallel & distributed databases | 1 | 3 | TB1Chapter 17 |
| 39 | Emerging Database Technologies and applications | 1 | 3 | TB1 Chapter 25 |
| 40 | Mobile databases | 1 | 3 | TB1Chapter 25 |
| 41 |  | Multimedia databases | 1 | 3 | TB1 Chapter 25 |

Instructional Objectives:

IO1 - Learn the fundamentals of Database management and to design the database for any given problem.

IO2 - Understand the SQL and provide the proof for good database design.

IO3 - Know the fundamentals of transaction processing, practical problems of concurrency control and recovery mechanisms.

Text Book:

1. Abraham Silberschatz, Henry F. Korth, S. Sudarshan,” *Database System Concepts*”, McGraw-Hill, 6thEdition , 2010.

Reference Book (s):

1. Raghu Ramakrishna, Johannes Gehrke, Database Management System, McGraw Hill., 3rd Edition 2003.
2. Elmashri&Navathe, Fundamentals of Database System, Addison-Wesley Publishing, 3rd Edition,2000.
3. Date C.J, An Introduction to Database, Addison-Wesley Pub Co, 7th Edition , 2001.
4. Jeffrey D. Ullman, Jennifer Widom, A First Course in Database System, Prentice Hall, AWL 1st Edition ,2001.
5. Peter rob, Carlos Coronel, Database Systems – Design, Implementation, and Management, 4th Edition, Thomson Learning, 2001.

List of Experiments: (30 hours)

1. Creating database, table

2. Working with Data Manipulation commands

3. Basic SELECT statements

4. Advanced SELECT statements

5. Integrity and Constraints

6. Joining Tables

7. SQL functions

8. Subqueries

9. Views

10. Basics of PL/SQL

11. Design and Develop applications like banking, reservation system, etc.

