

**SARDAR RAJA COLLEGE OF ENGINEERING**  
**RAJA NAGAR, ALANGULAM**  
**DEPARTMENT OF COMPUTER APPLICATIONS**



**Subject Name : DATABASE MANAGEMENT SYSTEMS**

**Subject Code : MC9213**

**Year : I – M.C.A**

**Semester : I**

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<b>UNIT I      INTRODUCTION</b>	<b>9</b>
Historical perspective - Files versus database systems - Architecture - E-R model - Security and Integrity - Data models.	
<b>UNIT II      RELATIONAL MODEL</b>	<b>9</b>
The relation - Keys - Constraints - Relational algebra and Calculus - Queries - Programming and triggers	
<b>UNIT III      DATA STORAGE</b>	<b>9</b>
Disks and Files - file organizations - Indexing - Tree structured indexing - Hash Based indexing	
<b>UNIT IV      QUERY EVALUATION AND DATABASE DESIGN</b>	<b>9</b>
External sorting - Query evaluation - Query optimization - Schema refinement and normalization - Physical database design and tuning - Security	
<b>UNIT V      TRANSACTION MANAGEMENT</b>	<b>9</b>
Transaction concepts - Concurrency control - Crash recovery - Decision support - Case studies	

**TOTAL = 45****REFERENCES:**

1. Raghu RamaKrishnan and Johannes Gehrke, "Database Management Systems", McGraw Hill International Editions, 2000.
2. C. J. Date, "An Introduction to Database Systems", Seventh Edition, Addison Wesley, 1997.
3. Abraham Silberschatz, Henry. F. Korth and S. Sudharshan, "Database system Concepts", Third Edition, Tata McGraw Hill, 1997.

## MC9213 DATABASE MANAGEMENT SYSTEMS

### Description:

- A Historical perspective contains Files versus database systems, Architecture, E-R model, Security and Integrity, Data models.
- A Relational model describes about the relation, keys constraints, Relational algebra, Calculus, Queries, Programming and triggers.
- Data Storage exposes about the Disks and Files, File organizations, Indexing, Tree structured, Hash Based indexing.
- Query Evaluation and Database Design is explain about the External sorting, Query evaluation, Query optimization, Schema refinement, normalization, Physical database design ,Tuning and Security.
- Transaction Management is highlighting Transaction concepts, Concurrency control, Crash recovery, Decision support.

### Objectives:

- To learn the fundamentals of data models and to conceptualize and depict a database system, using ER diagram.
- To make a study of SQL and relational database design
- To understand the internal storage structures using different file and indexing techniques which will help in physical DB design.
- To know the fundamental concepts of transaction processing- concurrency control techniques and recovery procedure

## Micro Lesson Plan

Hours	Lecture Topics	Reading
<b>UNIT I INTRODUCTION</b>		
1	Historical perspective	R1
2	Files versus database systems	
3	Architecture	
4	Architecture	
5	E-R model	
6	E-R model	
7	Security and Integrity	
8	Data models	
9	Data models	
<b>UNIT II RELATIONAL MODEL</b>		
10	The relation	R1
11	Keys	
12	Constraints	
13	Relational algebra and Calculus	
14	Queries	
15	Queries	
16	Queries	R2
17	Programming and triggers	
18	Programming and triggers	
<b>UNIT III DATA STORAGE</b>		
20	Disks and Files	R1
21	Disks and Files	
22	file organizations	
23	file organizations	
24	Indexing	
25	Tree structured indexing	
26	Tree structured indexing	
27	Hash Based indexing	
<b>UNIT IV QUERY EVALUATION AND DATABASE DESIGN</b>		
28	External sorting	R1
29	External sorting	
30	Query evaluation	
31	Query optimization	
32	Schema refinement and normalization	R3
33	Schema refinement and normalization	
34	Physical database design and tuning	R1
35	Physical database design and tuning	R1
36	Security	R2
<b>UNIT V TRANSACTION MANAGEMENT</b>		
38	Transaction concepts	R1
39	Transaction concepts	

40	Concurrency control	R1
41	Crash recovery	
42	Decision support	
43	Case studies	
44	Case studies	
45	Case studies	

