

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Internal	Final Exam	Total
MCA-102	Database Management System	PCC	4	4	0	0	40	60	100

**Course Outcomes**

At the end of the course the student will be able to	
CO1	Identify the basic concepts, architecture and various data models used in Database Management Systems
CO2	Design ER-models to represent simple database application
CO3	Understand normalization theory and apply such knowledge to the normalization of a database.
CO4	Articulate the basic issues of transaction processing and concurrency control.
CO5	Implement advanced database queries using Structured Query Language (SQL).

**Detailed Syllabus**  
**Section-A**

**UNIT-1:** Database Concepts: Traditional file-based system, Conventional file organizations, Need of Database Management System, Components of DBMS, Introduction to hierarchical and network data models. Schemas and Instances, Data independence, three level Architecture of Database, Centralized and client server architecture for DBMS

**(10 Hrs)**

**UNIT-2:** Relational Data Model: Entity relationship model, Relational Database Design using ER to Relational Mapping, EER Model, Joins, Relational Algebra and Relational Calculus Concepts, Queries using Relational Algebra and Calculus.

**(10 Hrs)**

**UNIT-3:** Normalization: Concept of keys, Functional dependencies, Inference rules, Covers, Closure, Equivalence of functional dependencies, Multivalued dependencies, Theory of normalization, Normal forms (1st to 5th), BCNF, Join dependency, Domain key normal form.

**(10 Hrs)****Section-B**

**UNIT-4:** Concurrency Control: Transaction processing, Deadlocks, Concurrency control, Locking techniques, Timestamp ordering, Recovery techniques, Distributed Database Concepts.

**(08 Hrs)**

**UNIT-5:** SQL: SQL query processing, Table creation and management, inbuilt functions, Data integrity constraints, Views, Joins, Operators, Privileges, roles and security policies.

**(12 Hrs)****Textbooks**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Database System Concepts	Korth, Silberchatz	Mcgraw Hill Education	6th (2013)

**Reference Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Fundamentals of Database System	ElmasriRame, Navathe Shamkant	Pearson Education	7th (2015)
2.	The power of Oracle 9i	R. A. Parida	Firewall Media Publications	1 <sup>st</sup> (2010)