

MAHENDRA ENGINEERING COLLEGE (Autonomous)-Syllabus						R 2015	
DEPARTMENT	INFORMATION TECHNOLOGY		Programme Code & Name			IT	
SEMESTER-III							
COURSE CODE	COURSE NAME		PERIODS /WEEK			CREDIT	MAXIMUM MARKS
15IT14302	DATABASE TECHNOLOGY		L	T	P	C	100
			3	0	0	3	
Objectives	<ul style="list-style-type: none">• Design of database for any given problem.• Design Logical Database Schema and Mapping it to implementation level schema through Database Language Features.• Understand the practical problems of Concurrency control and its solutions Gain knowledge about failure and Recovery mechanisms.						
UNIT-I	RELATIONAL DATABASES						9
Purpose of Database System-Views of data- Database Languages - Database System Architecture- Introduction to relational model: Structure of Relational Databases-Database Schema-Keys-Schema Diagrams-Relational Query Languages-Relational Operations-Introduction to SQL-Intermediate SQL.							
UNIT-II	DATABASE DESIGN						9
Database Design and the E-R Model: Overview-E-R Model Constraints-E-R Diagrams-E-R Relational Design Issues. Relational Database Design: Features-Atomic Domains and First Normal Form-Decomposition using Functional Dependencies. Application Design and Development: Application Programs and User Interfaces-Web Fundamentals -Servlets and JSP.							
UNIT-III	DATA STORAGE AND QUERYING						9
Storage and File Structure: Overview of Physical Storage-Magnetic Disk and Flash Storage-RAM-Tertiary Storage-File Organization. Indexing and Hashing: Basic Concepts-Ordered Indices-B+ Tree Index Files-Multiple -Key Access-Static Hashing .Query Processing: Overview-Measures of Query Cost-Selection Operation-Sorting-Joint Operation-Query Optimization.							
UNIT-IV	TRANSACTION MANAGEMENT						9
Transactions: Transaction Concept-A Simple Transaction Model-Storage Structure-Transaction Atomicity and Durability-Transaction Isolation. Concurrency Control: Lock-Based Protocols-Deadlock Handling-Timestamp-Based Protocols-Validation-Based Protocols.							
UNIT-V	SYSTEM ARCHITECTURE						9
Recovery System: Failure Classification-Storage-Recovery and Atomicity-Recovery Algorithm-Buffer Management. Database-System Architectures: Centralized and Client-Server Architectures-Server System Architectures. Parallel Databases: I/O Parallelism-Distributed Databases.							
TOTAL PERIODS						45	
TEXT BOOKS :							
1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, "Database System Concepts", Sixth Edition, Tata McGraw Hill, 2011.							
2 C.J.Date, A.Kannan and S.Swamynathan, "An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.							
REFERENCE BOOKS:							
1. Raghu Ramakrishnan, "Database Management Systems", Fourth Edition, Tata Mc Graw Hill, 2010..							
2.Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education, 2008.							