MANIPAL UNIVERSITY JAIPUR

School of Computing and Information Technology

Department of Computer Science and Engineering
Course Hand-out

Database Management Systems| CS1696 | 3 Credits

Session: 2015-2016 | Faculty: Ashish Kumar

Course Outcomes: At the end of the course, students will be able to

CS1696.1: Develop and design database application and therefore enhance entrepreneurship skills.
CS1696.2: Write structured query language in formal and practical query language
CS1696.3: Describe transaction processing and concurrency control.
CS1696.4: Familiar with basic database storage structures and access techniques.
CS1696.5: Simplify the relation databases.
CS1696.6: Design Entity Relation Diagram and convert into table.

A.   SYLLABUS

Introduction: Database-System Applications, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture; **Relational Algebra**: Fundamental Relational-Algebra Operations, Extended Relational-Algebra Operations, Null Values, Modification of the Database; **SQL:** Data Definition Language, Data manipulation language , SQL Data Types and Schemas, Integrity Constraints, Basic Structure of SQL Queries, Set Operations, Aggregate Functions, Null Values, Nested Subqueries, Complex Queries, Views, Modification of the Database, Joined Relations, Authorization, Overview of the Design Process; **The Entity-Relationship Model**: Constraints, Entity-Relationship Diagrams, Entity-Relationship Design Issues, Weak Entity Sets, Extended E-R Features; **Hashing Techniques**: Dynamic Hashing; **Transactions**: Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Lock- Based Protocols, Log-Based Recovery, Recovery algorithms **File Storage,** Indexing & Hashing: File structures, RAID Level, Order indices, B+-Tree Indices File, B+-Tree extensions, Multiple Key Access, Static Hashing and Dynamic Hashing.

B.   TEXT BOOKS

i.   H. F. Korth, & S. Sudarshan A. Silverschatz, "Database System Concepts", TMH, New Delhi, 2006.
ii. R. Elmasri & S. Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi, 2008.