KL University
Department of Electronics & Computer Engineering
M.Tech (wcsn) First Semester 2015-2017

Course Code : 15-EM51F1
Course Title : Database Design and Management
Course Structure : 3-0-0
Credits : 3

SYLLABUS:

Unit-1
Basic concepts: Database and Need for DBMS, Characteristics of DBMS, Database Users, 3-tier architecture of DBMS (its advantages over 2-tier), Data Models, Views of data-schemas and instances, Data Independence.

Unit-2
Database Design using ER model: Entities, Relationships, Representation of entities, attributes, relationship attributes, relationshipSet, Generalization, aggregation, Relational algebra, Structure of relational Database and different types of keys, Codd's rules, , ER to Relational model

Unit-3
Relational Model: Relational model concept, Relational model constraints, Data definition in SQL, Views and Queries in SQL Specifying constraints and Indexes in SQL., Functional dependencies, Normalization, Normal forms based on primary keys (1 NF, 2 NF, 3 NF, BCNF, 4 NF, 5 NF), Loss less joins and dependency preserving Decomposition

Unit-4
Transaction And Concurrency control: Concept of transaction, ACID properties, Serializibility, States of transaction, Concurrency control, Locking techniques, Time stamp based protocols, Granularity of data items, Deadlock

Unit-5
Storage and File Structure: Overview of physical storage media, Tertiary storage, Storage access, File organization, Organization of records in files, RAID, Database security issues, Failure classifications, Recovery & atomicity, Log base recovery, Recovery with concurrent transactions

Text books:
1. Database system concept Korth
2. Introduction to database systems C.J.Date

Reference books:
1. Database Management Systems Bipin Desai
2. Database Management systems Ramakrishnan & Gehrke