Course Outline

Semester : 2nd Year 2nd Semester 2023-24
Course Code : CSE 2201
Course Title : Database Management Systems - I
Pre-requisite : None
Credits : 3 (45 Hours Lecture)
Class Time : Sunday 11:30 AM-1:00 PM and Wednesday 2:00 PM-3:30 AM
Room # : 413
Instructor : Abu Ahmed Ferdaus, Associate Professor
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Cell : 01552392551
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S/L	Class Topic	Class Hours Required
1	**Introduction:** General overview and purpose of Database Management Systems (DBMSs), advantages, applications, data models, database languages: SQL, users and administrators and overall structure of the database.	3 (2 Classes)
2	**Data Modeling (Relational model):** structure of relational model, key constraints, referential integrity constraints, general constraints	3 (2 Classes)
3	**Database Application Development (SQL):** data definition and data manipulation languages, integrity constraints, basic queries, nested and complex queries, modification of the database, Views: definition, update on views, cursors	10.5 (7 Classes)
4	Extending DBMS functionality: stored procedures, assertions and triggers, embedded and dynamic SQL, DBMS administration: DBA, users, privileges, security etc.	5 (2 Classes)
5	**Data Modeling:** Relational algebra: fundamental, additional and extended operations, aggregate functions, outer joins and database modification using RA	3 (2 Classes)
6	**Data Modeling** (ER model): entity and relationship sets, constraints – key, mapping cardinality and participation constraints, strong and weak entity sets, E-R diagram, class hierarchies, aggregation, conceptual database design with the ER model, converting ER to relational model.	4.5 (3 Classes)
7	**Relational Database Design:** Features of good relational design, functional dependency theory - basic concept, uses, closure of a set of FDs, closure of attribute sets, canonical cover, algorithms for FDs, decomposition using FDs & its desirable properties	9 (6 Classes)

8	Normalization: atomic domains and first normal form, BCNF and 3NF, multivalued dependencies and fourth normal form, decomposition algorithms for different normal forms, database design process.	6 (4 Classes)
9	Review	1.5 (1 Classes)
	1 In-course	1.5 (1 Classes)
	Total: (Including Review + 1 In-course)	**45** **(30 Classes)**

Text Books:

1. Database System Concepts
   Authors: Abraham Silberschatz, Henry F. Korth, S. Sudarshan
   Edition: 7th
   Publication Year: 2020
   Publisher: McGraw-Hill
   ISBN: 978-0-07-802215-9
   Web: http://www.db-book.com