**PUC Logo**

**Department of Computer Science and Engineering**

**Lesson Plan**

**Course Title: Database Management System Course Code: CSE 237**

**Level/Term: 4th Section: A**

**Credit:** **03** **Contact Hours:** 39

**Prerequisite: CSE 211 (OOP) Type: Core/Major:**

Session: August, 2019

**Instructor:** Mohammad Hasan, Lecturer, Dept. of CSE, PU.

**Class schedule:** Sunday (1.5 hours - 11.30-1.00; Room No: 508)

Tuesday (1.5 hours - 10.00-11.30; Room No: 408)

**Counseling Time:** Monday (12.00-1.00) **Room No:** 501

**Email address:** mehedih256@gmail.com  **Phone No:** 01921 - 009559

**Special Instructions:**

* No students will be able to attend the mid-term examination, if the attendance before mid-term is less than 50%. Similarly, if the attendance before final examination is less than 50%, he/she will not be able to attend the final examination.
* Every student must sign in class test/ assignment attendance sheet. Otherwise CT/assignment marks as well as any other complaints will not be considered.
* If anyone faces problem during course conduct, he/she must meet at the counselling time.
* Class Tests score will be published and scripts will be shown within 1 or 2 weeks after the examination.

**Rationale:**

Database Management Systems (DMS) are crucial elements of modern information systems. The course emphasizes on the rudiments of knowledge base relational database management systems and the current developments in database theory and their practice.

**Course Objectives:**

The objectives of this course are to:

* Comprehend the different issues involved in the design and implementation of a database system in modern information system.
* Demonstrate the physical and logical database designs with proper outline.
* Become acquainted with database modeling techniques/tools of modern era.
* Understand and apply data manipulation language to query, update, and manage a database oriented system/project.

**Course Outcomes (COs):**

By the end of the course, students will be able to:

1. Demonstrate the universal use of DBMS in different application domains.
2. Design database schemas.
3. Apply query languages to manage database information.
4. Develop E-R models and normalize the design of the database.
5. Explain the concepts of transaction processing and data mining concepts.

**Assessment:**

Class tests, quizzes/assignments/home works, class attendance and class participation, midterm and final exam.

**Text and Reference books:**

**Text book:** Silbarchatz: Database System Concepts

**References:**

1. J.Martin: Database Management System
2. Hoffer: Modern Database Design.

**Marks distribution**

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Class Attendance/ Participation | 10 |
| Class Test | 10 |
| Quizzes/Assignments/Home works | 10 |
| Midterm | 20 |
| Final Exam | 50 |

**Day Wise schedule:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Week** | **DAY** | **Topic** | **Teaching strategy** | **Course outcome** | **Assessment Strategy** |
| **Week-1** | **Day-1** | **Chapter 0:** Overview  **Chapter 1:** File System, DBMS, Database applications | Slide Presentation | CO-1 | Midterm |
| **Day-2** | **Chapter 1:** Drawbacks of file system, Levels of abstraction, Database instances and Schema, Database User and Administrators, Database architecture. | Slide Presentation | CO-1 | Midterm & Final |
| **Week-**  **2** | **Day-1** | **Chapter 2:** Example of a relation, Different types of Keys,Schemadiagrams, Relational Operations. | Slide Presentation | CO-2 | Midterm, Final & CT |
| **Day-2** | **Chapter 3:** DDL and DML, Domain Types in SQL, DDL example, Integrity constraints in create table. | Slide Presentation | CO-3 | Midterm, Final & CT |
| **Week -3** | **Day-1** | **Chapter 3:** Basic query structure (DML), Basic Insert, Update and delete query in SQL, Query Processing. | Slide Presentation and text book | CO-3 | Midterm, Final & CT, Assignment |
| **Day-2** | **CT – 01 (Topics covered in week-2 and Week-3 Day-1)** | --- | --- | **CT** |
| **Chapter 3:** Join, Rename. | Slide Presentation and text book | CO-3 | Midterm, Final & Assignment |
| **Week -4** | **Day-1** | **Chapter 3:** String Operations, Ordering Display of Tuples, Duplicate, Between Operator, Aggregate Functions. | Slide Presentation | CO-3 | Midterm, Final & Assignment |
| **Assignment – 01 (Topics: To solve SQL queries)** | ---- | CO-3 | Assignment |
| **Day-2** | **Chapter 3:** Sub-queries, complex queries using with clause.  **Chapter 4:** Join, View, Integrity Constrain, SQL data types, Authorization. | Slide Presentation | CO-3 | Midterm & Final |
| **Week -5** | **Day-1** | **Chapter 5:** JDBC, ODBC, Functions, Procedures, Triggers | Slide Presentation | CO-3 | Final exam |
| **Day-2** | **Chapter 6:** Relational Algebra | Slide Presentation | CO-3 | CT |
| **Week -6** | **Day-1** | **CT – 02 ( Chapter 6: Relational Algebra )** |  |  |  |
| Review class on Mid-term syllabus | --- | --- | ---- |
| **Day-2** | Review class on Mid-term syllabus | --- | --- | --- |
| **Week -7** |  | **Mid Term Exam Syllabus**  **Chapter 1 to 5** | --- | **CO-1,2&3** | **MID TERM** |
| **Week -8** | **Day-1** | **E-R Diagram:** Entities and Entity Sets, Relationship and Relationship Sets, Attributes. | text book | CO-4 | Final exam & CT |
| **Day-2** | **E-R Diagram:** Mapping Constraints, Entity-Relationship Diagram symbols, Weak Entity, Strong Entity. | text book | CO-4 | Final exam & CT |
| **Week -9** | **Day-1** | **E-R Diagram:** EER Diagram (Super type and sub type relationships) | Reference book | CO-4 | Final exam & CT |
| **Day-2** | **E-R Diagram:** E-R Diagram to Relation Conversions | Reference book | CO-4 | Final exam, CT & Assignment |
| **Assignment – 02 (Topic: E-R Diagram)** | --- | --- | --- |
| **Week -10** | **Day-1** | Normalization | Reference book | CO-4 | Final exam |
| **Day-2** | Normalization | Reference book | CO-4 | Final exam |
| **Week -11** | **Day-1** | Normalization | Reference book | CO-4 | Final exam |
| **Day-2** | **CT – 03 ( Topic: E-R Diagram )** | --- | --- | **CT** |
| Review class on Normalization | --- | --- | --- |
| **Week -12** | **Day-1** | Transaction Management,  Indexing and Hashing | Printed sheet | CO-5 | Final exam |
| **Day-2** | Basic Concepts of data mining and Big Data. | Printed sheet | CO-5 | Final exam |
| **Week -13** |  | Review class | --- | ---- | --- |