**Department of Production Engineering**

 **Lesson Plan**

 **2018-19**

# Course Name: Database and Information Retrieval Semester: III

# Course ID: PEL302 No. of credits: 2

**1.1 Course Outcome Statement**

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| --- | --- |
| **Sr.No.** | **Course Outcome Statement** |
| 1 | Identify data models and schemes in DBMS. |
| 2 | Demonstrate the features of database management system and relational database |
| 3 | Apply SQL –standard language of relational database. |
| 4 | Demonstrate understanding of functional dependencies and design of database. |
| 5 | Design Graphical User Interface for specific application. |
| 6 | Create visual software entities. |

**1.2 CO Assessment Tools**

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| --- | --- |
|  | **direct Methods** |
|  | Lab | Practical /Oral | Quize | Course Exit Survey |
| CO1 | 40% | 30% | 30%(Q3) | 100% |
| CO2 | 40% | 30% | 30%(Q2) | 100% |
| CO3 | 40% | 30% | 30%(Q1) | 100% |
| CO4 | 60% | 40% | ------ | 100% |
| CO5 | 60% | 40% | ------- | 100% |
| CO6 | 60% | 40% | --------- | 100% |

**1.3 CO-PO and CO-PSO Mapping**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Name** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| CO1 |  | 2 | 2 |  |  |  |  |  | 2 | 2 |  |  |  |  |
| CO2 |  | 3 | 2 |  |  |  |  |  | 2 | 2 |  |  |  |  |
| CO3 |  | 3 | 2 |  | 2 |  |  |  |  | 2 |  |  |  |  |
| CO4 |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |
| CO5 |  | 2 |  |  | 1 |  |  |  | 2 |  |  |  |  |  |
| CO6 |  | 2 |  |  | 1 |  |  |  |  |  |  |  |  |  |

**1.4 Rubrics for assessment of Experiment:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** |  | **Excellent**  | **Good** | **Average** | **Poor** |
| 1. | Deadline(2) | Early or on time (2) | One session late(1.5) | Two session late (1) | More than Two sessions late(0) |
| 2. | Understanding(2) | Awareness about experiment to be performed, Knows the basic theory related to the experiment very well. (2) | Knows basic theory and able to explain properly(1.5) | Managed to explain the theory related to the experiment.(1) | Not aware of the theory to the point.(0) |
| 3. | completeness(4) | Lab experiment is documented in proper format and maintained neatly.(2) | Most of the report is documented in proper format but some formatting guidelines are missed.(1) | Experiments not written in proper format (0.5) | Managed to complete(0) |
| 4. | Postlab (2) | Postlab is completed with proper explanation(2) | Postlab is completed with basic explanation points(1.5) | Postlab is complete without explanation(1) | Postlab incomplete(0) |

**2.1 Lesson Plan**

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| --- | --- | --- | --- |
| **No of classes available:** | **24** | **No of Classes taken:** | **24** |
|  |  |  |  |
| **Sr. No.** | **Topic Planned** | **Planned Date**  | **Actual Date** | **Delivery Mechanisms** |
| 1 | **Introduction to Database Concept:** What is a database?, Characteristics of database, Example of database, File system V/s Database system, What is DBMS?, Users of database system, Advantage of using an enterprise database, Concerns when using an enterprise database  | 3/7 | 3/7 | Chalk \board |
| 2 | Data independence, DBMS systems architecture, Database administrator  | 5/7 | 5/7 | Chalk \board |
| 3 | **Entity-Relationship Data Model:** Introduction, Benefits of Data Modelling, Types of Models  | 8/7 | 8/7 | Chalk \board |
| 4 | Phases of Database Modelling, The Entity-Relationship (ER) Model  | 10/7 | 10/7 | Chalk \board |
| 5 | Generalisation, Specialization and Aggregation  | 12/7 | 16/7 | Chalk \board |
| 6 | Extended Entity-Relationship (EER) Model  | 16/7 | 19/7 | Chalk \board |
| 7 | **Rational Model and Algebra:** Introduction, Mapping the ER and EER Model to the relational Model  | 17/7 | 23/7 | Chalk \board |
| 8 | Data Manipulation, Data Integrity,  | 23/7 | 26/7 | Chalk \board |
| 9 | Advantages of Relational Model, Relational Algebra  | 26/7 | 30/7 | Chalk \board |
| 10 | Relational Algebra Queries, Relational Calculus  | 30/7 | 2/8 | Chalk \board |
| 11 | **Structured Query Language (SQL):** Overview of SQL, Data definition commands, set operations  | 2/8 | 6/8 | Chalk \board |
| 12 | aggregrate functions, null values, Data manipulation commands  | 6/8 | 8/8 | Chalk \board |
| 13 | Data control commands, Views- using virtual tables in SQL,  | 9/8 | 20/8 | Chalk \board |
| 14 | Nested and complex queries  | 20/8 | 22/8 | Chalk \board |
| 15 | Nested and complex queries  | 27/8 | 27/8 | Chalk \board |
| 16 | **Introduction to Transactions Management and Co-currency:** Transaction concept, transaction states, ACID properties  | 30/8 | 30/8 | Chalk \board |
| 17 | Implementation of atomicity and durability, Concurrent Executions, Serializability, Recoverability  | 13/9 | 13/9 | Chalk \board |
| 18 | **Co-currency Control:** Lock-based, Timestamp-based, Validation-based protocols, Deadlock handling,  | 17/9 | 17/9 | Chalk \board |
| 19 | Recovery system, Failure classification, Storage structure, Recovery and atomicity, Log based recovery, Shadow paging  | 20/9 | 20/9 | Chalk \board |
| 20 | **Graphical User Interface:** Murphy’s law of GUI design, Features of GUI, Icons and graphics,  | 24/9 | 24/9 | Chalk \board |
| 21 | Identifying visual cues, clear communication, colour selection, GUI standard, planning GUI Design Work  | 1/10 | 27/9 | Chalk \board |
| 22 | **Visual Programming:** ***Sharing Data and Code:*** Working with projects, introduction to basic language, Using inbuilt controls and ActiveX controls, creating and using classes, ,  | 4/10 | 29/9 | Chalk \board |
| 23 | introduction to collections, usinf and creating ActiveX components, dynamics data exchange | 11/10 | 11/10 | Chalk \board |
| 24 | Object linking and embedding, ***Creating visual software entities:*** Working with text, graphics, working with files, file management, serial communication, multimedia control interfaces  | 11/10 | 11/10 | Chalk \board |

**Lab Plan**

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| --- | --- | --- | --- |
| Sr. No | Topic | Lab outcome | Week No. |
| 1 | To study features and model of Database and RDBMS. | CO1 | Week1 |
| 2 | To draw an EER diagram for given problem definition | CO1 | Week2 |
| 3 | To Map EER diagram drawn in experiment no. 1 to relational model and draw schema diagram | CO2 | Week3 |
| 4 | To implement database for relational model in experiment no. 2 using DDL statement | CO3 | Week4 |
| 5 | To use DML operations- insert, delete, update, select to populate database | CO3 | Week5 |
| 6 | To use DCL operations- grant, revoke and deny on database | CO3 | Week6 |
| 7 | To implement simple SQL queries | CO3 | Week7 |
| 8 | To implement complex and nested queries | CO4 | Week8 |
| 9 | To study and Design Graphical User Interface using VB. | CO5 | Week9 |
| 10 | To implement GUI for the given Case study. | CO6 | Week10 |

**Assessment:**

**Term Work:**

Assign minimum two case studies for each student. On their case studies following exercises to be performed

1. Problem Definition and draw ER/EER diagram

2. Design Relational Model

3. Perform DDL operation

4. Perform DML and DCL operations

5. Design Forms using Visual programming

6. Retrieve the information through GUI.

Distribution of Term work Marks

Laboratory work 40 Marks

Attendance 10 Marks

**End Semester Practical/Oral Examination:**

1. Practical examination of 2 hours duration followed by viva to be conducted by Pair ofInternal and External Examiner based on contents

2. Evaluation of practical examination to be done by examiner based on the printout of students work

3. Distribution of marks

Practical examination: 40 marks

Viva based on practical examination 10marks

4. Students work along with evaluation report to be preserved till the next examination

**Reference Books:**

1. Database Management Systems, G K Gupta, McGraw – Hill

2. Database System Concepts, Korth, Slberchatz, Sudarshan, 6thEdition, McGraw – Hill

3. GUI Design for dummies, IDG books

4. Visual Basic 2005, How to program, Deitel and Deitel,3rdEdition, Pearson Education

5. SQL and PL/SQL for Oracle 10g,Black Book, Dr P S Deshpande, Dreamtech Press

6. Introduction to Database Management, Mark L Gillenson, Paulraj Ponniah, Wiley

7. Oracle for Professional, Sharaman Shah, SPD.

8. Database Management Systems, Raghu Ramkrishnan and Johannes Gehrke, TMH

9. Fundamentals of Database Management System, Mark L Gillenson, Wiley India

Faculty Name HOD