Lesson Plan

Name of the Faculty: Ajeta Nandal, Lecturer

**Department: Computer Engineering**

**Semester: 3rd**

**Subject: DataBase Management Systems**

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| **Week** | **Theory** | | **Practical** |
| **Lect. day** | **Topic(Including assignment/test)** | **Topic** |
| 1st | 1st | **Introduction to Database system Concepts and Architecture** Database Systems; Database and its purpose, Characteristics of the database approach, Advantages and disadvantages of database systems. | Ist Group (G1)  Exercises on creation and modification of structure of tables.  2nd Group (G2)  Exercises on creation and modification of structure of tables. |
| 2nd | Classification of DBMS Users; Actors on the scene, Database Administrators, Database Designers, End Users, System Analysts and Application Programmers, |
| 2nd | 1st | Workers behind the scene (DBMS system designers and implementers, tool developers, operator and maintenance  personnel). | Ist Group (G1)  Exercises on inserting and deleting values from tables..  2nd Group (G2)  Exercises on inserting and deleting values from tables. |
| 2nd | Data models, schemas, instances, data base state. DBMS Architecture; The External level,  The conceptual level, The internal level, Mappings. Data Independence; Logical data  Independence, Physical data Independence.  Database Languages and Interfaces; DBMS Language, |
|  | 1st | DBMS Interfaces. Classification of Database Management Systems- Centralized, Distributed, parallel and  object based. | Ist Group (G1)  Exercises on querying the table (using select command). |

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| 3rd | 2nd | **Data Modeling using E.R. Model (Entity Relationship Model) and Relational** Data Models Classification; File based or primitive models, traditional data models, semantic data models. | 2nd Group (G2)  Exercises on querying the table (using select command). |
| 4th | 1st | Entities and Attributes, Entity types and Entity sets, Key attribute and domain of attributes, Relationship among entities,  Database design with E/R model. | Ist Group (G1) Revision of Practical 1  2nd Group (G2) Revision of Practical 1. |
| 2nd | Relational Model Concepts: Domain, Attributes, Tuples cardinlity, keys (Primary, Secondary, foreign, alternative  keys) and Relations. |
| 5th | 1st | Relational constraints and relational database schemes; Domain constraints, Key constraints and constraints on Null.  Relational databases and relational database schemes, | Ist Group (G1) Revision of Practical 2 & 3  2nd Group (G2) Revision of Practical 2 & 3 |
| 2nd | Entity integrity, referential integrity and foreign key. Comparison b/w E/R model  and Relational model. |
| 6th | 1st | **Normalization Trivial and Non-trivial Dependencies.** Non-loss decomposition and functional dependencies, | Ist Group (G1)  Exercises on using various types of joins.  2nd Group (G2)  Exercises on using various types of joins. |
| 2nd | First, Second and Third normal forms, Boyce/Codd normal form, denormalization. |
| 7th | 1st | **Database Access and Security**  Creating and using indexes, creating and  using views. | Ist Group (G1)  Exercises on using functions provided by database package.  2nd Group (G2)  Exercises on using functions provided by database package. |
| 2nd | Database security, process controls, database  protection, grant and revoke. |
| 8th | 1st | **MYSQL/SQL (Structured Query Language)**  SQL\* DDL (Data Definition Languages): Creating Tables, | Ist Group (G1)  Revision of Practical 4& 5  2nd Group (G2)  Revision of Practical 4 & 5 |
| 2nd  t | Creating a table with data from another table, Inserting values into a table, |
| 9th | 1st | Updating columns of a Table, | Revision of Practical and Doubts to both groups |
| 2nd | Deleting Rows, Dropping a Table. |
|  | 1st | DML (Data Manipulation Language): Database Security and Privileges | Ist Group (G1) |

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| 10th | 2nd | Grant and Revoke Command | Exercises on commands like Grant, Revoke, Commit and Rollback etc.    2nd Group (G2)  Exercises on commands like Grant, Revoke, Commit and Rollback etc. |
| 11th | 1st | Maintaining Database Objects, Commit and Rollback | Ist Group (G1)  Design of database for any application**.** 2nd Group (G2)  Design of database for any application**.** |
| 2nd | Various types of select commands, |
| 12th | 1st | Various types of joins, sub query, aggregate functions. | Ist Group (G1)  Revision of Practical 6 & 7  2nd Group (G2)  Revision of Practical 6 & 7 |
| 2nd | Challenges of My SQL.  Introduction to Big Data. Understanding Big Data with samples. |
| 13th | 1st | Revision of Ist Unit | Revision of Practical and Doubts To both Groups |
| 2nd | Revision of 2nd Unit |
| 14th | 1st | Revision of 3rd Unit | Ist Group (G1)  Revision of Practical and Doubts  2nd Group (G2)  Revision of Practical and Doubts |
| 2nd | Revision of 4th Unit |
| 15th | 1st | Revision of 5th Unit | Ist Group (G1)  Revision of Practical and Doubts  2nd Group (G2)  Revision of Practical and Doubts |
| 2nd | Revision of Practical’s |