Govt. Polytechnic Hamirpur (H.P.)
Lecture Planning (Theory)

Branch : **Information Technology** Semester : 4th

Subject : **Relational Database Management System** Session: **Feb-June 2023**

Teacher: **Vijay Pathania** Laboratory : **Programming Lab**

Sr. No.	No. of Lectures Planned	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1.	8	Introduction to Database Systems	Database Systems, Database and its Purpose, Comparison of Database Approach with File-based and Traditional Record Keeping Approaches, Advantages and Disadvantages of Database Approach, Classification of Database Users, Role of DBA.	R1,R2,R3, R4	
2.	12	Database System Concepts and Architecture	Data Models, Schemas, and Instances; ANSI/SPARC Architecture of a Database System, External Level, Conceptual Level, Internal Level, Mappings; Data Independence, Logical Data Independence, Physical Data Independence	R1,R2,R3, R4,R5	
3.	10	Relational and E-R Models	Relational Database Model, Relations, Attributes, Tuples, Domains; Prime and Non-prime Attributes, Key – Primary Key, Candidate Keys, Alternate Keys, Superkey, Secondary Key, Foreign Keys; Database Constraints, Entity Relationship Model - Entity, Entity Sets, Strong and Weak Entities, Attributes, and Keys; Association, Relationship, Roles, Structural Constraints, ER Diagrams	R1,R2,R4, R5	
4.	10	Database Dependencies and Normalization	Functional Dependencies, Trivial and Non-trivial Dependencies, Non-Loss Decomposition, Normalization, First, Second and Third Normal Forms, Boyce-Codd Normal Form	R1,R2,R3	
5.	12	Overview of MySQL	MySQL, Features of MySQL, Database Objects - Database, Table, View, Index, Alias; MySQL Object Naming, Keywords, User-defined Variables, Data Types - Numeric, Date and Time, String Types; Operators: Arithmetic, Logical, Relational, String; MySQL System Schema, MySQL Database Users and Roles, Database Privileges, Access Control and Account Management, MySQL Server and MySQL Client	R1,R2,R5,R 6	
6	12	Structure Query Language using MySQL	SQL, DDL Statements : CREATE, DROP, ALTER, RENAME; DML Statements: INSERT, UPDATE , DELETE, SELECT; SELECT Clauses - FROM, WHERE, ORDER BY, GROUP BY, HAVING; Join Operations - Inner, Left, Right and Outer Joins; Subqueries, Set Operations - Union, Intersect, Minus; GRANT and REVOKE	R1,R2,R3, R4,R5,R6	

			Privileges; Transaction Statements - COMMIT, ROLLBACK, SAVEPOINT; Prepared Statements, SQL Functions - ABS, ROUND, FLOOR, CEIL, SQRT, POWER, TRUNCATE, LOG, NOW, DATE, TIME, CURDATE, CURTIME, DAY, MONTH, YEAR, DATEDIFF, DATE_SUB, DATE_ADD, DATE_FORMAT, CONCACT, LENGTH, UPPER, LOWER, LEFT, RIGHT, LTRIM, RTRIM, MAX, MIN, SUM, AVG, COUNT, CAST, STR_TO_DATE.		

Teaching Resources:

R1:An Introduction to database systems by Bipin C. Desai, Galgotia Publications
R2: Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan Tata McG
Hill
R3: Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, Pearson Educati
R4:MySQL 8 Cookbook by Karthik Appigatla, Packt Publishing
R5: An Introduction to Database Systems by C.J. Date, Adison Wesley
R6:MySQL: The Complete Reference by Vikram Vaswani, Tata McGraw Hill

Course Outcomes :

CO-1. Understand the basic terminology associated with database management.
CO-2. Design an optimal database for a given basic application.
CO-3. Apply normalisation techniques while designing databases.
CO-4. Use SQL commands to carry out various database operations

Signature of Teacher with Date

Signature of H.O.D