LESSON PLAN

SUB: DATABASE MANAGEMENT SYSTEMS

**BRANCH: - COMPUTER SCIENCE & ENGG.**

SEMESTER:4TH

NAME OF FACULTY: Maheswari Samal (GF in CSE)

GOVERNMENT POLYTECHNIC, BHADRAK
SESSION-2025-26
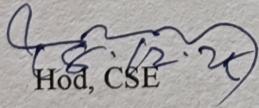
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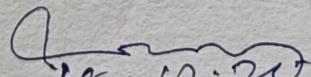
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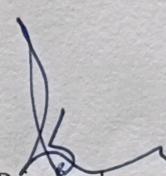
Principal
Govt. Polytechnic, Bhadrak

Department of Computer Science & Engineering

Discipline: Computer Science & Engg.	Semester: 4th	Name of the Teaching Faculty: Maheswari Samal Lecturer CSE (GF)	
Subject: Database Management Systems (TH-2)	No. of Days/per week class allotted:3	Start date: 22.12.25	End Date: 18.04.26

Week	Class Day	Theory Topics
1st	1st	**Database Basics:** Introduction of DBMS.
	2nd	Definition, Need of DBMS.
	3rd	Applications of DBMS, Database vs File System
2nd	1st	DBMS Architecture: Components, Views of Data, Data Models (Hierarchical, Network, Relational)
	2nd	DBMS Architecture: Components, Views of Data, Data Models (Hierarchical, Network, Relational)
	3rd	Introduction to RDBMS, Advantages and Disadvantages of DBMS
3rd	1st	**Introduction to ER Models:** Entities, Attributes, Relationships, and Constraints
	2nd	Entities, Attributes, Relationships, and Constraints
	3rd	Keys: Primary, Foreign, Candidate, and Super Keys,
4th	1st	Keys: Primary, Foreign, Candidate, and Super Keys,
	2nd	ER Diagrams and their components
	3rd	Converting ER Diagrams to Relational Models.
5th	1st	Converting ER Diagrams to Relational Models.
	2nd	**Quiz**
	3rd	**Relational Algebra:** Selection, Projection, Union, Intersection, Difference, Cartesian Product, and Joins.
6th	1st	Relational Algebra: Selection, Projection, Union, Intersection, Difference, Cartesian Product, and Joins.
	2nd	SQL Basics: Data Definition Language (DDL) and Data Manipulation Language (DML),
	3rd	SQL Basics: Data Definition Language (DDL) and Data Manipulation Language (DML),

7th	1st	SQL Queries: Create, Alter, Drop, Insert, Update, Delete
	2nd	SQL Queries: Create, Alter, Drop, Insert, Update, Delete
	3rd	Basic and Advanced Queries: Filtering, Sorting, Aggregate Functions, and Group By,
8th	1st	Basic and Advanced Queries: Filtering, Sorting, Aggregate Functions, and Group By,
	2nd	Joins: Inner, Outer, Left, Right, and Cross Joins
	3rd	**Database Design and Normalization:** Data Redundancy and Anomalies
9th	1st	Data Redundancy and Anomalies,
	2nd	Functional Dependencies
	3rd	Normal Forms: 1NF, 2NF, 3NF, and BCNF
10th	1st	Normal Forms: 1NF, 2NF, 3NF, and BCNF
	2nd	Decomposition of Relations
	3rd	Decomposition of Relations
11th	1st	**Quiz**
	2nd	**Database Transaction Management and Concurrency Control:** Transactions: Properties (ACID), States, and Schedules, Serializability and Recoverability, Concurrency Control: Locks, Deadlocks, and Timestamp Ordering.
	3rd	Database Transaction Management
12th	1st	Concurrency Transactions: Properties (ACID), States, and Schedules, Serializability and Recoverability
	2nd	Concurrency Transactions: Properties (ACID), States, and Schedules, Serializability and Recoverability
	3rd	Concurrency Control: Locks, Deadlocks, and Timestamp Ordering

13th	1st	Concurrency Control: Locks, Deadlocks, and Timestamp Ordering
	2nd	Concurrency Control: Locks, Deadlocks, and Timestamp Ordering
	3rd	**Quiz**
14th	1st	**Database Administration and Security Management:** User Management in DBMS,
	2nd	Privileges and Roles, Backup and Recovery,
	3rd	Database Security: Authentication, Authorization, and Data Encryption
15th	1st	Database Security: Authentication, Authorization, and Data Encryption
	2nd	**Revision and Discussion of Question Answer.**
	3rd	**Previous year Question Discussion.**

Maheswari Samal

Signature of faculty