

Lesson Plan for Even Semester (2024-25)
Teacher: Radha Singh
B. Sc. Physical Science (Major in Computer Science) - 4th Semester
CC - 4 MCC - 6
Data Management with DBMS (B23 - CSE - 401)

Week	Sub-topics
1	Introduction to Data and DBMS: Data, Information, Records, Files, Schema, Instance, DBMS Functions, Components, Interfaces
2	Database Approach & Architecture: Limitations of File-Based Approach, Characteristics of Database Approach, 1-Tier, 2-Tier, Three-Tier Architecture
3	Database Users & Administration: Roles and Responsibilities of DBA, Database Designers, Application Developers
4	Data Models: Hierarchical, Network, Relational Data Models
5	Entity-Relationship Model (ER Model): Entity, Entity Sets, Attributes, Keys, Integrity Constraints, ER Diagram Notations
6	Structured Query Language (SQL) - Part 1: SQL Basics, Data Types, SQL Components - DDL, DML, DCL, DQL
7	Structured Query Language (SQL) - Part 2: Basic Queries, Join Operations, Sub-queries, Views, Indexing
8	Constraints & Implementation in SQL: Constraints - Primary Key, Foreign Key, Unique, Not Null, Check
9	Relational Algebra: Select, Project, Join, Union, Intersection, Difference, Cartesian Product
10	Relational Calculus: Tuple Relational Calculus, Domain Relational Calculus, Relational Algebra vs. Relational Calculus
11	Relational Model & Functional Dependency: Characteristics, Inference Rules, Types of Functional Dependency
12	Normalization & Normal Forms: 1NF, 2NF, 3NF, BCNF, Multi-valued Dependencies, 4NF, 5NF, Domain Key Normal Form
13	Practicum - SQL Queries: Table Creation, Data Insertion, Selection, Filtering, Sorting, Aggregate Functions
14	Presentation
15	Mid-term/Sessional Test (Internal Assessment) & Doubt Clearing

Lesson Plan for Even Semester (2024-25)
Teacher: Radha Singh
B. Sc. Physical Science-Voc - 4th Semester
Software Testing (B23-VOC-216)

Week	Sub-topics
1	Introduction to Software Testing: Definition, Role, and Importance of Software Testing
2	Key Concepts: Failure, Error, Fault, Defect, Bug, Goals, and Principles of Testing
3	Software Testing Life Cycle (STLC): Phases and Activities
4	Verification and Validation: V-Testing Life Cycle
5	Black Box Testing: Overview, Techniques - Boundary Value Analysis, Equivalence Class Testing, Decision Table
6	White Box Testing: Overview, Need, Classification, Structural Techniques - Coverage, Path Testing
7	Unit Testing & Integration Testing: Overview, Techniques - Graph-based & Path-based
8	Functional Testing & System Testing: Overview, Categories - Reliability, Security, Performance, Recovery
9	Acceptance Testing: Overview, Types of Acceptance Testing
10	Test Planning: Preparing a Test Plan, Scope Management, Test Approach, Setting Up Criteria
11	Test Management: Responsibilities, Staffing, Training Needs, Resource Requirements, Test Deliverables, Testing Tasks
12	Practicum - Project Work: Preparing SRS, Design, Coding, and Test Plan
13	Testing Tools Study: WinRunner, TestDirector, and Other Testing Tools
14	Presentation
15	Mid-term/Sessional Test (Internal Assessment) & Doubt Clearing

Lesson Plan for Even Semester (2024-25)
Teacher: Radha Singh
BCA - 4th Semester
Front-end Development (B23-CAP-402)

Week	Sub-topics
1	Introduction to Objects in JavaScript: Types of objects, Creating objects, Object methods
2	Constructor Function & Prototype in JavaScript: Inheritance using prototype chain
3	Regular Expressions in JavaScript: Usage, Modifiers, Patterns, Methods, String methods for RegExp, Type conversion
4	JavaScript Event Handling: Event handler, Event flow, Event bubbling and capturing, Event listeners, Event types
5	Document Object Model (DOM): Introduction, Types, Standards, Methods, Manipulating documents
6	Advanced DOM Handling: Handling images, Table manipulation, Animation, Node and Node-list handling
7	Browser Object Model (BOM): Introduction, Differences from DOM, Window object and methods
8	BOM Components: BOM navigator, BOM history, BOM location, BOM timer
9	Cookies & Form Handling: Introduction to Cookies, Session and persistent cookies, Forms object, Accessing and validating form data
10	Validation & Additional Features in Forms: Form processing, Validation APIs, Enhancing user input handling
11	Introduction to jQuery: jQuery Syntax, Selectors, Events
12	jQuery Effects & DOM Manipulation: jQuery HTML, Traversing, AJAX, jQuery Misc
13	Practicum - JavaScript Projects: Webpage design, Event listeners, Dynamic updates using AJAX
14	Presentation
15	Mid-term/Sessional Test (Internal Assessment) & Doubt Clearing

Lesson Plan for Even Semester (2024-25)
Teacher: Radha Singh
B. Sc. Life Science-Voc - 4th Semester
Software Testing (B23-VOC-216)

Week	Sub-topics
1	Introduction to Software Testing: Definition, Role, and Importance of Software Testing
2	Key Concepts: Failure, Error, Fault, Defect, Bug, Goals, and Principles of Testing
3	Software Testing Life Cycle (STLC): Phases and Activities
4	Verification and Validation: V-Testing Life Cycle
5	Black Box Testing: Overview, Techniques - Boundary Value Analysis, Equivalence Class Testing, Decision Table
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