

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY (CHARUSAT)
FACULTY OF TECHNOLOGY AND ENGINEERING (FTE)
SUBJECT: WEB DEVELOPMENT FRAMEWORKS (ITUE203)
SEMESTER: 3RD, 2025-26 (ODD)
PRACTICAL LIST

Practical Number	Title	CO/PO
1	<p>Problem Definition: Initiate the “Project Title” by defining scope, key pages (min. 10), and layout with HTML skeletons.</p> <p>Key Questions / Analysis / Interpretation:</p> <ol style="list-style-type: none"> 1. What pages and features should be included in the student portal? 2. How will navigation and page flow be structured? 3. What are the user roles (e.g., admin, student)? <p>Supplementary Problems: Create a sitemap and navigation design.</p> <p>Key Skills to be addressed: Requirement analysis, wireframing, HTML5 semantic layout</p> <p>Applications: Web application planning, portal design</p> <p>Learning Outcome: Students will be able to identify system requirements and create a foundational HTML structure.</p> <p>Dataset/Test Data: N/A (Design and logic only)</p> <p>Tools/Technology To Be Used: VS Code, HTML5, Draw.io/Figma</p> <p>Total Hours: Implementation – 4 hours Total Engagement – 6 hours</p> <p>Post Laboratory Work Description: Documentation of requirements and static HTML layout</p> <p>Evaluation Strategy Including Viva: Wireframe review, role explanation, and page structure analysis</p> <p>Feedback on Problem Definition Implementation (Satisfaction Level 0 to 4, where 0 is lowest, 1 is poor, 2 is average, 3 is good, 4 is excellent) (This can be asked for group of practical belongs to same tool/concept/technology)</p> <p>Advanced/Intermediate Extension: Intermediate: Create a responsive wireframe using Figma Advanced: Create ER diagram & REST API route plan for backend design</p>	CO1
2	<p>Problem Definition: Design a fully responsive layout for the portal home, about, and registration pages using CSS and Flexbox/Grid.</p> <p>Key Questions:</p> <ol style="list-style-type: none"> 1. How does layout change with screen size? 2. Which layout approach is used and why? 3. Are color schemes and fonts readable and user-friendly? <p>Supplementary Problems: Theme switcher using CSS variables</p>	CO2

	Key Skills: CSS Flexbox, media queries, page layout Applications: Multi-device support for UI Learning Outcome: Students will design a user-friendly and responsive UI.	
	Dataset/Test Data N/A (UI design only)	
	Tools/Technology: HTML5, CSS3	
	Total Hours: Implementation – 5 hours Total Engagement – 6 hours	
	Post Laboratory Work: Create and test responsive views for key pages	
	Evaluation Strategy: UI responsiveness check and CSS technique analysis	
	Advanced/Intermediate Extension: Intermediate: Create 2 additional pages (e.g., Contact, Feedback) Advanced: Convert one page to use templating via JavaScript (Handlebars or JS include)	
3	Problem Definition: Create a user registration page with frontend validation using HTML5 and JavaScript. Key Questions: <ol style="list-style-type: none"> 1. Are all input types correctly used? 2. Is JavaScript validation effective and user-friendly? 3. Are errors appropriately handled? Supplementary Problems: Password strength meter Key Skills: HTML forms, JS form validation Applications: Registration, data entry systems Learning Outcome: Students will be able to design accessible and validated forms. Dataset/Test Data: Sample registration details	CO1, CO3
	Tools/Technology: HTML5, JavaScript (ES6+)	
	Total Hours: Implementation – 5 hours Total Engagement – 6 hours	
	Post Laboratory Work: Submit form with validations, screenshot with test cases	
	Evaluation Strategy: Code inspection, validation demo Advanced/Intermediate Extension: Intermediate: Add side navigation menu (hamburger toggle) Advanced: Build responsive layout using Bootstrap or Tailwind CSS	

4	<p>Problem Definition: Create dynamic content such as collapsible FAQs, popups, and sliders in portal pages.</p> <p>Key Questions:</p> <ol style="list-style-type: none"> 1. How is the DOM selected and manipulated? 2. Are events and listeners properly handled? 3. How is interactivity enhancing usability? <p>Supplementary Problems: Create notification popup banner</p> <p>Key Skills: DOM, Event Handling</p> <p>Applications: Interactive UIs, dynamic dashboards</p> <p>Learning Outcome: Students will apply JavaScript for enhancing user experience.</p> <p>Dataset/Test Data: Static JSON for events or FAQs</p> <p>Tools/Technology: JavaScript (ES6+), HTML/CSS</p> <p>Total Hours: Implementation – 6 hours Total Engagement – 7 hours</p> <p>Post Laboratory Work: Testing of dynamic modules on different pages</p> <p>Evaluation Strategy: Live demo and source code walkthrough</p> <p>Advanced/Intermediate Extension: Intermediate: Add animation transitions to cards/buttons Advanced: Implement CSS theme switcher (light/dark mode)</p>	CO3, CO4
5	<p>Problem Definition: Display events list and student profiles using object arrays and JSON parsing.</p> <p>Key Questions:</p> <ol style="list-style-type: none"> 1. How is JSON parsed and displayed? 2. What methods are used to manipulate arrays? 3. How is modularity maintained? <p>Supplementary Problems: Create pagination logic for JSON data</p> <p>Key Skills: Objects, JSON, loops</p> <p>Applications: Dynamic data rendering</p> <p>Learning Outcome: Students will understand modular JS and data handling.</p> <p>Dataset/Test Data: JSON with mock student/event data</p> <p>Tools/Technology: JavaScript, JSON, HTML5</p> <p>Total Hours: Implementation – 6 hours Total Engagement – 8 hours</p> <p>Post Laboratory Work: Integrate JSON with dynamic tables/lists</p>	CO3, CO4

	Evaluation Strategy: Console testing and JSON parsing questions Advanced/Intermediate Extension: Intermediate: Add country/state select with dependent dropdowns Advanced: Integrate reCAPTCHA or create a custom CAPTCHA using Canvas	
6	Problem Definition: Store submitted registration data in a PHP file and confirm submission. Key Questions: <ol style="list-style-type: none"> 1. Are POST/GET methods used correctly? 2. How is data stored and displayed? 3. Are user inputs sanitized? Supplementary Problems: Create a simple success/error response page Key Skills: PHP POST/GET, input sanitization Applications: Form-based applications Learning Outcome: Students will create a working backend form processor	CO1, CO5
	Dataset/Test Data: Registration test inputs	
	Tools/Technology: PHP, XAMPP	
	Total Hours: Implementation – 6 hours Total Engagement – 8 hours	
	Post Laboratory Work: Code explanation and XAMPP test case	
	Evaluation Strategy: Form walkthrough and backend validation Advanced/Intermediate Extension: Intermediate: Add “Remember Me” functionality with expiration Advanced: Create client-side token system using JWT-like approach	
7	Problem Definition: Create a login/logout system with session & cookie handling Key Questions: <ol style="list-style-type: none"> 1. Is the session securely started and terminated? 2. Are cookies correctly managed? 3. Is redirection based on login status implemented? Supplementary Problems: Remember-me checkbox with cookies Key Skills: Sessions, Cookies, Authentication Applications: Secure web apps Learning Outcome: Students will implement user sessions in PHP	CO1, CO5
	Dataset/Test Data: Username/password combinations	
	Tools/Technology: PHP, Browser dev tools	

	Total Hours: Implementation – 6 hours Total Engagement – 8 hours	
	Post Laboratory Work: Login/logout test screenshots	
	Evaluation Strategy: Session inspection, cookie check	
	Advanced/Intermediate Extension: Intermediate: Implement sorting and filtering of event rows Advanced: Use external JSON and render dynamically with pagination	
8	Problem Definition: Connect the portal with MySQL to store and retrieve user/event data Key Questions: <ol style="list-style-type: none"> 1. Is the connection established securely? 2. Are insert, select, and update operations working? 3. Is error handling in place? Supplementary Problems: Show the latest 5 events on the dashboard using LIMIT Key Skills: PHP-MySQL, CRUD, SQL queries Applications: Any data-driven system Learning Outcome: Students will integrate DB into dynamic sites	CO1, CO5
	Dataset/Test Data: SQL Dump (provided)	
	Tools/Technology: MySQL, PHP, phpMyAdmin	
	Total Hours: Implementation – 6 hours Total Engagement – 8 hours	
	Post Laboratory Work: Database dump submission	
	Evaluation Strategy: DB query viva, result output testing	
9	Problem Definition: Submit form data using PHP and store it in a text file Key Questions: <ol style="list-style-type: none"> 1. Is the form submitted using POST? 2. Is input validated/sanitized? 3. Is the confirmation message displayed? Supplementary Problems: Store in CSV format Key Skills: PHP forms, file writing Applications: Form processors Learning Outcome: Use PHP to collect/store data	CO1, CO5
	Dataset/Test Data: Form inputs	
	Tools/Technology: PHP, XAMPP	

	Total Hours of Implementation: 4 Total Engagement: 6	
	Post Lab: Demo file writes	
	Evaluation Strategy: Show form submission trace	
	Advanced/Intermediate Extension: Intermediate: Store records in structured format (CSV) Advanced: Store data as JSON file and display it on a webpage dynamically	
10	Problem Definition: Build a login system with sessions, logout, and a protected dashboard Key Questions: <ol style="list-style-type: none"> 1. Are sessions securely started/stopped? 2. Are users redirected after login? 3. Is session persistence maintained? Supplementary Problems: Add session timeout Key Skills: Sessions, login, redirection Applications: Auth backend Learning Outcome: Secure user login session	CO1, CO5
	Dataset/Test Data: Dummy user DB	
	Tools/Technology: PHP, XAMPP	
	Total Hours of Implementation: 5 Total Engagement: 6	
	Post Lab: Log in demo with access control	
	Evaluation Strategy: Session handling questions	
	Advanced/Intermediate Extension: Intermediate: Implement basic role-based access (e.g., admin vs user) Advanced: Add session timeout or last login tracker	
11	Problem Definition: Store and retrieve student data from MySQL DB Key Questions: <ol style="list-style-type: none"> 1. Are SQL queries, correct? 2. Are insert, select, and delete working? 3. Is the DB schema normalized? Supplementary Problems: Add search by name Key Skills: PHP-MySQL, SQL Applications: Dynamic DB apps Learning Outcome: Create a data-driven page	CO1, CO5
	Dataset/Test Data: SQL file with students	

	Tools/Technology: MySQL, PHP	
	Total Hours of Implementation: 5 Total Engagement: 6	
	Post Lab: SQL dump + UI demo	
	Evaluation Strategy: DB output and schema check	
	Advanced/Intermediate Extension: Intermediate: Add filter/search functionality on student list Advanced: Use prepared statements with PDO for secure DB queries	
12	Problem Definition: Create a full CRUD for managing events with the DB Key Questions: <ol style="list-style-type: none"> 1. Are they adding, update, and delete functionalities, correct? 2. Is UI linked with DB correctly? 3. Are success/failure messages shown? Supplementary Problems: Add event status (open/closed) Key Skills: PHP, MySQL, CRUD Applications: Admin tools Learning Outcome: Develop a complete CRUD module	CO1, CO5
	Dataset/Test Data: Events SQL dump	
	Tools/Technology: PHP, MySQL	
	Total Hours of Implementation: 5 Total Engagement: 6	
	Post Lab: CRUD demo	
	Evaluation Strategy: Code + live test Advanced/Intermediate Extension: Intermediate: Add file upload for event posters Advanced: Use AJAX (Vanilla or jQuery) to perform CRUD without reloading	
13	Problem Definition: Implement validation, sanitization, and password hashing Key Questions: <ol style="list-style-type: none"> 1. Is password_hash() used correctly? 2. Are form inputs validated on both ends? 3. Are SQL injections prevented? Supplementary Problems: Add a CAPTCHA field Key Skills: Validation, security, SQL Applications: Secure user registration/login Learning Outcome: Implement secure backend logic	CO1, CO3, CO5

	Dataset/Test Data: Login form	
	Tools/Technology: PHP, SQL	
	Total Hours of Implementation: 4 Total Engagement: 5	
	Post Lab: Secure form submission test	
	Evaluation Strategy: Code inspection + injection tests	
	Advanced/Intermediate Extension: Intermediate: Add front-end validation using Regex Advanced: Implement SQL injection prevention and audit logging	
14	Problem Definition: Develop an admin dashboard to view/manage users Key Questions: <ol style="list-style-type: none"> 1. Are users listed dynamically from the DB? 2. Are delete/update actions working? 3. Is access restricted to the admin? Supplementary Problems: Add user status (active/inactive) Key Skills: Admin logic, role-based access Applications: Content/user moderation Learning Outcome: Build a role-based admin UI	CO1, CO4, CO5
	Dataset/Test Data: DB with multiple users Tools/Technology: PHP, MySQL Total Hours of Implementation: 4 Total Engagement: 6 Post Lab: Admin demo Evaluation Strategy: Access control validation Advanced/Intermediate Extension: Intermediate: Add active/inactive status toggle with DB update Advanced: Use session role management and dynamic menu loading	
15	Problem Definition: Integrate all modules into a single deployable “Project Title” Portal Key Questions: <ol style="list-style-type: none"> 1. Are all pages properly linked and navigable? 2. Are sessions and DB working end-to-end? 3. Are validations and security features integrated? Supplementary Problems: Add an analytics dashboard Key Skills: Full-stack integration Applications:	CO2, CO4, CO5

	Deployable web apps Learning Outcome: Deliver a complete, secure web application	
	Dataset/Test Data: The entire semester project data	
	Tools/Technology: All technologies used	
	Total Hours of Implementation: 6 Total Engagement: 8	
	Post Lab: Full demo + documentation	
	Evaluation Strategy: Holistic viva, performance test	
	Advanced/Intermediate Extension: Intermediate: Deploy project locally with Apache Virtual Hosts Advanced: Push project to GitHub and deploy on free hosting (e.g., Render, Vercel with static frontend + backend)	