Subject Code	Subject Name	Period per Week			Credit
28566	**Web Development Project**	**T**	**P**		**C**
		0	**3**		**1**

Rationale	This is an occupational-specific subject in the curriculum for diploma in engineering courses required to enable the graduate to use and work with ICT competently. It includes web technology and industry requirements, UI/UX and markup language, Responsive website, and framework, Client-side scripting language and framework, server-side scripting language and framework, data manipulation language, Content Management System (CMS), E-commerce, domain and hosting, web security, and Search Engine Optimization(SEO). This will ensure the successful completion of intricate web development projects. Additionally, they will develop competencies in project management, collaborative teamwork, and problem-solving.
Learning Outcome	**After undergoing the subject, students will be able to:** 1. Prepare project proposal 2. Plan projects 3. Allocate resource of a project 4. Prepare timeline of a project 5. Develop a project 6. Evaluate the project 7. Perform collaboration and documentation of a project.

List of the projects:

At least one project should be chosen by a particular group (Not limited to):

- Library Management System
- Student Result Management System
- Institute Management System
- Ticket Booking System
- Hotel Management System
- E-commerce with Inventory Management System
- Hospital Management System
- Learning Management System
- Accounts Management System
- Content Management System
- Attendance Management System
- Any other online system that will provide solutions for practical situations.

DETAILED SYLLABUS (PRACTICAL)

SL.	EXPERIMENT NAME	Class (3 Period)	Marks (Continuous)
1	**Prepare concept paper for the project** 1.1 Identify the projects. 1.2 Select the projects from list of the project. 1.3 Assess technical, operational, and economic feasibility. 1.4 Identify potential risks and mitigation strategies. 1.5 Interpret project concept paper 1.6 Prepare project concept paper	1	2
2	**Develop a plan of the project** 2.1 Conduct interviews, surveys, and research to gather user and system requirements. 2.2 Illustrate the scope and features of the Project. 2.3 Identify technologies, tools, and frameworks for development. 2.4 Develop a technical architecture and infrastructure plan. 2.5 Allocate human resources, including roles and responsibilities. 2.6 Prepare plans for hardware, software, and other resources. 2.7 Develop a detailed project schedule with major milestones. 2.8 Identify dependencies and potential risks. 2.9 Prepare estimates, project costs for development, testing, and deployment. 2.10 Develop a budget plan.	1	2
3	**Design the Project** 3.1 Create a detailed system design based on requirements. 3.2 Develop wireframes and mockups for user interfaces. 3.3 Prepare the Data Flow Diagram(DFD) of the proposed system. 3.4 Prepare Entity Relationship Diagram(ERD) of the Project. 3.5 Design the database schema and relationships. 3.6 Prepare plans for data storage and retrieval. 3.7 Interpret the overall system architecture. 3.8 Prepare plans for scalability and maintainability. 3.9 Develop the Graphical User Interface (GUI) elements.	2	3
4	**Write program code for the project** 4.1 Implement the user interfaces based on the design. Use HTML, CSS (Bootstrap), and JavaScript, possibly with a frontend framework (e.g., React or Vue). 4.2 Develop the server-side logic. e.g., Nodejs (Express.js), PHP (Laravel, CodeIgniter), Python(Django), CMS(WordPress). 4.3 Implement database interactions and server functionalities. 4.4 Apply SEO techniques to the project. 4.5 Integrate frontend and backend components. 4.6 Conduct testing during integration to identify and fix issues. 4.7 Setup version control system (Git, SVN) to manage code. 4.8 Apply project management tools like Jira, Asana, Trello etc.	3	6

SL.	EXPERIMENT NAME	Class (3 Period)	Marks (Continuous)
5	**Test and debug of the project** 5.1 Test individual components and functions. (PHPUnit, Mocha, Pytest, Selenium, Apache JMeter) 5.2 Apply automated testing tools. 5.3 Verify the interactions between different modules. 5.4 Test data flow and system behavior. 5.5 Conduct testing with actual users to ensure the system meets with expectations. 5.6 Gather feedback for improvements. 5.7 Identify and fix any issues during testing.	2	2
6	**Deploy the project** 6.1 Select Domain and Perform Hosting. 6.2 Configure the production server and database. 6.3 Set up security measures. 6.4 Migrate data from the development environment to the production environment. 6.5 Conduct a final round of testing in the production environment. 6.6 Ensure all functionalities work as expected. 6.7 Deploy the Project to the live environment. 6.8 Monitor for any issues during and after deployment. 6.9 Provide support for users and address any issues that arise post-deployment.	2	2
7	**Perform the maintenance and monitoring of the project** 7.1 Implement monitoring tools to track system performance. 7.2 Optimize as needed for improved efficiency. 7.3 Provide ongoing support for users. 7.4 Identify bugs or issues that arise. 7.5 Implement updates and enhancements based on user feedback and changing requirements. 7.6 Plan for future iterations or releases.	1	2
8	**Prepare project documentation** 8.1 Complete all documentation, including technical documentation and user manuals. 8.2 Conduct a project review to evaluate successes, challenges, and lessons learned. 8.3 Obtain client or user acceptance. 8.4 Prepare a project closure report summarizing the entire project life cycle. 8.5 Submit the project document 8.6 Present the project with power point presentation 8.7 Display the project outcome. 8.8 Archive project documentation for future reference.	2	2
9	**Review the project for future plan** 9.1 Review the project 9.2 Identify the Limitation of the project 9.3 Prepare further development plans if essential	1	2

SL.	EXPERIMENT NAME	Class (3 Period)	Marks (Continuous)
10	**Prepare a project summary** 10.1 Check the output based on objectives 10.2 Demonstrate technical proficiency 10.3 Adhere to best practice 10.4 Develop team effort 10.5 Ready for deployment 10.6 Develop learning experience	1	2
	Total	**16**	**25**

NECESSARY RESOURCES (TOOLS, MATERIALS, EQUIPMENTS AND MACHINERIES):

SL	Item Name	Quantity
1	Computer	As per required
2	Software	As per required
3	Hardware tools	As per required
4	Internet Connection	As required

WEBSITE REFERENCES:

SL	Web Link	Remarks
1	https://figma.com	UI Design
2	https://www.google.com	Search here with given link
3	https://www.youtube.com	Search here with topics
4	https://www.smartdraw.com	For DFD design
5	https://code.visualstudio.com	Code Editor
6	https://www.apachefriends.org/download.html	PHP, MySQL(MariaDB)
7	https://www.djangoproject.com	For Python Stack
8	https://phpunit.de	PHP Unit
9	https://www.000webhost.com	Free Domain and Hosting

RECOMMENDED BOOKS:

SL	Book Name	Writer Name	Publisher Name & Edition
1	Beginning HTML, XHTML, CSS, and JavaScript	Jon Duckett	Wrox **1st Edition**
2	Beginning PHP, Apache, MySQL Web Development	Michael K. Glass, Yann Le Scouarnec, Elizabeth Naramore, Gary Mailer, Jeremy Stolz, Jason Gerner	Wrox **1st Edition**
3	Beginning JavaScript and CSS Development with jQuery	Richard York	Wrox 1st Edition
4	Web Engineering	Gerti Kappel, Birgit Proll, Siegfried Reich, Werner Retschitzegger	John Wiley & Sons