

Title (Units): **COMP7270 Web and Mobile Programming (3,2,1)**

Course Aims: To equip students with essential knowledge to design and implement web and mobile applications for data acquisition, storage and visualization.

Prerequisite: Postgraduate Student Standing

Course Intended Learning Outcomes (CILOs):

Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Explain the knowledge of web standards including markup languages, stylesheets and scripts
2	Explain the knowledge of web protocols and options in data transaction over networks
3	Explain the knowledge of software architectures and components of web and mobile applications
	Professional Skill
4	Design and implement a web application for presenting and managing a data-driven system
5	Design and implement a mobile application for presenting and managing a data-driven system

Calendar Description: To equip students with essential knowledge to design and implement web and mobile applications for data acquisition, storage and visualization.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1-3	Lectures are conducted to teach concepts, programming techniques, and database techniques for web and mobile application development. They provide theoretical knowledge and foundational understanding of the subject matter.
4-5	Laboratory sessions are hands-on practical sessions conducted in computer labs. Students can apply their knowledge and skills acquired from lectures and tutorials to work on exercises, experiments, and projects related to web and mobile application development.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Assignments and quizzes	40%	1-5	The assignments and in-class quizzes aim to assess students' understanding of concepts, programming techniques, and database skills required for developing web and mobile applications. The assignments will provide students with practical tasks to demonstrate their knowledge and application of these concepts.
2	Group Project	20%	1-5	The group project serves as an evaluation of students' acquisition of knowledge and software skills related to web and mobile application development. This project will require students to collaborate in teams to design and implement a web or mobile application, showcasing their ability to apply the learned concepts in a real-world context.
3	Examination	40%	1-5	The final examination is designed to assess the extent to which students have achieved their intended learning outcomes. The examination will primarily consist of analysis and skills-based questions, evaluating students' ability to apply their knowledge to web and mobile application development. The exam will test their understanding of the course material and their proficiency in practical application.

Assessment Rubrics:

Excellent (A)	<ul style="list-style-type: none"> • Achieve all CILOs, demonstrating an excellent mastery of both the theoretical and practical aspects of the knowledge and skills in web and mobile application development. • Able to apply a variety of techniques and relevant knowledge for solving problems in web and mobile application development.
Good (B)	<ul style="list-style-type: none"> • Achieve most of the five CILOs, demonstrating a good understanding of the knowledge and skills in web and mobile application development- • Ability to make use of appropriate techniques and knowledge and apply them to web and mobile application development.
Satisfactory (C)	<ul style="list-style-type: none"> • Achieve some of the five CILOs, demonstrating a basic level of understanding of the knowledge and skills in web and mobile application development. • Ability to make use of some techniques and knowledge and apply them to web and mobile application development.
Fail (F)	<ul style="list-style-type: none"> • Achieve none of the five CILOs, with little understanding of the associated concepts and underlying techniques • Unable to apply techniques and knowledge to situations or problems in web and mobile application development

Course Content and CILOs Mapping:

Content		CILO No.
I	Getting Started with Webpage Development	1, 4
II	Web Application Development	1-4
III	Mobile Application Development	2-5
IV	Selected Topics in System Development	2-5

References:

- B. Frain, Responsive Web Design with HTML5 and CSS: Build future-proof responsive websites using the latest HTML5 and CSS techniques, 4th ed. Birmingham, England: Packt Publishing, 2022.
- E. Brown, Web development with node and express: Leveraging the JavaScript stack, 2nd ed. Sebastopol, CA: O' Reilly Media, 2019.
- M. Shavin, R. Camden, C. Gurney, and H. Di Francesco, Frontend Development Projects with Vue.js 3: Learn the fundamentals of building scalable web applications and dynamic user interfaces with Vue.js, 2nd ed. Birmingham, England: Packt Publishing, 2023.
- J. Au-Yeung, Vue.js 3 By Example: Blueprints to learn Vue web development, full-stack development, and cross-platform development quickly. Birmingham, England: Packt Publishing, 2021.

Course Content:**Topic**

- I. Getting Started with Webpage Development
 - A. HTML and CSS
 - B. Responsive web design
 - C. Document object model (DOM) and client-side JavaScript
- II. Web Application Development
 - A. Hypertext Transfer Protocol (HTTP)
 - B. Server-side programming
 - C. Document oriented database
 - D. AJAX techniques and Restful web services
- III. Mobile Application Development

- A. Front-end JavaScript framework, such as Vue.js
 - B. Hybrid mobile application development
 - C. Software architecture patterns
- IV. Selected Topics in System Development
- A. Version control system for software development
 - B. Basic data visualization for web and mobile platforms
 - C. Usage of pre-trained AI models on web and mobile applications