



Course Specification

(Bachelor)

Course Title: **Mobile and Web Application Engineering**

Course Code: **SE3104**

Program: **BSc in Software Engineering**

Department: **Software Engineering**

College: **College of Computing**

Institution: **Umm Al Qura University**

Version: **1.0**

Last Revision Date: **22/04/2025**



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A. General information about the course:

1. Course Identification

1. Credit hours: (3)

2. Course type

- A. University College Department Track Others
- B. Required Elective

3. Level/year at which this course is offered: (3rd year/ 5th level)

4. Course General Description:

This course provides a comprehensive overview of the principles, techniques, and tools required to design, develop, and maintain modern web and mobile applications. It emphasizes both client-side and server-side development, focusing on usability, scalability, security, and performance. Students will gain practical skills in building responsive web and mobile applications using modern frameworks and technologies, integrating APIs, and implementing database-driven dynamic content. The course also explores web standards, accessibility, testing, and deployment strategies for web applications.

5. Pre-requirements for this course (if any):

SE2301 - Software Modelling and Analysis

6. Co-requisites for this course (if any):

7. Course Main Objective(s):

Upon successful completion of this course, you will be able to:

1. Provide students with a comprehensive understanding of web application development principles, including usability, scalability, security, and performance.
2. Develop students' skills in designing and implementing both client-side and server-side components using modern frameworks and technologies.
3. Equip students with practical knowledge of integrating APIs, database management, and deployment strategies to build robust web applications.
4. Emphasize the importance of web standards, accessibility, testing, and secure practices in web application engineering.

2. Teaching mode (mark all that apply)



No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	0	0
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	0
4.	Tutorial	0
5.	Others (specify)	0
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Explain the fundamental principles of web engineering, including the web development lifecycle, standards, and protocols.	K1	Lecture, Exercise	Quiz, Exams, Assignments
1.2	Understand client-side and server-side development technologies and their integration.	K1	Lecture, Exercise	Quiz, Exams, Assignments
2.0	Skills			
2.1	Develop responsive and accessible user interfaces	S1	Lecture, Exercise	Quiz, Exams, Assignments





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	using modern client-side frameworks			
2.2	Implement server-side logic and APIs using frameworks	S2	Lecture, Exercise	Quiz, Exams, Assignments
2.3	integrate databases with web applications and manage data securely.	S3	Lecture, Exercise	Quiz, Exams, Assignments
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate responsibility in deploying scalable and secure web applications that meet user needs.	V1	Group projects, role-playing as stakeholders	Group project reports, peer evaluations

C. Course Content

No	List of Topics	Contact Hours
1.	Web Development lifecycle and Web standards	4
2.	HTML, CSS, JavaScript	8
3.	Frontend development Frameworks (pick one: Angular, React, Vue, Flutter, or else)	8
4.	Backend development Frameworks (pick one: Spring Boot, Node.js or else..)	8
5.	Webservices, RESTful APIs and WebSocket	8
6.	Android development fundamentals	8
7.	Android User interface and layouts	4
8.	Android Lists and adapters	4
9.	Modern mobile Development Frameworks , APIs and Libraries	8
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes/ Assignments	2-14	20
2.	Projects	2-14	10



No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
4.	Lab	2-14	10
5.	Midterm	7	20
6.	Final Exam	16-17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ul style="list-style-type: none"> Ackermann, P. (2023). <i>Full stack web development: A comprehensive, hands-on guide to building modern websites and applications</i>. Rheinwerk Computing. ISBN 978-1493224371.
Supportive References	<ul style="list-style-type: none"> Agarwal, S., & Gupta, V. (2022). <i>Java for web development: Create full-stack Java applications with servlets, JSP pages, MVC pattern, and database connectivity</i>. BPB Publications. ISBN 978-9355511430.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional Classroom
Technology equipment (projector, smart board, software)	Multimedia Projector
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct, Indirect
Effectiveness of Students' assessment	Faculty, Peer reviewer	Direct, Indirect
Quality of learning resources	Faculty, Course coordinator	Direct, Indirect
The extent to which CLOs have been achieved	Course coordinator, Program management committee	Direct





Other

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	SOFTWARE ENGINEERING DEPARTMENT COUNCIL
REFERENCE NO.	THE 17 TH MEETING FOR THE ACADEMIC YEAR 1446H
DATE	22/04/2025

