



Course Specification

— (Bachelor)

Course Title: **Mobile application development**

Course Code: **CS1510**

Program: **Level 9**

Department: **Computer Science and Engineering**

College: **Computer Science and Information Technology**

Institution: **Albaha University**

Version: **1**

Last Revision Date: **8-10-2023**



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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: (90th Level/ 4th year)

4. Course general Description:

The course will introduce students to mobile computing and mobile application development. Mobile computing will be discussed from three perspectives: mobile technology, application development, and user interaction. The course will first overview various mobile computing applications, technologies, and wireless communication. Next, students will learn about common paradigms in mobile computing. Students will be introduced to use mobile application frameworks and development environments to reinforce concepts covered in lectures. User interface and user experience will be discussed and application development guidelines from various vendors will be discussed and analyzed. Lastly, the course will look at some current research in mobile computing.

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

Advanced Programming (CS10301)

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

7. Course Main Objective(s):

The main purpose for this course is to:

- Describe mobile computing systems and applications: Native, Hybrid, Web Apps.
- Use Android IDEs and API effectively in Android applications: Implement, test and debug Android application.
- Analyze and design Activity's layout, views, view groups, widgets for building a user interface.
- List and describe Event Handling in UI with both XML and JAVA code solutions.
- Explain techniques to build Android application, Application Components, activities, services, broadcast receivers and content providers.
- Write, extend and adapt programs that handle input-output including the following: Files, On-device databases (SQLite)., External content providers.
- Write, extend and adapt programs that handle distant database: Firebase.



2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	22	50%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning	22	50%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe mobile computing systems and applications	K1	Lectures	<ul style="list-style-type: none"> • Midterm • Final Exam
1.2	Analyze and design Activity's layout, views, view groups, widgets for building a user interface.	K2	Lectures	<ul style="list-style-type: none"> • Midterm • Final Exam





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
...	List and describe Event Handling in UI with both XML and JAVA code solutions	K2		
2.0	Skills			
2.1	Explain the use of Android IDEs and API effectively in Android applications: Implement, test and debug Android application.	S1	<ul style="list-style-type: none"> Lectures Assignment Lab 	<ul style="list-style-type: none"> Homework Lab Work
2.2	Build Android application, Application Components, activities, services, broadcast receivers and content providers.	S2	<ul style="list-style-type: none"> Lectures Assignment Lab 	<ul style="list-style-type: none"> Midterm Homework Lab Work Project Final Exam
2.3	Develop customized applications with SQLite and Handling Communication and Web Services.	S2	<ul style="list-style-type: none"> Lectures Assignment Lab 	<ul style="list-style-type: none"> Midterm Homework Lab Work Project Final Exam
3.0	Values, autonomy, and responsibility			
3.1	Work both independently and collaboratively	V1	Course Project	Project Presentation

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Mobile Computing and Application	2
2.	Mobile Application with Android	2
3.	User interfaces (Layout)	4
4.	Apps and activities	4
5.	Events handling	4
6.	Handling and persisting data	4
7.	Handling Communication and Web Services	2
Total		22





No	List of Topics (Lab)	Contact Hours
1.	Installing the development environment and tools. First mobile App "hello world app".	2
2.	Interface and Lay-out	4
3.	Event Handling in UI	4
4.	Application components, activity lifecycle, explicit Intents, implicit Intents, and menu.	6
5.	Handling and persisting data (SQLite)	4
6.	Interaction with mobile device capabilities: Location based services, Telephone and messaging services, Multimedia platform, Sensors, firebase	2
Total		22

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework	Every two weeks	10%
2.	Lab work	11	10%
3.	Midterm Exam	6	20%
4.	Project	10	20%
5.	Final Exam	12	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	B. A. Forouzan, Data Communication and Networking, McGraw Hill, 4th Ed. M. Firtman, Programming the Mobile Web, O'Reilly Media, 2013.
Supportive References	Z. Mednieks et. al, "Programming Android," O'Reilly Media, 2012. T. Mikkonen, "Programming Mobile Devices: An Introduction for Practitioners", Wiley, 2007. A . S. Tanenbaum, Computer Networks, 6th Ed.
Electronic Materials	Access to the Saudi Digital Library (SDL). • Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/). • ACM (Association for Computer Machinery) web site - http://www.acm.org/





	<ul style="list-style-type: none"> • ACM SIGMOD (Special Interest Group on Management of Data) - http://www.sigmod.org/ • IEEE Computer Society web site - http://www.computer.org/portal/web/guest/home
Other Learning Materials	Open access course material online

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom - Laboratory
Technology equipment (projector, smart board, software)	Data show – Smart Board
Other equipment (depending on the nature of the specialty)	My SQL workshop Programming and PL/SQL Oracle 12

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> •Students •Faculty •Peer Reviewers • Program Leader •Course Coordinator 	<ul style="list-style-type: none"> •Surveys (indirect). •Direct feedback from students. •Course evaluation by Peer Reviewers (indirect). •Class visit by Program Leader (indirect) Comprehensive Course report (where we can find information about teaching difficulties and action plan, ...)
Effectiveness of Students assessment	<ul style="list-style-type: none"> •Faculty •Peer Reviewers 	<ul style="list-style-type: none"> •Surveys (indirect)
Quality of learning resources	<ul style="list-style-type: none"> •Students •Faculty •Peer Reviewers •Course Coordinator 	<ul style="list-style-type: none"> •Surveys (indirect) •Course evaluation by Peer Reviewers (indirect). Comprehensive Course report (where we can find information about difficulties and challenges about learning resources as well as consequences and action plan, ...)



Assessment Areas/Issues	Assessor	Assessment Methods
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> •Faculty •Program Leader •Course Coordinator 	<ul style="list-style-type: none"> •Student Results (direct) •Comprehensive Course report (where we can find the CLO assessment results)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

