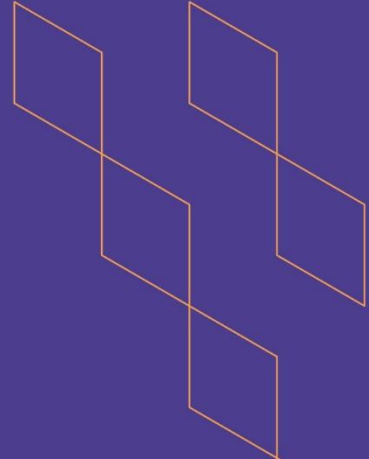T-104

2022

# Course Specification

T-104
2022

# Course Specification

Course Title: **Mobile App Development 2**

Course Code: **2335 CSA**

Program: **Web and Mobile Application Development**

Department: **NA**

College: **Applied College**

Institution: **King Khalid University**

Version: **1**

Last Revision Date: **6 August 2023**

# Table of Contents:

# A. General information about the course:

| 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:** | 4th Level |
|---|---|

**4. Course general Description:**

This course introduces the core issues associated with application development for mobile devices using the Android platform as an advance topic from the Mobile Application Development-1. Topics will also include understanding and handling of threads, multi-touch events, gestures, motion events, database connections, and drawing.

**5. Pre-requirements for this course (if any): 2334 CSA**

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

**7. Course Main Objective(s):**
- Students will learn how to make a complete mobile application.
- Students will be exposed to the Android system architecture, including Views, Widgets, Resources, Adapters, lists, Intents and Activities.
- Students will make their application dynamically by writing a java for any kind of Android widgets which include check boxes, radio buttons, toggle buttons, switches, seek bars, rating bars, Image views, and more.

## 1. Teaching mode (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1. | Traditional classroom | 64 | 100 |
| 2. | E-learning | | |
| 3. | Hybrid<br>• Traditional classroom<br>• E-learning | | |
| 4. | Distance learning | | |

## 2. Contact Hours (based on the academic semester)

| No | Activity | Contact Hours |
|---|---|---|
| 1. | Lectures | 32 |
| 2. | Laboratory/Studio | 32 |

| | | | |
|---|---|---|---|
| 3. | Field | 4 | |
| 4. | Tutorial | | |
| 5. | Others (specify) | | |
| | Total | 64 | |

## 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 | Understand a server side and how it interacts with a client side. | K2 | Lectures + Lab | Exams, Assignments, Quizzes |
| 1.2 | Identify a request and respond techniques to increase an optimization of any mobile application. | K1 | Lectures + Lab | Exams, Assignments, Quizzes |
| 1.3 | Know how to write code for all android's Palette features including form widgets, Text fields, layouts and more to make a complete dynamic project. | K2 | Lectures + Lab | Exams, Assignments, Quizzes |
| 1.4 | Design a mobile UI with java commands to make it interacted with users. | K2 | Lectures + Lab | Exams, Assignments, Quizzes |
| 2.0 | Skills | | | |
| 2.1 | Techniques to build scalable apps using MVC (Model, View Controller) | S1 | Lectures + Lab | Exams, Assignments, Quizzes |
| 2.2 | Be able to work on Mobile application from scratch to build a complete one and deploy in real device. | S1 S3 | Lectures, Lab, Group Discussion | Exams, Assignments, Quizzes |
| 2.3 | To develop secure Android apps. java, Interface Builder, Instruments and the Android Emulator. | S2 S3 | Lectures, Lab, Group Discussion | Exams, Assignments, Quizzes |
| 3.0 | Values, autonomy, and responsibility | | | |
| 3.1 | Be able to work on teams or individuals to design a dynamic UI Mobile Applications. | V1 V2 | Lectures, Lab, Case Study, Groupwork | Exams, Assignments and presentation |
| 3.2 | Present a given Mobile Application idea to classmate. | V3 | Lab, Groupwork, Presentation | Exams, Assignments and presentation |

# C. Course Content

| No | List of Topics | Contact Hours |
|---|---|---|
| 1 | • Android overview and Java<br>   Setting up of android studio, Structure of android's Java code | 6 |
| 2 | • Object oriented programming Concepts<br>Basic concepts of OOP and its implementation, Basic classes app | 6 |
| 3 | • Oracle SQL or local Android database setup<br>   SQL, SQL-Lite, coding the database class, building and executing queries | 6 |
| 4 | • Widgets and layouts using java<br>   Creating widgets, standard constructors | 3 |
| 5 | • Different activities and intents using java<br>   Introduction to intents and its implementation in java | 3 |
| 6 | • Taps, Touch events and gestures and handling them.<br>   Multi-threads. | 3 |
| 7 | • Graphics and animation<br><br>   Designing graphics and animations, controlling it with java codes | 5 |
| **Lab Topics** | | |
| 1 | Setting up of android studio, Configuration of your project, debugging and running your app on android emulator | 7 |
| 2 | Classes implementation, declaration and initialization of objects, controlling the classes with access modifier, use of getters and setters, encapsulation and inheritance concepts | 7 |
| 3 | Creating database using SQL-Lite, inserting and retrieving of data in the tables, creating and executing queries, coding the database classes | 5 |
| 4 | Creating UI widgets by Java, setting up of widgets and UI, creating and running the widgets exploration app | 3 |
| 5 | Crating android intents, passing data to activities, coding the activity classes, | 3 |
| 6 | Adding custom buttons to the screen, program to handle touches, threads | 2 |
| 7 | Use of canvas class, creating bitmaps, adding graphics to the projects, designing of animation, scaling, rotation and repeating the animations with Java codes | 5 |
| Total | | 64 |

# D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|---|---|---|---|
| 1. | Quiz 1 | 4 | 5 |
| 2. | Midterm Exam 1 | 7 | 10 |
| 3. | Practical Assessment | 1 to 16 | 30 |
| 4. | Midterm Exam 2 | 12 | 10 |

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|----|------------------------|-------------------------------|--------------------------------------|
| 5. | Quiz 2 | 14 | 5 |
| 6. | Final Exam | After week 16 | 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 | • Java A Beginner's Guide Create, Compile, and Run Java Programs Today (6th ed.) [Schildt 2014] (badly formatted)<br>• Android Programming for Beginners, by John Horton, 2015.<br>• Java-Fundamentals-for-Android™ Application Development, by Android ATC Team. |
| Supportive References | • Head First Android Development: A Brain-Friendly Guide 1st Edition.<br>• Android App Development for Dummies (3rd ed.), by Michael Burton.<br>• Java Programming for Android Developers for Dummies [Burd 2013-11-04] |
| Electronic Materials | • https://www.tutorialspoint.com/android/<br>• https://developer.android.com/docs |
| Other Learning Materials | • Android Studio and SDK tools |

## 2. Required Facilities and equipment

| Items | Resources |
|---|---|
| facilities<br>(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | • Lecture Room with a capacity of More than 30 Chairs and Tables for Students and 1 Teacher's Table and Chair and 1 Projector/Screen.<br>• Laboratories with at least 25 Computers for students and 1 for Lab Instructor and Lab Assistant with Computer Table/Chair with the same number and 1 Projector/Screen. |
| Technology equipment<br>(projector, smart board, software) | • Laboratories computer with NetBeans IDE.<br>• Projectors, Computer for Theory Classes and Practical Sessions.<br>• Internet connection. |
| Other equipment<br>(depending on the nature of the specialty) | • Overhead projector<br>• Computer for individual students<br>• Internet access<br>• Networked laboratory systems |

## F. Assessment of Course Quality

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|---|---|
| Effectiveness of teaching | Students | Indirect |
| Effectiveness of students assessment | Course Teacher | Direct |
| Quality of learning resources | Program Supervisor, Quality Unit | Direct |
| The extent to which CLOs have been achieved | Course Teacher | Direct |
| Other | Course Teacher, Quality Unit | Direct |

**Assessor** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
**Assessment Methods** (Direct, Indirect)

## G. Specification Approval Data

| COUNCIL /COMMITTEE | |
|---|---|
| REFERENCE NO. | |
| DATE | |