# COLLEGE OF ENGINEERING
## Department of Computer Sceince and Engineering
## CMPS 312 Mobile Application Development
## Fall 2020

### Instructor Information

Name: Dr. Abdelkarim Erradi
Academic title : Associate Professor
Office: 132 Female Engineering Building
Phone: 4403 4254
Email: erradi@qu.edu.qa
Office Hours:
Female: Sunday 12:15-1:15pm
Male: Tuesday 12:15-1:15pm

### TA Information

Name:Abdulahi Mohamed Hassen
Office: BCR-H209
Phone: 4403 6670
E-mail: Abdulahi@qu.edu.qa

### Class/Laboratory Schedule

Theory: Sunday & Tuesday 10 – 10:50am (Female) & 11 – 11:50am (Male)
Lab:

### Coordinator Information

Same instructor

### Course Information

Catalog Description:
Concepts, principles, design strategies, tools and frameworks to design and develop mobile applications, on modern mobile platforms, that make use of key mobile sensors and system services and connect to online data sources and Web services. Hands on experience in designing and constructing mobile apps using a mainstream development platform and framework such as Android or iOS.

Credits:
3 Credit Hours.

Contact Hours:
2 Lecture hours and 3 Lab hours.

Prerequisites:
CMPS 251

Textbook(s):
~~Bill Phillips, Brian Hardy; *Android Programming: The Big Nerd Ranch Guide*, ISBN-10: 0321804333, 2nd Edition, 2016, Big Nerd Ranch Guide~~

References:
- On line official website for android https://developer.android.com/index.html
- Online resources on Qatar University Liberary:
  - Franceschi, Hervé; *Android app development*, 2018: http://0-proquest.safaribooksonline.com.mylibrary.qu.edu.qa/9781284092134
  - Trish Cornez, Richard Cornez; *Android programming concepts*, 2017 http://0-proquest.safaribooksonline.com.mylibrary.qu.edu.qa/9781284070705
  - Jerome F. DiMarzio, *Beginning Android Programming with Android Studio, 2016* http://0-proquest.safaribooksonline.com.mylibrary.qu.edu.qa/9781118705599

Course Objectives:
- Engineer effective mobile applications using established mobile architectures and design patterns.
- Design and implement modular, efficient and responsive mobile applications that make use of various mobile sensors and services.
- Employ best practices and state-of-the art application frameworks and development tools to design and build mobile applications and connect them to the cloud

Course Learning Outcomes (CLO):
1. Design and implement user interfaces for mobile applications based on established patterns and approaches such the Model View Controller pattern.
2. Apply different programming strategies for building mobile applications using Android ~~/ iOS~~ platforms
3. Practice accessing data sources and Web services from mobile applications.
4. Design and construct complete end-to-end mobile application using state-of-the-art application frameworks, application programming interfaces (APIs) and development tools.

Relationship of Course Outcomes to Student Outcomes (SO):

| Course Learning Outcomes (CLO) | Related Student Outcomes (SO) | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | | √ | | | | √ |
| 2 | | √ | | | | |
| 3 | | √ | | | | |
| 4 | | √ | | | √ | √ |

Student Outcomes (SO):

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Topics Covered:

| **Topics** | **Date** |
|---|---|
| **Kotlin** programming language | 2 |
| UI layout design | 1 |
| App Navigation | 1 |
| Activity and fragment lifecycle | 1 |
| UI components | 2 |
| Data management | 1.5 |
| Accessing Web API | 1.5 |
| Backround services and Notifications | 1 |
| Mutlimedia | 1 |
| Sensors, location and maps | 1 |
| Revision | 1 |
| Total | 14 |

## Method of Instruction

This course will be conducted using a combination of formal class lectures and laboratory hands-on instructions and assignments. Lectures will cover theoretical concepts and backgrounds related to Mobile application development. Extensive examples will be used to illustrate the taught principles. A weekly lab session will cover hands-on in-lab assignments and homework.
The coursework assignments will include a project, where students will select a problem and develop a complete solution for it. This will help students develop a strong understanding of the software development process by participating in all aspects of software development life cycle of a mobile application.

## Assessment Methods and Grading Policy

| | |
|---|---|
| Lab Assignments: | 30% (10 out of 12) |
| Project Phase 1 : | 15% |
| Project Phase 2 : | 15% |
| Midterm Exam: | 8% |
| Midterm Practical Exam: | 12% |
| Final Exam: | 10% (Consult final exams timetable) |
| Final Practical Exam: | 10% (During the last Lab) |

## ABET Contribution of Course to Professional Component

Math & Basic Science : 0%
Engineering : 0%
Engineering Design : 100%
General Education : 0%

## Computer/Software Usage

Android Studio, Android SDK, Android emulator and debugging tools

## Laboratory Projects

NA

## Course Ground Rules

- Please arrive on time, unless you have a legitimate reason for arriving late.
- Use of electronic devices (such as cell phones, iPads, smart tablets, PDAs, MP3 players etc) is strictly prohibited during the lecture.
- Keep your cell phone at silent. If you must take an important phone call or send an important SMS, please leave the classroom quietly. Please try your best to minimize distraction for your classmates.
- Do not hesitate to ask if you have any question about any of the material discussed during the lecture.
- Academic honesty: Plagiarism (cheating on an exam, turning in something not entirely your own) will not be tolerated. The university rules will be enforced in case of cheating and plagiarism. Student submissions must submit their own work without copying from the Internet or from other students. Students could be asked to explain their implementation. A student who shares code with another student will be treated the same as the person who does the copying. Outsourcing or getting external help to complete assignments is strongly prohibited, and disciplinary actions will be taken if outsourcing is confirmed.

## University Code of Conduct

QU expects its students to adopt and abide by the highest standards of conduct in their interaction with professors, peers, staff members and the wider university community. Moreover, QU expects its students to act maturely and responsibly in their relationships with others. Every student is expected to assume the obligations and responsibilities required from them for being members of the QU community.

As such, a student is expected not to engage in behaviors that compromise their integrity, as well as the integrity of QU. Further information regarding the University Code of Conduct may be found on the web at http://www.qu.edu.qa/students/code-of-conduct

## Support for Students with Special Needs

It is Qatar University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University through its Special Needs Section will exert all efforts to accommodate for individuals' needs.

Contact Information for Special Needs Section:
Tel-Female: (00974) 4403 3843
Tel-Male: (00974) 4403 3854
Location: Student Activities Building

Email: specialneeds@qu.edu.qa

## Academic Support and Learning Resources

The University Student Learning Support Center (SLSC) provides academic support services to male and female students at QU. The SLSC is a supportive environment where students can seek assistance with academic coursework, writing assignments, transitioning to college academic life, and other academic issues. SLSC programs include: Peer Tutoring, the Writing Lab, Writing Workshops, and Academic Success Workshops. Students may also seek confidential academic counseling from the professional staff at the Center.

Contact Information for Students Support and Learning Resources:
Tel: (00974) 4403 3876
Fax: (00974) 4403 3871
Location: Female Student Activities Building
E-mail: learningcenter@qu.edu.qa

## Student Complaints Policy

Students at Qatar University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the student handbook.

## Declaration

This syllabus and contents are subject to changes in the event of extenuating circumstances. The instructor (with approval of the Head of Department) reserves the right to make changes as necessary. If changes are necessitated during the term of the course, the students will be notified by email communication and posting the notification on the online teaching tool Blackboard. It is the student's responsibility to check on announcements made while they were absent.

Faculty Name: Dr. Saleh Alhazbi
Last Modified: 22/8/2019