

- 1. Course number and name:**  
CMP 354 - Mobile Application Development
- 2. Credits Hours**  
3 credit hours, 5 contact hours
- 3. Instructor's or course coordinator's name:**  
Dr. Tamer Shanableh
- 4. Textbook, title, author, and year**  
J. Murach, *Murach's Android Programming*, 2<sup>st</sup> edition. Mike Murach & Associates, 2015  
C. Keur and A. Hillgass, *iOS Programming: The Big Nerd Ranch Guide*, 6<sup>th</sup> edition. Big Nerd Ranch. 2017  
**Other supplemental materials**  
None
- 5. Specific course information**
  - a. Brief description of content of the course (catalog description)**  
Covers mobile application development with emphasis on object-oriented programming. Includes the following topics: mobile software development kits (SDK) and application programming interfaces (API); management of sensor and location-based data; user interactions and touch events; background processes and notifications mobile persistence storage; and broadcast receivers.
  - b. Prerequisite and/or Co-Requisite:**  
Prerequisites: CMP256(GUI Design and Programming) or COE312 (Software Design for Engineers)
  - c. Indicate whether a required, elective, or selected elective course in the program**  
Selected elective
- 6. Specific goals for the course**
  - a. Specific outcomes of instruction**  
This course requires the student to demonstrate the following:
    1. Apply object-oriented programming capabilities to create mobile apps
    2. Design app graphical user interfaces visually using an interface builder
    3. Employ event handling to respond to user interactions and multi-touch events
    4. Build master-detail apps that lists and manipulate items using tables and navigation views
    5. Create and use SQLite databases to manipulate and query data
    6. Develop background services which include responding to broadcast events and issuing notifications
    7. Use GPS and maps to create location-aware apps

**b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course**

This course contributes in a significant way to the accomplishment of the following program outcomes:

<b>Program outcome</b>	<b>Emphasis in this course</b>
(a) an ability to apply knowledge of computing and mathematics appropriate to the discipline	
(b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution	◐
(c) an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs	◐
(d) an ability to function effectively on teams to accomplish a common goal	
(e) an understanding of professional, ethical, legal, security and social issues and responsibilities	
(f) an ability to communicate effectively with a range of audiences	
(g) an ability to analyze the local and global impact of computing on individuals, organizations, and society	
(h) recognition of the need for and an ability to engage in continuing professional development	
(i) an ability to use current techniques, skills, and tools necessary for computing practice	●
(J) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	
(k) An ability to apply design and development principles in the construction of software systems of varying complexity	●

Emphasis: ● High; ◐ Medium; ○ Low; Blank – Nothing Specific Expected

**7. Brief list of topics to be covered**

- i. Swift variable types, optionals, delegates and protocols
- ii. Xcode and interface builder
- iii. GUI components and event handling
- iv. Creating and editing table views
- v. Storyboard Segues, master-detail apps and navigation controllers
- vi. Multi-touch event handling with custom UIViews
- vii. Android SDK and Studio IDE
- viii. Menus and shared preferences
- ix. Threads, files, adapters and intents
- x. Services, broadcast receivers and notifications
- xi. SQLite databases, cursors and custom adapters
- xii. GPS location data, maps API and sensor management
- xiii. Review and exams