



Course Description

COP4656 | Mobile Applications Development | 4.00 credits

This upper division course, for students majoring in Information Systems Technology, covers project-oriented development of applications for mobile computing devices. Students will learn how to develop mobile applications utilizing memory management, user interface design, user interface building, input methods, data handling, network techniques, URL loading, and GPS and motion sensing. Students will develop a project that produces a professional-quality deployable mobile application. Prerequisites: COP 2800 and 4723.

Course Competencies:

Competency 1: The student will formulate software requirements by:

1. Creating testable software requirements that will meet the given mobile project requirements defined by the instructor
2. Utilizing a software requirements tool to record and track the progress of each of the software requirements
3. Creating a traceability matrix that will link each of the project requirements to specific software requirements

Competency 2: The student will analyze the various approaches available for developing the mobile application by:

1. Researching the different mobile platforms (such as iPhone, Android, Windows 8) and technologies (such as a smartphone, tablet or netbook) available and comparing their strengths and weaknesses
2. Evaluating the strengths and weaknesses of the different programming languages (such as C++, C#, Java) that are available for the different mobile platforms
3. Identifying the different application programming interfaces (such as Google, GPS, motion sensing) that are available for the different mobile platforms and languages
4. Selecting the appropriate mobile platform, language, and API's (application programming interfaces) needed to produce selected professional quality mobile application

Competency 3: The student will design a mobile application by:

1. Utilizing software modeling tools to create artifacts (such as UML diagrams) that will define the architecture
2. Creating IPO tables that will identify all input methods, processes, and output methods needed for the mobile application
3. Defining the API's and protocols used for data handling and event handling between the different IPO components

Competency 4: The student will test the application by:

1. Selecting a proper IDE that is available for the selected platform and language (e.g., Java / Eclipse for Android, C# / Visual Studio for Windows 8)
2. Utilizing the software IDE (integrated development environment) tools to create a rapid prototype framework for the user interface
3. Designing and implementing processes that efficiently utilize memory and system resources (such as battery) to meet software requirements
4. Utilizing wireless network API's (such as 802.11 and Bluetooth) to meet the communication needs of the application (such as URL loading or web services)

Competency 5: The student will develop the application by:

1. Creating automated unit tests that will utilize a unit testing framework (such as Junit) for white box testing within the development environment

2. Implementing a software testing procedure that is properly documented and tests the current prototype outside of the development environment (i.e., black box testing)

Competency 6: The student will train end users and provide appropriate documentation by:

1. Utilizing self-documenting comments that automatically generate documentation (such as javadoc comments) upon command
2. Creating training material that demonstrates all major functionality (such as instruction manuals or videos)

Competency 7: The student will deploy the application by:

1. Researching the various deployment methods available for the specific mobile platform selected (such as Google Play, Apple App Store, and Windows 8 Store)
2. Uploading the final professional quality mobile application to the appropriate app store
3. Verifying that the application can be downloaded and installed to a device from the app market

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively