

SAN DIEGO COMMUNITY COLLEGE DISTRICT
CONTINUING EDUCATION
COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER

COMP 646

COURSE TITLE

MOBILE SOFTWARE DEV PLATFORM

TYPE COURSE

NON-FEE

VOCATIONAL

CATALOG COURSE DESCRIPTION

This course introduces students to setting up a development environment where cross-platform mobile applications can be created. Students will learn about the Software Development Kits (SDKs) of various mobile operating systems, including Android, iOS, and Windows Mobile. Students will install and configure SDKs, and develop an application that can be tested on emulators or real devices. Students will be introduced to free and open source software and the selection process for determining the appropriate solution. (FT)

LECTURE/LABORATORY HOURS

28

ADVISORY

Mobile App HTML Development

RECOMMENDED SKILL LEVEL

Possess a 10th grade reading level; ability to communicate effectively in the English language; knowledge of math concepts at the 8th grade level and basic computer literacy.

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility
SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication
SDCE students demonstrate effective communication skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES (CONTINUED)

3. Critical Thinking
SDCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development
SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.

COURSE GOALS

1. Introduce cross-platform application development concepts.
2. Introduce mobile application Software Development Kits (SDKs).
3. Introduce the Command Prompt for rapid development.
4. Illustrate how to set up virtual or real devices for testing.
5. Illustrate how to upgrade a web application for cross-platform deployment.
6. Illustrate the use of developer documentation.
7. Illustrate the use of native Application Programming Interfaces (APIs), such as device camera features.

COURSE OBJECTIVES

Upon successful completion of this course, the student will be able to:

1. Set up a cross-platform development environment.
2. Create templates for future application development.
3. Apply native platform design styles.
4. Apply an existing HTML-compliant web application to the cross-platform template.
5. Construct a cross-platform mobile application.
6. Construct an application with native features.
7. Test on Virtual Devices.
8. Test on Real Devices.

SECTION II

COURSE CONTENT AND SCOPE

1. Introduction to Cross-Platform Mobile Application Development
 - 1.1. Requirements
 - 1.1.1. Hardware
 - 1.1.2. Software
 - 1.2. Approaches
 - 1.2.1. Native
 - 1.2.2. Cross-platform

COURSE CONTENT AND SCOPE (CONTINUED)

2. Software Development Kits
 - 2.1. Platform web resources
 - 2.2. Virtual machine software
 - 2.2.1. Java
 - 2.3. Build software
 - 2.3.1. Apache Ant
 - 2.3.2. Gradle
 - 2.4. App template software
 - 2.4.1. NodeJS
 - 2.4.2. Apache Cordova
3. Virtual Devices
 - 3.1. Device templates
 - 3.2. Virtual hardware
 - 3.2.1. CPU
 - 3.2.2. RAM
 - 3.2.3. Storage
 - 3.2.4. Camera
 - 3.3. Virtual software
 - 3.3.1. Operating system
 - 3.3.2. Acceleration
 - 3.4. Deploying to virtual devices
4. Real Devices
 - 4.1. Hardware/software requirements
 - 4.2. Developer options
 - 4.3. USB debugging mode
 - 4.4. Deploying to virtual devices
5. Cross-Platform Tools
 - 5.1. Comparison of appropriate tools
 - 5.2. Set up of the tools
 - 5.3. Command prompt development
 - 5.4. Set up of a basic template project
6. Import HTML Project
 - 6.1. Meta tags
 - 6.1.1. Character set
 - 6.1.2. Viewport
 - 6.2. Content security policy
 - 6.3. JavaScript libraries
7. Application Assets
 - 7.1. Config.xml
 - 7.1.1. Application version
 - 7.1.2. Code version
 - 7.1.3. Developer attribution
 - 7.1.4. Application orientation
 - 7.2. Icons
 - 7.2.1. Application icon
 - 7.2.2. Splash screen

COURSE CONTENT AND SCOPE (CONTINUED)

8. Application Design
 - 8.1. Platform design guide
 - 8.2. CSS
 - 8.3. jQuery mobile
9. Native API
 - 9.1. Dialog boxes
 - 9.2. Sound
 - 9.3. Vibration
 - 9.4. Camera
10. Advanced Feature Preparation
 - 10.1. User data storage requirements
 - 10.2. Pre-flight check
 - 10.3. Debug mode application compile

APPROPRIATE READINGS

Appropriate readings may include, but are not limited to, periodicals, magazines, instructor-written materials, manuals, instructor selected URLs, and publications related to mobile application development.

WRITING ASSIGNMENTS

Appropriate writing assignments may include, but are not limited to, preparing text for an assigned project, keeping a journal on all laboratory and project work, and completing all assigned reports.

OUTSIDE ASSIGNMENTS

Outside assignments may include, but are not limited to, reading texts and reference resources; research as needed to complete projects; and organizing and preparing written answers to assigned questions.

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Assignments which demonstrate critical thinking may include, but are not limited to, analysis and evaluation of assigned text and reference resources, and utilize this analysis in classroom discussions, writing assignments, and in performing laboratory activities. Students must select and use appropriate methods and resources to complete laboratory assignments.

EVALUATION

A student's grade will be based on multiple measures of performance and will include evaluation of student's ability to:

1. Perform in a variety of activities and assignments.
2. Complete written and practical examinations.
3. Contribute to class and group discussions.

EVALUATION (CONTINUED)

4. Maintain attendance and punctuality per current policy.
5. Demonstrate ability to work independently and as a team member.

Upon successful completion of each course in the program, a Certificate of Course Completion will be issued. Upon successful completion of all courses included in the program, a Certificate of Program Completion will be issued.

METHOD OF INSTRUCTION

Methods of instruction may include, but are not limited to, lectures, discussion, hands-on demonstrations, computer-assisted instruction, laboratory assignments and field trips. This course, or sections of this course, may be offered through distance education.

TEXTS AND SUPPLIES

Apache Cordova 4 Programming, Wargo, Addison-Wesley Professional, current edition
Web Resources: <http://cordova.apache.org>
Supplies: Journal (composition book), USB Drive or other storage media

PREPARED BY: Victor Campos and Richard Gholson DATE: 11/24/2015

REVISED BY: _____ DATE: _____

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog