I. GENERAL COURSE INFORMATION

Subject and Number: Computer Information Systems 136
Descriptive Title: Building Mobile Apps
Course Disciplines: Computer Information Systems
Division: Business

Catalog Description:
In this course, students will design, develop, test, debug and launch mobile applications (apps) using open source standards that are adaptable to various development frameworks such as Android, iOS, and Windows. Topics include design principles, application structure, graphics, user interfaces, animation, cloud services, and data storage. Accessing the native features of the mobile device including geolocation, accelerometer, media capture, notifications, and services will be covered.

Conditions of Enrollment:
Prerequisite: Computer Information Systems 13 with a minimum grade of C or equivalent experience

Course Length:	**X Full Term**	**Other (Specify number of weeks):**
Hours Lecture:	**2.00 hours per week**	**TBA**
Hours Laboratory:	**3.00 hours per week**	**TBA**
Course Units:	**3.00**	

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: X Effective Date: 3/18/2013
Transfer UC: No

General Education:
El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. SLO #1 Understanding Mobile Frameworks
   Students will be able understand the different types of application frameworks used to develop mobile applications.
2. SLO #2 Designing Mobile User Interfaces
   Students will be able to design and create effective mobile application user interfaces.
3. SLO #3 Developing Mobile Applications
   Students will be able to architect, develop, test, and debug mobile applications that display various types of digital media, manage data, and use the native features of a mobile device.
4. SLO #4 Marketing Mobile Applications
   Students will understand how to deploy a mobile app to the app marketplace.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Distinguish the mobile development process from traditional desktop development.
   Objective Exams
2. Design, develop, test, debug and launch applications that run on mobile devices.
   Other (specify)
   Lab assignment
3. Launch applications to an emulator/mobile device.
   Other (specify)
   Lab Assignment
4. Dissect a mobile application into its various parts, and describe each part.
   Other (specify)
   Lab Assignment
5. Design and create a user experience for a set of criteria.
   Other (specify)
   Lab Assignment
6. Design robust user interfaces for the mobile platform.
   Other (specify)
   Concept design and completed user interface
7. Analyze data storage needs for a mobile app, and determine the best approach for the content interface.
   Other (specify)
   Written Assignment
8. Understand the capabilities of the web application stack, and how to complement those with native bridging frameworks such as PhoneGap to access native features of the device.
   Other (specify)
   Lab assignment

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	2.25	I	Introduction to mobile apps A. Mobile device evolution and divergence B. Web vs. Native vs. Hybrid apps C. User Interface (UI) frameworks
Lecture	2.25	II	Application Design A. Page views B. Page layouts C. Navigation patterns
Lecture	2.25	III	Anatomy of an Application A. Scaffolding B. Configuration
Lecture	4.5	IV	User Interface Design, Elements, and Layouts A. Page architecture B. Page view layout patterns C. UI components D. CSS classes and class overrides
Lecture	2.25	V	Common Application Programming Interfaces (APIs) A. Framework plug-ins B. Third party plug-ins C. Plug-in development
Lecture	4.5	VI	Data, Storage, and Content Providers A. File system B. File transfer C. Device Databases
Lecture	2.25	VII	Frameworks A. Using development frameworks B. Using cloud services
Lecture	2.25	VIII	Networking and Location-Based Services (LBS) A. Network Information B. Globalization C. Geolocation
Lecture	4.5	IX	Animation, Multimedia, and 3D Graphics A. Media B. Media Capture C. Camera
Lecture	3.5	X	Telephony and Notifications A. Dialogs B. Contacts C. Messages

Lecture	2.25	XI	Hardware and Services A. Accelerometer B. Vibration C. Sound
Lecture	2.25	XII	Managing Application Resources and Performance Considerations A. Compression B. Memory C. Configuring device requirements
Lecture	1	XIII	Publishing to the Marketplace A. QR codes B. Android marketplace C. Apple marketplace D. Windows marketplace
Lab	2.5	XIV	App Development Environment and IDE Plug-ins A. Development software and installation B. Plug-ins C. Emulation software
Lab	10	XV	User Interface Design, Elements, and Layouts A. Data roles B. ThemeRoller C. UI components D. Dialogs E. Headers, footers F. Buttons, icons G. Transitions H. Grids, content blocks, collapsible sets I. List views, list dividers, filter bars J. Forms and form components
Lab	4.5	XVI	Data, Storage, and Content Providers A. File system B. File transfer C. Device Databases
Lab	4.5	XVII	Frameworks A. Bridging software B. Cloud build services C. App compilation, download and installation
Lab	10	XVIII	Networking and Geolocation Services A. Networking services B. GPS and GPS maps
Lab	10	XIX	Multimedia and Accelerometers A. Media B. Media capture C. Camera D. Video E. Audio
Lab	10	XX	Telephony and Notification Services

			A. Dialogs B. Contacts C. Messages D. Sound and vibration notification
Lab	2.5	XXI	Performance Tuning and Release Management A. Compression B. Memory C. Configuring device requirements D. App maintenance and versioning
Total Lecture Hours		36	
Total Laboratory Hours		54	
Total Hours		90	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:
Substantial programming assignments

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:
Create an app that displays an End User License Agreement (EULA) when a user first installs and runs the app. If the user does not accept it, the app does not run. After a user does accept it, the EULA is never shown again.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:
1. Build an app that enables the creation and listing of personal diary entries, using client-based data storage

2. Following the sequence of steps in the Program Development Life Cycle (PDLC), and given a geographical location., create an app that displays a map and uses a marker to represent the location. Include technical documentation.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:
Essay exams
Objective Exams
Other exams
Quizzes
Laboratory reports
Multiple Choice
Completion
True/False
Other (specify):
Write program code

V. INSTRUCTIONAL METHODS

Demonstration
Laboratory
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Required reading
Problem solving activities
Written work
Other (specify)
Programming

Estimated Independent Study Hours per Week: 4

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Raymond Camden, Andy Matthews. jQuery Mobile Web Development Essentials 3rd ed. Packt Publishing, 2016.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

USB or External Hard Drive

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Computer Information Systems-13 or	Sequential
Non-Course Prerequisite	This course requires an understanding of business problems and how to solve them using technology. The student should be proficient in using a Windows PC including computer terminology, file management, software installation, software usage, and computer configuration. The student should be able search the Internet.

B. Requisite Skills

Requisite Skills
Solve common business problems using appropriate information technology applications and systems design and developmental tools. CIS 13 - Solve common business problems using appropriate information technology applications and systems.
Demonstrate an understanding of the system development process and use of information systems within an organization. CIS 13 - Explain the development and use of information systems in business.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification

D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by Monica Chaban on 01/17/2012.

BOARD APPROVAL DATE: 03/18/2013

LAST BOARD APPROVAL DATE: 12/17/2018

Last Reviewed and/or Revised by: M. Chaban **Date: 10/10/2018**

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