CONESTOGA

COURSE OUTLINE

Course Programming: Mobile Applications I (2015-2016)

Code / Version PROG3180 (102)

Total Hours 45

Credits 3

PreRequisite(s) PROG2220 (100) Database: S.Q.L.
and PROG2230 (103) Programming: MS Web Tech

CoRequisite(s)

Course Description

This course teaches the student to build mobile applications using the current industry practices and tools. The student will learn client-side smart device development including offline data access, testing, debugging, security, deployment and exception handling. Students will be exposed to writing mobile client software that runs on popular mobile devices.

PLAR Eligible: Yes

Course Outcomes

Successful completion of this course will enable the student to:

1. Describe the frameworks and technologies used in mobile web application development.
2. Set up and configure the mobile web application development environment.
3. Design applications appropriately for a mobile web environment.
4. Build a mobile web client application for a mobile device with offline data access.
5. Debug and test mobile web applications.

Essential Employability Skills addressed in this course			Taught	Reinforced	Assessed
Communication	n	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience			
	n	Respond to written, spoken, or visual messages in a manner that ensures effective communication			
Numeracy	n	Execute mathematical operations accurately			X
Critical Thinking and Problem Solving	n	Apply a systematic approach to solve problems			X
	n	Use a variety of thinking skills to anticipate and solve problems			X
Information Management	n	Locate, select, organize, and document information using appropriate technology and information systems		X	
	n	Analyze, evaluate, and apply relevant information from a variety of sources			X
Interpersonal	n	Show respect for the diverse opinions, values, belief systems, and contributions of others			
	n	Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals		X	
Personal	n	Manage the use of time and other resources to complete projects		X	
	n	Take responsibility for one's own actions, decisions, and consequences		X	

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Unit Outcomes

Successful completion of the following units will enable the student to:

1.0 Introduction to Mobile Web Development
- 1.1 Identify mobile web application examples
- 1.2 Describe the characteristics of native and mobile web applications
- 1.3 Describe the pros and cons of developing native and mobile web applications
- 1.4 Enumerate the different types of mobile devices and mobile operating systems

2.0 Overview of Mobile Web Technologies
- 2.1 Identify the different options for developing mobile web applications
- 2.2 Describe key HTML5, CSS3, Javascript features and JavaScript libraries such as jQuery
- 2.3 Describe key UI frameworks/utilities such as jQuery Mobile

3.0 Mobile Web Application Development Setup
- 3.1 Install and setup XAMPP for Windows
- 3.2 Use IDEs such as Aptana Studio/Brackets and/or Webstorm to write mobile web apps
- 3.3 Test mobile apps using desktop browsers such as Google Chrome

4.0 Creating a Design Prototype
- 4.1 Use HTML5 to aid in mobile web structure and design
- 4.2 Mock up the mobile app pages
- 4.3 Create a single HTML file with multiple application pages
- 4.4 Use jQuery library and jQuery Mobile framework to enhance layout of web pages
- 4.5 Add header and navigation elements
- 4.6 Use jQuery Mobile transitions to enhance user experience

5.0 Building a Mobile HTML Entry Form
- 5.1 Create forms that incorporate appropriate navigation and user input techniques
- 5.2 Describe the viewport meta tag
- 5.3 Add form elements to the HTML entry form
- 5.4 Add form validation and feedback

6.0 Incorporate jQuery in mobile web pages
- 6.1 Describe how to include jQuery in mobile web pages
- 6.2 Describe how jQuery can simplify JavaScript development
- 6.3 Code and debug jQuery selectors, jQuery methods and jQuery event methods

7.0 Creating a Mobile Web Database
- 7.1 Identify HTML5 databases styles and strategies
- 7.2 Create the Web SQL database
- 7.3 Set up the tables for mobile web app
- 7.4 Use transactions to create databases and tables

8.0 Storing Data Locally on the Device
- 8.1 Use local storage and Web SQL databases
- 8.2 Build reference tables and add values
- 8.3 Insert data into the database tables

- 8.4 Update and delete data from the database table

9.0 Consuming External Data

- 9.1 Describe JSON and XML
- 9.2 Access network resources
- 9.3 Use jQuery to retrieve external data

10.0 Native Bridging with Apache Cordova

- 10.1 Describe how to set up Apache Cordova
- 10.2 Describe how to build and run an Apache Cordova application
- 10.3 Describe how Apache Cordova communicates with the device accelerometer, camera and photo library

11.0 Unit Testing and Organizing JavaScript Code

- 11.1 Organize JavaScript files
- 11.2 Describe QUnit as a JavaScript unit testing frameworks
- 11.3 Build and execute QUnit test code

12.0 Application Testing and Debugging

- 12.1 Describe the specific features of Android emulator and/or BlackBerry simulator
- 12.2 Use developer tools such as Chrome's Web Inspector to inspect and debug code
- 12.3 Setup and launch Ripple emulator
- 12.4 Setup and launch BlackBerry simulators
- 12.5 Create and launch an Android Virtual Device (AVD)

Required Student Resources

Greg Avola, Jon Raasch. Smashing Mobile Web Development. John Wiley & Sons.
e-Book

Optional Student Resources

Windows laptop with minimum of 4 GB RAM (8 GB RAM with CPU that supports virtualization preferred)

Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Assignments 3 (2 @13%, 1 @14%)	40.00
Midterm Exam	30.00
Final Project	30.00
	100.00 %

Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

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School Information Technology

Date 2015-11-10

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