

Mobile Application Development by Lynn Rosier

TEA 126.39

<http://ritter.tea.state.tx.us/rules/tac/chapter126/ch126c.html#126.39>

9-11:15 Mobile apps overview, software, possible projects, and an intro to iPhone development

using the xCode ide (free download from the Apple app store). Hands on approach.

12-2:30 Mobile apps overview, software, possible projects, and an intro to Android development

using the Eclipse ide and the Android plugin (free downloads). Hands on approach.

2:30-3:30 Mobile apps questions and hands on help.

§126.39. Mobile Application Development (One-Half to One Credit), Beginning with School Year 2012-2013.

(a) General requirements. Students shall be awarded one-half to one credit for successful completion of this course. The required prerequisites for this course are proficiency in the knowledge and skills relating to Technology Applications, Grades 6-8, and Algebra I. This course is recommended for students in Grades 9-12.

(b) Introduction.

(1) The technology applications curriculum has six strands based on the National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.

(2) Mobile Application Development will foster students' creativity and innovation by presenting opportunities to design, implement, and deliver meaningful projects using mobile computing devices. Students will collaborate with one another, their instructor, and various electronic communities to solve problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use software development concepts to access, analyze, and evaluate information needed to program mobile devices. By using software design knowledge and skills that

support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of mobile application development through the study of development platforms, programming languages, and software design standards.

(3) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(c) Knowledge and skills.

(1) Creativity and innovation. The student develops products and generates new understanding by extending existing knowledge. The student is expected to:

(A) create effective user interfaces appropriate for a specified mobile device that is best suited for an identified purpose;

(B) create effective user interfaces for browser-based, native, and hybrid mobile applications;

(C) create mobile application components appropriate for identified needs;

(D) create browser-based applications for mobile devices;

(E) create native applications that can reside on specified mobile devices; and

(F) create mobile applications that combine native and hybrid components.

(2) Communication and collaboration. The student communicates and collaborates with peers to contribute to his or her own learning and the learning of others. The student is expected to:

(A) demonstrate an understanding of and discuss how teams function;

(B) use teamwork to solve problems;

- (C) describe the development workflow of mobile applications;
- (D) use time-management techniques to develop and maintain work schedules, meet deadlines, and establish mobile application project criteria;
- (E) describe a problem solution; and
- (F) document and share problem solutions through various media.

(3) Research and information fluency. The student locates, analyzes, processes, and organizes data. The student is expected to:

- (A) analyze, identify, and describe mobile application project stakeholders and their perspectives;
- (B) collect and analyze available data to identify mobile application project requirements;
- (C) analyze, identify, and describe input, output, and processing requirements; and
- (D) analyze, identify, and define hardware and software specifications.

(4) Critical thinking, problem solving, and decision making. The student uses appropriate strategies to analyze problems and design algorithms. The student is expected to:

- (A) compare and contrast design decisions based on the hardware considerations of a mobile device;
- (B) compare and contrast available mobile technologies, including platforms and their operating systems;
- (C) compare and contrast available development approaches, including application to specific technologies and platforms;
- (D) determine the most appropriate solution for the development of a given mobile application, including browser-based, native, and hybrid approaches;
- (E) compare and contrast available programming languages and how their use might be applied to specific technologies and platforms;

(F) identify and justify the selection of an appropriate programming language, including available resources and required interfaces;

(G) select an appropriate program development environment;

(H) identify and use available libraries;

(I) evaluate and justify the selection of appropriate options and components;

(J) compare and contrast available networks and their implications for mobile application development; and

(K) compare and contrast design strategies related to mobile network and device security.

(5) Digital citizenship. The student explores and understands safety, legal, cultural, and societal issues relating to the use of technology and information. The student is expected to:

(A) discuss copyright laws and issues;

(B) model ethical acquisition and use of digital information;

(C) cite sources using established methods;

(D) demonstrate proper digital etiquette and knowledge of acceptable use policies;

(E) investigate mobile device security measures such as passwords, virus detection, and virus prevention;

(F) describe potential risks and benefits associated with the use of a mobile application;

(G) identify current and emerging technologies related to mobile applications; and

(H) evaluate technologies and assess their applicability to current mobile applications.

(6) Technology operations and concepts. The student understands technology concepts, systems, and operations as they apply to computer science. The student is expected to:

(A) demonstrate an understanding of the difference between desktop and mobile applications;

(B) demonstrate an understanding of hardware and software structures and requirements in the design of mobile applications;

(C) recognize multiple platforms and demonstrate an understanding of their associated requirements;

(D) recognize various program development environments;

(E) demonstrate an understanding of event-based programming and its appropriate use;

(F) describe how memory management affects mobile application design;

(G) demonstrate an understanding of how low bandwidth and the mobility of a device affect the design of mobile applications;

(H) identify applications that are best suited for mobile devices;

(I) demonstrate an understanding of the use of libraries when designing mobile applications;

(J) use a simulation tool to emulate a mobile device's functionality; and

(K) use actual mobile devices to test mobile applications.

iPhone Books

The Core iOS Developer's Cookbook (5th Edition) (Developer's Library)

by Erica Sadun and Rich Wardwell

iOS 7 App Development Essentials

by Neil Smyth

Programming in Objective-C (6th Edition) (Developer's Library)

by Stephen G. Kochan

Android Books

Beginning Android 4

by Grant Allen

Android Apps for Absolute Beginners

by Wallace Jackson

Android 4.4 App Development Essentials Book

by Neil Smyth

Some Book Companies

<http://www.apress.com>

<http://www.manning.com>

<http://www.ebookfrenzy.com>

URLs

My Website for some coding help and skeletons

<http://www.autowaredevelopment.com/iPhoneHelp>

<http://www.autowaredevelopment.com/AndroidHelp>

<http://www.autowaredevelopment.com/JavaHelp>

<https://developer.apple.com>

Apple

iPhone, iPad, iPod, and Mac Development using xCode (runs on Macs only)

You will generally always need an Apple developer license (\$99+tax) to have your app uploaded to the app review committee or uploaded to your device for testing.

You can sell your apps in the Apple app store (must pass the Apple review process).

<http://www.appmakr.com/>

No coding required. HTML and CSS. Free or \$1, \$3, \$9 per month.

Use your google account, etc. Create apps for Android and iPhone.

Drag and Drop environment.

<http://staffapp.mobi/mystore27-qr> (sample app i built)



<http://developer.android.com/about/index.html>

<http://developer.android.com/sdk/index.html>

Development environment for Android apps. Eclipse and the

Android plugin as well as the beta of Android Studio. This

runs on a mac or pc. Programming in java. Free.

Drag and drop screen design (or write the xml yourself or do it all in code).

You can sell your apps in various Android stores (must pass the Android review process).

<http://www.appinventor.org/appInventor2>

<http://ai2.appinventor.mit.edu/>

Development environment (web based) for Android apps. You can develop apps on a mac or a windows machine. This is a drag and drop solution for both the screen design and programming (with the Scratch blocks). Free. You can use a usb cable or qr code to put apps on your Android phone. You can sell your apps in various Android stores. (must pass the Android review process).

<http://gamesalad.com>

Publishing for the web and iOS is free, \$299/year for pro which adds in app purchases, Android, etc. Most Platforms supported. No Coding.

<http://www.dragonfiresdk.com/>

Build iPhone apps on a windows machine. Uses Visual Studio and C++.
Box2D library. Coding required.
\$99.95 or \$149.95 (Education price of 49.95 per machine with no uploads).

<http://phonegap.com/> (<https://build.phonegap.com/>)

Adobe PhoneGap allows you to use HTML, CSS, and JavaScript. Most platforms.

Free and paid versions. Requires node.js, github, etc.

<http://www.appcelerator.com/>

Build native or web apps using javascript. Uses Titanium (Eclipse). You must write javascript code. (github required)

<https://www.genuitec.com/mobile/> (MobiOne Studio)

No Coding. \$99 Build for Android or iPhone on a Windows machine.

Uses the HTML5 hybrid-native app model and the PhoneGap. Drag and drop user interface. 15 day free trial.

Not a good solution for student use, since it is not free (discounts for schools).

<http://www.buzztouch.com/>

No Coding. Free and paid versions. Uses plugins or write your own plugins.

Not a good solution for student use, since most plugins cost you money.

<http://unity3d.com/>

Supports most platforms. Game engine. Expensive!

Good Solutions for learning programming early on

<https://www.gethopscoth.com/>

iPad only. Free. Great for kids to get started making an app. Device only.

Scratch like approach.

<http://scratch.mit.edu/>

Free. Online or use 1.4. Programming environment for learning. Drag and

drop for your screen design and for programming instructions.

