

# CSCE590 Mobile App Development

## CSCE 590 - Spring 2016

**Instructor:** Jianjun Hu, office SWGN:3A47, 7-7304, jianjunh@cse.sc.edu

**Course description:** This is an introductory course on Mobile App development. It will focus on Cordova based cross-platform app development so that the apps can run on web browser, iOS, android, or windows platforms. The course will cover all aspects of mobile app development including user interface design, data storage (local or cloud), and MVC model. The key programming language is javascript and HTML5 plus UI library. Students will form groups to work on a specific app throughout the course. This is a “hands-on” course involving many in class and homework assignments to build the apps.

### **Learning outcome:**

- Students will learn basic HTML5 language and javascript programming skills, the foundation for developing cross-platform mobile apps. It will cover the basics of programming constructs such as for loop, if-else, arrays, json format, parameter passing etc.
- Students will attain basic skills HTML5 based mobile app development. They will learn how to create user interface, manage the data storage, all wrapped as a web application. They will also learn how to compile and convert the HTML5 based app into native iOS and android apps using the cordova technology. They will also learn how to distribute the developed app to the android Google Play store or Apple App store.
- Students will also learn how to integrate native functions of mobile devices such as camera, GPS, network, and other functionality to apps using cordova plugin modules.
- Students will practice in applying the learned app development skills to work on a specific app within a team.
- Class will yield sufficient knowledge and practical skills for developing cross-platform mobile apps appropriate for an individual research project conducted by the advanced undergraduate or graduate student.

**Prerequisite:** basic programming experience is required with any programming language (C/C++, java, matlab, python etc). HTML knowledge is a plus but not required.

**Meeting schedule:** TBA, **Room XXX**.

**Office hours:** TBA at the instructor’s office, or by appointment.

**Credit hours:** 3.

**Attendance policy:** Attendance is mandatory. In class assignments will not be accepted from students who miss the class.

**Term project:** **Undergraduate students** will develop a basic cross-platform mobile app for one of the ios/android/windows platforms. It will have basic mobile phone user interface such as

buttons, menus and uses the local storage. The presentation will be in the PowerPoint format (8-10 slides), 6-7 min long and will be followed by 2-min questions and discussion. **Graduate students** will develop an advanced cloud-based hybrid mobile app using the Parse and Kendo platform and will present the final project at the end of the semester.

**Course Text:** Raymond K. Camden, Apache Cordova in Action. ISBN: 9781633430068

Handouts prepared by the instructor. Lecture notes and handouts will be shared via Dropbox before the class.

**Supplementary recommended texts:**

Optional textbooks (<http://phonegap.com/book/>)

<http://www.w3schools.com/js/> Javascript tutorial

<http://www.w3schools.com/html/> HTML5 tutorial

<http://www.w3schools.com/jquery> JQuery tutorial

online video tutorial on Youtube and codecademy may also be used.

**Grades:** In class exercises –10%, homework assignments – 30%, midterm 25%, term project – 30%, class participation -10%. No Final exam. **Final grade** will be based on the following grading scale: 90≤**A**; 86≤**B+**<90; 80≤**B**<86; 76≤**C+**<80; 70≤**C**<76; 66≤**D+**<70; 60≤**D**<66; and **F**<60.

**Tentative Weekly Schedule**

1 <sup>st</sup> lecture	Syllabus overview. Policies and procedures.
Week 2	Introduction to Mobile App development, Native Apps vs. Hybrid Apps, iOS/Android/Windows Platforms, Javascript, HTML5
Week 3	Cordova platform for Hybrid App development: compiling, submission, testing, case study with a Github Sample App
Week 4	Basic Javascript programming: variables, array, for loop, while loop, if else, dictionary, json format
Week 5	Building User-interface using HTML5: elements, attributes, formatting, links, images, tables
Week 6	Building User-interface using HTML5: CSS, lists, classes, layout, styles
Week 7	Linking HTML5 and Javascript, To-Do-List app example
Week 8	Kendo UI for App User interface design
Week 9, Fall Break	Local Data storage in Hybrid App development Final project proposal

Week 10	JQuery based programming for app development
Week 11	Cloud-storage based Hybrid App development (Parse Platform)
Week 12	Cloud-storage based Hybrid App development (Parse Platform)
Week 13	Cordova Plugins, Access to native functions such GPS, calendar.
Week 14	Cordova Plugins, Access to native functions such GPS, Camera.
Week 15, Thanksgiving	Dealing with shipboard surveys. Maps, vertical transects. Review.
Week16	Presentation of final project
Final exam	<b>Optional.</b>