Mobile Application Development (CSE 40333/60333) – Spring 2011

Class location: Edward J. DeBartolo Hall 118
Lecture time: M W F 9:35 – 10:25 am

Instructors:
Christopher Miller (miller.444@nd.edu)
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Office hours : M 10:30 – 11:30 am, Th 2:00 – 3:00 pm

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Course Description

The rapid emergence and widespread adoption of devices such as smart phones and tablets have opened the doors for a new generation of mobile applications and services. Examples include the use of smart phones for mHealth (mobile health) applications, location-based services, and the remote monitoring of critical infrastructure. Application development for mobile devices differs significantly from desktop development and in this course, you will learn hands-on about mobile development environments, different mobile platforms and operating systems, and the constraints and challenges in mobile application development.

Course Objectives

The objectives of this course are for students to develop an understanding of how to design, implement, and debug/test applications for mobile devices and how to exploit the many capabilities of modern mobile devices to produce creative solutions to everyday challenges. We will use a combination of readings, discussions, and hands-on development to provide a thorough understanding of mobile development, with a particular emphasis on the various development stages of a semester-long team-based project. After completion of this course, you will be able to:

- Independently manage all phases of mobile project development, including proposal, design, implementation, progress reports, debugging, evaluation, documentation, and presentation.
- Develop mobile applications using modern mobile development tools for either the Android or iOS platforms.
- Develop mobile applications for various platforms, including small communication devices (smart phones) and larger MIDs (mobile Internet devices).
- Develop applications that effectively combine mobile device capabilities such as communication, computing, and particularly sensing.
- Exhibit excellent oral and written communication skills.

Course Project

A major component of this course will be a semester-long project in teams of 2-3 students. The instructors will provide a variety of possible projects to choose from. Detailed project descriptions (including details on the required application capabilities and constraints) will be provided, which will also be used to decide on the appropriate development environment (i.e., Android versus iOS). These

projects are based on real-world challenges (e.g., in areas such as health, civil infrastructure monitoring, etc.) and the student teams are also expected to interact with our project sponsors from our industry and non-profit partners.

Grading

The final grade will be based on the developed application (40%), reports (40%), an oral presentation (10%), and a topic paper (10%).

Schedule

This is the preliminary schedule for this course. Assignment dates and topics covered are subject to change, depending on the needs and interests of the class.

Week	Date	Topic	Notes
1	Jan 19	Introduction	
	Jan 21	Project Introduction	
2	Jan 24	Project Management /Android Intro	Project bids due
	Jan 26	iOS Intro	
	Jan 28		Project assignments
3	Jan 31	Application Components / Lifecycle	
	Feb 02	Application Components / Lifecycle	
	Feb 04		Proposal due
4	Feb 07	Design Fundamentals	
	Feb 09	Design Fundamentals	
	Feb 11		Project design due
5	Feb 14	User Interface	
	Feb 16	User Interface	
6	Feb 21	Processes and Threads	
	Feb 23	Processes and Threads	
7	Feb 28	Context Awareness / Sensors	
	Mar 02	Context Awareness / Sensors	
8	Mar 07	Databases and Data Services	Topic proposal due
	Mar 09	Databases and Data Services	
9	Spring Break		
10	Mar 21	Networking	
	Mar 23	Networking	
11	Mar 28	Web-based Applications	
	Mar 30	Web-based Applications	
12	Apr 04		Topic Presentations
	Apr 06		Topic Presentations
13	Apr 11		Topic Presentations
	Apr 13		Topic Presentations
14	Apr 18	Media	
	Apr 20	Distribution	
15	Apr 25	Easter Holiday	
	Apr 27		Final Presentations
16	May 02		Final Presentations
	May 04		Final Presentations