CSE 5236 (Approved): Mobile Application Development

Course Description

Mobile application development frameworks; Architecture, design and engineering issues, techniques, methodologies for mobile application development.

Transcript Abbreviation: Mobile App Dev
Grading Plan: Letter Grade
Course Deliveries: Classroom
Course Levels: Undergrad, Graduate
Student Ranks: Senior, Masters, Doctoral
Course Offerings: Autumn
Flex Scheduled Course: Never
Course Frequency: Every Year
Course Length: 14 Week
Credits: 3.0
Repeatable: No
Time Distribution: 3.0 hr Lec
Expected out-of-class hours per week: 6.0
Graded Component: Lecture
Credit by Examination: No
Admission Condition: No
Off Campus: Never
Campus Locations: Columbus
Prerequisites and Co-requisites: CSE 3901 or CSE 3902 or CSE 5901 or CSE 5902 or CSE 560
Exclusions:
Cross-Listings:

The course is required for this unit's degrees, majors, and/or minors: No
The course is a GEC: No
The course is an elective (for this or other units) or is a service course for other units: Yes

Subject/CIP Code: 14.0901
Subsidy Level: Doctoral Course

Programs

Abbreviation	Description
BS CSE	BS Computer Science and Engineering
MS CSE	MS Computer Science and Engineering
PhD CSE	PhD Computer Science and Engineering

Course Goals

Be competent with the characterization and architecture of mobile applications.
Be competent with understanding enterprise scale requirements of mobile applications
Be competent with designing and developing mobile applications using at least 2 mobile application development frameworks
Be competent with comparatively evaluating the capabilities of at least 2 mobile application development frameworks.
Be exposed to technology and business trends impacting mobile applications

Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Characteristics of mobile applications	1.5							
History of mobile application frameworks	1.5							
Overview of mobile application development languages - Objective C and Java	3.0							
Application models of mobile application frameworks	3.0							
User-interface design for mobile applications	3.0							
Managing application data	1.5							
Integrating with cloud services	3.0							
Creating enriched user interfaces. Multi-touch and gesture-based applications	6.0							
Integrating networking, the OS and hardware into mobile-applications	3.0							
Addressing enterprise requirements in mobile applications performance, scalability, modifiability, availability and security	7.5							
Testing methodologies for mobile applications	3.0							
Publishing, deployment, maintenance and management	1.5							
Case studies in mobile applications	4.5							

Representative Assignments

Students will be required to implement components of an enterprise-scale mobile application on two separate platforms.

Grades

Aspect	Percent
Class participation	10%
Project	40%
Midterm	20%
Final	30%

Representative Textbooks and Other Course Materials

Title	Author
Mobile Applications: Architecture, Design, and Development	Valentino Lee; Heather Schneider; Robbie Schell, Publisher: Prentice Hall
Mobile Design and Development	Brian Fling, Publisher: O'Reilly
Programming the Mobile Web	Maximiliano Firtman, Publisher: O'Reilly Media

ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
**	a	An ability to apply knowledge of mathematics, science, and engineering.
*	b	An ability to design and conduct experiments, as well as to analyze and interpret data.

Course Contribution		College Outcome
***	c	An ability to design a system, component, or process to meet desired needs.
*	d	An ability to function on multi-disciplinary teams.
**	e	An ability to identify, formulate, and solve engineering problems.
*	f	An understanding of professional and ethical responsibility.
*	g	An ability to communicate effectively.
*	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
*	i	A recognition of the need for, and an ability to engage in life-long learning.
*	j	A knowledge of contemporary issues.
**	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

BS CSE Program Outcomes

Course Contribution		Program Outcome
**	a	an ability to apply knowledge of computing, mathematics including discrete mathematics as well as probability and statistics, science, and engineering;
*	b	an ability to design and conduct experiments, as well as to analyze and interpret data;
***	c	an ability to design, implement, and evaluate a software or a software/hardware system, component, or process to meet desired needs within realistic constraints such as memory, runtime efficiency, as well as appropriate constraints related to economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability considerations;
*	d	an ability to function on multi-disciplinary teams;
**	e	an ability to identify, formulate, and solve engineering problems;
*	f	an understanding of professional, ethical, legal, security and social issues and responsibilities;
*	g	an ability to communicate effectively with a range of audiences;
*	h	an ability to analyze the local and global impact of computing on individuals, organizations, and society;
*	i	a recognition of the need for, and an ability to engage in life-long learning and continuing professional development;
*	j	a knowledge of contemporary issues;
**	k	an ability to use the techniques, skills, and modern engineering tools necessary for practice as a CSE professional;
**	l	an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
**	m	an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
**	n	an ability to apply design and development principles in the construction of software systems of varying complexity.

Prepared by: Rajiv Ramnath