

**HOSTOS COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS**

Web & Mobile Application Development

Course Number: CSC 395
Course Title: Web & Mobile Application Development
Credit Hours: 3.0
Equated Hours: 3.0
Class Hours: 3.0

Pre Requisite: CSC 215 Modern Programming & CSC 205 Discrete Mathematical Structures
Pre/Co-requisite: ENG 93/ESL 91/ ESL 93 or equivalent

Course Description: This course studies the design principles of Web & Mobile application programming. Students will gain experience with the languages and frameworks that are most commonly used in developing Web & Mobile applications, with the design of user interfaces and software systems, including associated topics such as networking and security.

Recommended Text:

Z. Mednieks, Programming Android: Java Programming for the New Generation of Mobile Devices, O'Reilly Media; Second Edition edition. (Primary book resource)
A. Gerber, Learn Android Studio: Build Android Apps Quickly and Effectively.
B. Phillips, Android Programming: The Big Nerd Ranch Guide (2nd Edition).

Grade is based upon Web/Mobile Application Projects and Final Exam:

Students will complete 3-4 lab simulation projects 50%
Midterm 20%
Final 30%

Student Learning Objectives:

In this course students will demonstrate proficiency with:

- 1) use of engineering, physics & mathematical concepts that underlie web/mobile application development
- 2) programming and writing codes in a modern programming language for web/mobile application development
- 3) technical skills within a modern program or specific course management platform such as JustCode to create, design & program original applications
- 4) debugging and fixing performance issues for applications

Course Outline

Week 1-3: Introduction to Java the programming language for Android-

Java Basics and use of an integrated development environment in order to run and debug Java programs for mobile apps, androids and web. (i.e. JustCode)
Editing Java code and code completion. Static analyzers and applications to Android code. Review of objects, classes' interfaces, modular programming in Java synchronization and data structures. Chapters 2 & 5

Week 4:-6 Android operating system and architecture and asynchronous programming

Android components and essentials: static application resources, the source tree and initialization parameters. Android application environment: the android graphical user interface (GUI) and its architecture, overview and controller, assembling a GUI. Fragments and multiplatform support: creating and managing fragment and their transactions. Drawing 2D and 3D graphics, layouts, bitmaps, blings: shadows, gradients, and filters. Chapters 6-9

Week 7-9: Handling and Processing Data: SQLite

The SQL language, data definition commands and data manipulation. Database concepts and transactions, SQL and data model for android application. Android data classes and database design for android applications, loading the application, database queries and management. Chapter 10

Midterm

Week 10 Framework for application behavior

Visualizing activity life cycles and fragment life cycles. Activity life cycles and the user experience, the user experience across activities. Multitasking in a small screen environment, activity and application classes. Chapter 11

Week 11 Selected topics from among:

Multimedia applications, audio and video playback and recording. Location and Mapping, i.e. google Maps activity, sensors, communication-authentication and synchronization. Chapter 14/15

Week 12-14 Project & Project presentation by groups

Week 15: Final exam