

**VIRGINIA COMMONWEALTH UNIVERSITY
COLLEGE OF ENGINEERING**

CMSC 428. Mobile Programming: iOS – Spring 2022

Catalog listing:	CMSC 428
Course Level:	Undergraduate (Technical Elective)
Prerequisites:	CMSC 355
Instructor:	Eyuphan Bulut
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Classroom:	T R 12:30-1.45 PM, Engineering East Hall, Room E4229
Class website:	CANVAS
Office Hours:	T R 11am-12pm

1.0 – Overview (Catalog Course Description):

Semester course; 3 lecture hours. 3 credits. Prerequisite CMSC 355, with a minimum grade of C. This course covers the fundamentals of Swift and XCode for programming and design of iOS applications. Background in Object oriented programming and access to a computer with XCode platform is required.

2.0 – Course Structure:

Lecture hours/week: 3

Lab hours/week: 0

3.0 – Course Goals

Upon successful completion of this course, the students will learn Swift language, how to use XCode and basics of iOS application design. They will develop different types of iOS applications completely functional throughout the course. They will test the developed applications on simulator and on actual device.

4.0 – ABET Criteria Addressed:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

5.0 – Major Topics Covered:

- Introduction to Swift, SwiftUI, Xcode and iOS Frameworks
- Swift basics: variables, operations, loops, if statements, functions, optionals
- Object oriented programming, polymorphism, inheritance
- Auto Layout, Stack view, Scroll view, Interface development
- SwiftUI fundamentals
- ViewControllers and Segues
- Tableview, Collectionview
- Model, View, Controller (MVC)
- Touches and Gestures
- Data Persistence
- Animations and SpriteKit
- MapKit, Core Location, CoreMotion
- Web services, networking, multipeer connectivity

6.0 – Textbook(s):

None. We will use the extensive programming guidelines provided by Apple as reference material. Class slides will also be made available on Canvas. The slides will only introduce material, so ensure you take your own notes.

7.0 – Evaluation:

General Instructions:

Final grade: A (85% - 100%), B (75% - 84%), C (65% - 74%), D (55%-64%), F (0% - 54%)

Exams: There will be two midterm tests.

Course assignments: There will be 5-6 assignments.

Late submission: 20% penalty if submitted 0-24 hours late, 40% penalty if submitted 24-48 hours late. No submission after 48 hours.

Class participation: You are encouraged to attend class. There will be bonus in-class exercises.

Grading:

Category	% weight
Assignments	70%
Midterm 1	15%
Midterm 2	15%
Attendance/Bonus Exercises	up to 5%