



## Course Syllabus

<b>Course Code</b>	<b>Course Title</b>	<b>ECTS Credits</b>
COMP-285	Mobile Computing Application Development	6
<b>Prerequisites</b>	<b>Department</b>	<b>Semester</b>
COMP-211	Computer Science	Fall, Spring
<b>Type of Course</b>	<b>Field</b>	<b>Language of Instruction</b>
Elective	Computer Science	English
<b>Level of Course</b>	<b>Lecturer(s)</b>	<b>Year of Study</b>
1 <sup>st</sup> Cycle	Dr. Constandinos Mavromoustakis Mr. George Rossides	2 <sup>nd</sup> , 3 <sup>rd</sup>
<b>Mode of Delivery</b>	<b>Work Placement</b>	<b>Corequisites</b>
Face-to-face	N/A	None

### Course Objectives:

The main objectives of the course are to:

- Understand the fundamentals of mobile application development.
- Gain insights into the historical evolution and significance of mobile devices.
- Explore the impact of mobile technology on various industries.
- Develop skills in creating user-friendly interfaces for mobile applications.
- Acquire principles of user interface (UI) and user experience (UX) design for mobile applications.
- Gain hands-on experience on using tools for mobile application UI/UX design.
- Develop a foundational understanding of mobile app programming.
- Explore debugging and testing practices for mobile applications.
- Explore mobile app development using Swift (iOS) and Kotlin (Android).
- Implement mobile app features using React Native.
- Understand the advantages and limitations of hybrid app development.
- Develop proficiency in building applications that run on multiple platforms.
- Learn the principles and benefits of Progressive Web Apps.
- Explore advanced UI components and customization.
- Develop expertise in deploying mobile apps to App Store (iOS) and Google Play (Android).
- Understand best practices for app deployment, maintenance, and updates.

## Learning Outcomes:

After completion of the course students are expected to be able to:

1. Explain the fundamental concepts of mobile application development.
2. Evaluate the advantages and limitations of native app development, hybrid app development, and PWAs in the context of mobile development.
3. Understand the basic programming principles of Swift (iOS), Kotlin (Android), React-Native, Flutter and PWAs
4. Design user-friendly interfaces for mobile applications based on UI/UX principles.
5. Apply debugging and testing techniques to ensure the functionality and reliability of mobile applications.
6. Implement advanced UI components and customizations in mobile applications.
7. Deploy mobile apps to App Store (iOS) and Google Play (Android) following best practices.
8. Showcase the ability to apply learned concepts and skills to real-world scenarios.
9. Collaborate in a group to design, develop, and deploy a functional cross platform mobile application as a final project.

## Course Content:

1. Overview of Mobile Development: Evolution and significance of mobile development. Introduction to iOS and Android platforms. Understanding different development approaches: Native, Cross-platform, PWAs.
2. UI/UX Principles for Mobile: Principles of designing user-friendly interfaces. Exploring mobile app navigation patterns, introduction to tools for UI/UX design.
3. React Native Fundamentals: Exploring React Native components and styling. Understand React Native Hooks and navigation. Introduction to mobile app debugging and testing.
4. Advanced React Native Concepts: State Management in React Native. Integrating external libraries and APIs. Exploring Animations and Gestures in React Native. Implementing Push Notifications. Creating a fully functional mobile application.
5. Mobile App Deployment: Publishing apps to App Store (iOS) and Google Play (Android). Understanding the best practices for app deployment and maintenance.
6. Introduction to PWAs: Key features, concepts, and benefits of Progressive Web Apps (PWAs)
7. Introduction to Kotlin (Android): Basics of the Kotlin programming language.
8. Introduction to Swift (iOS): Basics of the Swift programming language.
9. Introduction to Flutter: Basics of the Flutter and Dart programming language

**Learning Activities and Teaching Methods:**

Lectures, Lab Presentations, Lab Tutorials, Assignments.

**Assessment Methods:**

Homework, Project, Mid-Term, Final Exam.

**Recommended Textbooks / Readings:**

Title	Author(s)	Publisher	Year	ISBN
React Native in Action	Nader Dabit	Manning	2019	ISBN-10: 1617294055  ISBN-13: 978-17294051
Building Progressive Web Apps: Bringing the Power of Native to the Browser	Tal Ater	O'Reilly Media	2017	ISBN-10: 1491961651  ISBN-13: 978-1491961650
Kotlin in Action	Dmitry Jemerov, Svetlana Isakova	Manning	2017	ISBN-10: 1617293296  ISBN-13: 978-1617293290
Swift Programming: The Big Nerd Ranch Guide	Mikey Ward, Matthew Mathias, John Gallagher	Big Nerd Ranch Guides	2020	ISBN-10: 0135264200  ISBN-13: 978-0135264201
Flutter and Dart Cookbook: Developing Full-Stack Applications for the Cloud	Richard Rose	O'Reilly Media	2023	ISBN-10: 1098119517  ISBN-13: 978-1098119515