

Course Syllabus for ITSE-3123 Advanced Mobile Programming course

	Module	Course
Title	Networking	Advanced Mobile Programming
Code	ITSE-M4511	ITSE-3123
ECTS		7
Duration	16 Weeks	
Academic Year	2019/20, Semester II	

Instructor's Contact Information	
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Office Hours	Tuesday (8:00 - 11:00 LT)

Course Description
<p>This course is a continuation of the Mobile Programming course (ITSE-2122). In this course, you will learn about cross-platform (iOS and Android) mobile application development using the Flutter framework. We will explore concepts such as stateful and stateless widgets; material design; themes; assets; text input; gestures; retrieving local and real-time data; using location services and maps; testing mobile applications; architecting and employing best practices for developing mobile applications. The course has both lecture and laboratory sessions. The lecture session covers basic concepts whereas the lab sessions give you a hands-on experience on the topics covered in the lecture sessions.</p>
Course Objectives
<p>Understand principles and best practices of mobile application development using flutter framework</p>
Learning Outcomes
<p>Upon completion of this course, students should be able to</p> <ul style="list-style-type: none"> ● Understand the fundamentals of the Flutter framework ● Incorporate widgets and state into your app ● Use Flutter's tools to enhance your development process ● Customize your app with Material Design, themes, assets, and more ● Make your app interactive with text input, gestures, and more ● Retrieve local and real-time data from the web ● Use location services ● Test mobile application ● Familiarize themselves with best practices of mobile application development ● Develop multimedia applications in Android

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Prerequisites:			
<ul style="list-style-type: none"> ITSE-2122 Mobile Programming 			
Student Workload			
Lecture	Tutorial	Home Study	Laboratory
32 hrs.	32 hrs	65 hrs.	48hrs
Schedule			
Weeks	Topics and Subtopics		
	Lecture and Laboratory Sessions	Assessment	
Week 1	Introduction What is Flutter, Why Flutter?, The other options, Native solutions, What is Dart		
Week 2	Basics of Dart Keywords, built-in types, functions, operators, control flow statements, exceptions, classes, generics, libraries and visibility, asynchrony support, generators, callable classes, isolates, typedefs, metadata, comments Setting up Flutter development environment		
Week 3	The basics of writing Flutter code Hello World Flutter App Basic Widgets such as AppBar, Column, Row, Container, Image, Icon, Buttons, Text, etc;	Summiting Project Title	
Week 4	Flutter UI: Important widgets, themes, and layout The base features of Flutter app	Comment on project application features	
Week 5	User Interaction: Forms and Gestures	LAB Assignment I	
Week 6	Pushing pixels: Flutter Animation and Using the canvas Painting to the canvas and details of using flutter animation		
Week 7	Flutter routing in depth	LAB Assignment 2	
Week 8	Flutter state management	MID EXAM	
Week 9	Asnyc Dart and Flutter and Infinite Scrolling		

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Week 10	Working with files Including libraries in your Flutter app, Including a file with your app, Reading/Writing to files, Using JSON, Using Shared Preferences	LAB Assignment 3
Week 11	Working with SQLite Database	
Week 12	Making RESTful API Calls with HTTP	
Week 13	Architecting Large Flutter Application	
Week 14	Using Firebase/Firestore with Flutter	LAB Assignment 4
Week 15	Working with Location and Maps Testing Flutter Application	Project Evaluation (Feedback)
Week 16	Revision and Final Exam, Final Project Evaluation	
Teaching Methods		
<ul style="list-style-type: none"> • Lecture • Laboratory • Project work 		
Assessment Method		
<ul style="list-style-type: none"> • Project Evaluation I (25 %) • MID Exam (30 %) • LAB Assignments (15 %) • Final Exam (30 %) 		
Course Policies		
<ul style="list-style-type: none"> • Attendance: It is compulsory to attend class in time and every time. Missing more than 15% of the classes during the semester causes readmission for that course • Assignments: No Late Assignment will be accepted • Test/Quizzes: Reexamination schedules will be arranged for those who missed exams by accidental or uncontrollable situations. Students are expected to provide formal evidence for their absentee • Cheating/Plagiarism: The total result obtained for the assessment will be discarded for any kind of cheating/plagiarism and disciplinary measures according to the legislation of AAU will also be taken 		
Resources		
<ul style="list-style-type: none"> • A tour of the Dart language (https://dart.dev/guides/language/language-tour) • Flutter in Action, By Eric Windmill, 2020 (Text Book) • Beginning App Development with Flutter: Create Cross-Platform Mobile Apps, By Rap Payne, 2019 • Flutter Succinctly By Ed Freitas, 2019 • Flutter Docs (https://flutter.dev/docs) 		