

Module title Android Programming with Kotlin				
Module code KAPK	Level Bachelor (B.Sc.)	Hours per week 4	ECTS credits 5	Duration 14 weeks - virtual lectures
Module instructor Dave Drohan, Waterford Institute of Technology		Lecture type Virtual Lectures + Guided Labs	Prerequisite(s) Intermediate Programming Ability	Grading Single Programming Assignment
<p>Objectives This course will introduce the principles, practices and tools for the development of modern Android applications using the Kotlin programming language</p> <p>On completion of the course the students will be able to:</p> <ul style="list-style-type: none"> • <i>Knowledge & Understanding:</i> Understand the structure and patterns required to implement a robust Android application. • <i>Skills & Abilities:</i> Apply these principles in the context of the practices and idioms of the Kotlin programming language. • <i>Judgement & Approach.</i> Evaluate the Android frameworks, identifying the purpose and role of the major components and employ them in appropriate contexts. <p>The course will consist of a series of lectures interspersed with guided laboratories. The laboratories will apply the principles introduced in the lectures via the construction of a small number of interesting Android applications. These applications will further develop aspects of the material covered in the lectures.</p> <p>Students will be asked to develop an Android application in Kotlin, with a spectrum of interesting features, utilising a subset of modern Android components. This will constitute the single assignment for the module.</p>				
<p>Content</p> <ul style="list-style-type: none"> • Kotlin Programming • Android Application Architecture • Activities, Layouts & Events • Navigation, Lifecycles & Models • Google API's, JSON & Persistence • Testing & Deployment. 				
<p>Upon the end of the module the students will have attained the following subject-matter competencies...</p> <ul style="list-style-type: none"> • Decompose an application into its constituent parts, including but not limited to: core application components, user experience resources, packaging. • Design a coherent User Experience - using appropriate tools, practices and guidelines - for a moderately sized application. • Complete the implementation of a medium sized application, based on a limited set of design patterns. • Model the application lifecycle including effective patterns for UI state save/resume, background processing and interactions with external applications and system services • Structure persistent storage on a device and reliably save and restore application state 				

Upon the end of the module the students will have attained the following personal and social competencies...

- Read, write, and present in an academic environment in English language via video demonstrations
- Interactively discuss subject-matter topics and reflect their viewpoints
- Organize themselves independently
- Create work results with certain boundary conditions set for a given due date

Textbook/teaching material (for reference purposes)

- Learn Kotlin for Android Development
The Next Generation Language for Modern Android Apps Programming, Peter Späth, 2019
- Android mit Kotlin – kurz & gut, Jörg Staudemeyer, 2018
- Kotlin for Android developers : Learn Kotlin the easy way while developing an Android App, Antonio Leiva, 2018

Note: this is not the official course descriptor according to the "Studien- und Prüfungsordnung" (SPO)