Course title: DEVELOPMENT OF APPLICATIONS FOR MOBILE AND SMART DEVICES

Lecturers	Assoc. Prof. Zlatko Stapić, Ph.D. Dijana Peras, M.Inf. Mislav Matijević, M.Inf.
Language of instruction	Croatian and English
Study level	Bachelor
Study programme	Information and Business Systems
Semester	5th (winter)
ECTS	6
Goal	The goal of the practicum of Development of Applications for Mobile and Smart Devices is to through lectures, mentoring and hands-on project work to give students insight into the concepts and specifics of mobile and other smart devices applications development. Using technologies and tools specific to the development of mobile and other smart devices, students will learn through teamwork to implement the agile scrum development process, and will master the skills of prototyping, code versioning, documenting, quality assurance in development for the mentioned devices.
General and specific learning outcomes	
Content	**Lectures (15):** **1. Introduction to mobile and smart device development (2)** Introduction to mobile development. Specific features of mobile development. Platform and device fragmentation. Mobile user interfaces and user experience. Possibilities and limitations of mobile technologies. Trends in mobile development. **2. Mobile and smart applications development technologies (8)** Native development technologies for mobile and smart devices. Multiplatform development technologies. Introduction to Swift and Kotlin. Development specifics for the Android operating system. Advanced concepts in Kotlin: user interface elements, connection to web services, use of mobile databases. Third-party development frameworks. **3. Integration of technologies in development (3)** Background Services Layer - Frames and Technologies. Data acquisition, processing and distribution technologies. Third-party technologies and their capabilities. Continuous integration and testing. Integration tools. **4. Monetization of applications (2)** Monetization as part of user requirements. The most common monetization models in mobile applications and their implementation. The impact of business models on software architecture and design. **Workshops (15):** **1. Development project - looking for a project idea (3)** **2. Defining functional and non-functional requirements (3)** **3. Development of application sketches and wireframes (3)** **4. Scrum development process (3)** **5. Integration of IoT and mobile applications (3)**

Exercises	30 hours are reserved for exercises. Integrated development environment (2) Mobile development fundamentals (4) User interface elements (4) Working with data (4) Working with web services (4) Background services (4) Notifications to users (4) Advanced development possibilities (4)
Realization and examination	Classes: lectures, exercises, and workshops Exam: independent assignments, practical work, project
Related courses	1. Become A Mobile App Developer, Udemy course, available at: https://www.udemy.com/course/become-a-mobile-app-developer-ios-android-windows 2. Mobile Applications Development, University of Southampton, https://www.southampton.ac.uk/courses/modules/comp6239 3. Mobile Applications Development, Continental College, https://www.centennialcollege.ca/programs-courses/full-time/mobile-applications-development/ 4. Mobile Applications Development, Open Universities Australia, https://www.open.edu.au/subjects/murdoch-university-mobile-applications-development-mur-ict376 5. Mobile Applications Development, St. Clair College, https://www.stclaircollege.ca/programs/mobile-applications-development
Literature	Basic: Head First Android Development: A Brain-Friendly Guide, Griffiths D., O'Reily, 2018+ Build anything on Android, official documentation for development of Android applications, available at https://developer.android.com/ Optional: Teaching and other course materials available in the learning management system, Development of mobile applications – a handbook. Stapić, Švogor, Fodrek, Varaždin 2016, in Croatian language Authorized sources, web materials, and books on topics that the course addresses, which due to frequent and major changes in technologies and tools are to be defined for each generation of students separately.