FACULTY OF ENGINEERING
STUDY COURSE DESCRIPTION

Course Title:	**Mobile Technology Solutions**
Course code (LAIS):	**DatZ1021**
Study programme:	**Virtual Reality and Smart Technologies**
Level of Study programme:	☐ 1st level professional higher education
	☐ Professional Bachelor
	☒ Professional Master
	☐ PhD level
Type of Study programme:	☒ Compulsory course (Part A)
	☐ Professional specialization courses (Part B, compulsory)
	☐ Professional specialization optional courses (Part B, optional)
	☐ Elective courses (Part C)

Course Workload:	**Credits**	**ECTS**	**Academic hours**	**Contact hours**	**Independent work hours**
	2	3	80	24	56

Course Author/ Tutor:	**Kaspars Osis**
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	Consultation: according to the schedule for each semester or per individual agreement.
Course Form:	Full time
Study year, semester:	1st year, 1st semester
Language:	Latvian, English
Prerequisites for the Course:	Basic knowledge and experience in programming languages – preferably Java programming language; knowledge / insight about development of information systems.
Course Summary:	The aim of this course is to provide theoretical and practical knowledge about current mobile technology solutions, including to gain insight about mobile application development environments, concepts, and particular development ways. By performing practical assignments students will have an opportunity to improve their practical skill in area of mobile technology solutions development. There is work done in small groups within the course. The study course is the preparatory step to enhance practical skills in development of mobile solutions and by combining them with VR/AR and other solutions to provide the foundation for multidisciplinary solutions development.
Course Methods:	Lectures, practical activities, group work, theory tests, final assessment (project work assignment) etc.
Assessment:	Examination (project work assignment)
Requirements for Credits:	1. Successful completion of workshops/practical work assignments (at least 60% points of totally available). 2. Passed theoretical tests. 3. Successful completion of project work assignment (at least 70% points of totally available). Final assessment consists of: workshops/practical work assignments, group work evaluations; theoretical tests; project work assignment and project work assignment presentation. All practical work assignments have to be accepted (i.e. at least with 60% evaluation) in order to get the final evaluation within this course. 250 points system is used to come up with final evaluation. Table below lists totally available points for each activity.

Work assignment or activity	Points
Practical work assignments	90
Theoretical tests	30
Participation in class work activities	15
Project work assignment (exam)	100
Project work assignment presentation (exam)	15
Total	**250**

	Final course evaluation (mark) calculation based on 250 points system is done as it follows below: >= 93% (232-points) = 10 >= 79% (197- points) = 6 >= 90% (225- points) = 9 >= 75% (187- points) = 5 >= 87% (217- points) = 8 >= 70% (175- points) = 4 >= 83% (207- points) = 7 < 70% (175- points) = 3 Missing practical work assignment deadline: each missed day counts for subtraction of 5% from totally available points. It is required to acquire at least 60% from totally available points (not counting potential delay) in order to accept practical work assignment as done.
Course Contents:	Mobile technology solutions. Android user interface (UI). UX. Best practice UI and user input. Prototype development. Multimedia – audio and video camera. Data persistence (local / external solutions). Content Providers. Services. Basics. Location based services. Maps. SMS. Networking solutions. Web Services. JSON Services. Own service development. Google Play to distribute and monetize. Android testing. Testing concepts and possibilities. Best practice. Eye tracking based technology testing of mobile solutions. Mobile application development framework for cross-platform solutions; JavaScript; development of solutions. AR possibilities within cross-platform solutions. Android security and privacy. Wearable Apps. Development. Custom UI. Data and synchronization. Watch Faces.

	Learning Outcomes	The evaluation methods and criteria
Learning Outcomes; the evaluation methods and criteria	**Knowledge**	
	Knowledge on current mobile technology solutions and with focus on Android.	Development of particular mobile technology solution concept. Passed theoretical test.
	Knowledge on Android user interface (UI) solutions, UX, and data persistence options.	Development of particular mobile technology solution concept. Passed theoretical test.
	Knowledge on services, types of them, areas of application, commercialization, testing concepts and options.	Development of particular mobile technology solution concept. Passed theoretical test.
	Knowledge on cross-platform solutions and AR options within, options in Wearable Apps area, consideration of Android security & privacy.	Development of particular mobile technology solution concept. Passed theoretical test.
	Skills	
	To develop mobile technology solution medium complexity user interface (UI), including by usage of fragments and views, as well as prototyping.	Developed practical group work.
	To develop mobile technology solution based	Developed practical group work.

	on different (both local and external) data persistence approaches.	
	To develop medium complexity cross-platform mobile technology solution by using specific development framework JavaScript.	Developed practical group work.
	To develop mobile technology solution in area of Wearable apps.	Developed practical group work.
	Competency	
	Use correct mobile technology solutions terminology. To choose appropriate technological approaches for particular assignment implementation.	Course project development and presentation.
	Independently perform mobile technology solutions development design and architecture.	Course project development and presentation.
	To solve mobile technology solutions basic issues, to perform testing and debugging assignments in all levels of development.	Course project development and presentation.
Course Compulsory literature:	1. J. F. DiMarzio. Beginning Android Programming with Android Studio, 4ed, Wrox, 2016.	
Course additional literature:	1. M. Yener, E. Hellman, O. Dundar. Expert Android Studio, John Wiley & Sons Inc, 2016. 2. D. Smith, E. Hellman. Android Recipes: A Problem-Solution Approach, 5th ed. APress. 2016. 3. K. Holmqvist, et.al. Eye Tracking: A Comprehensive Guide to Methods and Measures. Oxford University Press, 2015.	
Course confirmation date:	08.12.2017.	
Date of course description update:		

Study Course Plan:

Date	Theme	Academic hours		Study Form
		Contact hours	**Independent work hours**	
	Mobile technology solutions. Android user interface (UI). UX. Best practice UI and user input. Prototype development. Multimedia – audio and video camera. Data persistence (local / external solutions). Content Providers.	4	10	Theoretical lecture. Several topics covering practical work. Group work.
	Services. Basics. Location based services. Maps. SMS. Networking solutions. Web Services. JSON Services. Own service development.	4	10	Theoretical lecture. Several topics covering practical work. Group work

	Google Play to distribute and monetize.			
	Android testing. Testing concepts and possibilities. Best practice.	4	4	Theoretical lecture. Several topics covering practical work. Group work
	Eye tracking based technology testing of mobile solutions. Mobile application development framework for cross-platform solutions; JavaScript; development of solutions. AR possibilities within cross-platform solutions.	4	4	Theoretical lecture. Several topics covering practical work. Group work
	Android security and privacy. Wearable Apps. Development. Custom UI. Data and synchronization. Watch Faces.	4	4	Theoretical lecture. Several topics covering practical work. Group work
	Final examination	4	24	Course project development and presentation.
	Total:	*24*	*56*	

Note: lecturer keeps the rights to make changes in the course plan.