

Subject code	ECTS credits
INF6013	6

Course title in Lithuanian

MOBILIŲ APLIKACIJŲ INFRASTRUKTŪRA

Course title in English

MOBILE APPLICATION INFRASTRUCTURE

Short course annotation in Lithuanian (up to 500 characters)

Studijų dalykas pateikia žinios apie mobiliąsias paslaugas ir aplikacijas, jų infrastruktūrą ir projektinius sprendimus. Studentai išmoka projektuoti ir realizuoti integruotas mobiliąsias aplikacijas, panaudojant trumpuosius pranešimus, mobilių pozicionavimą, adaptyvų dizaino principus. Supažindinama su vertės vartotojui įvertinimo, saugumo užtikrinimo, vartotojo sąsajos projektavimo principais. Ugdomi gebėjimai realizuoti įkraunamas aplikacijas Android, iOS, Windows Mobile mobilioms platformoms, taip pat sprendimus ir paslaugas, naudojančius atvirus tinklo paslaugų standartus.

Short course annotation in English (up to 500 characters)

The course provides knowledge of mobile application infrastructure as well as that of mobile service and application development technologies. Students learn how to design and implement integrated mobile applications using mobile messaging, mobile positioning, adaptive and responsive design technologies, how to measure user value, how to ensure application security, how to address user interface issues. Skills in designing downloadable applications for iOS, Android, Windows Mobile mobile devices are acquired, as well as skills in designing mobile services and solutions, using open web service standards and technologies

Prerequisites for entering the course

Computer Networks, Fundamentals of Programming

Course aim

The aim of the course is to give the knowledge of mobile application infrastructure and develop skills in designing mobile applications integrating different technologies and approaches.

Links between course outcomes, criteria of learning achievement evaluation, study methods and methods of learning achievement assessment

No	Course outcomes	Criteria of learning achievement evaluation	Study methods	Methods of learning achievement assessment
1.	Acquired knowledge of mobile service and application development technologies	Student demonstrates understanding of mobile service and application development technologies and their possibilities, writes an essay, analysing selected technologies	Lectures, case studies, discussions, self-study in Moodle virtual learning environment (VLE), individual student presentations on selected technologies	Assessment of a written essay and oral essay presentation; open mid-term exam and exam questions
2.	Ability to design mobile services and solutions, integrating different mobile service and application technologies – messaging, location information processing, mobile internet access.	Student demonstrates ability to plan and design mobile applications/ services, working in a group.	Practical work sessions, individual work, group work	Defence of group practical work on mobile application development integrating different technologies
3.	Ability to design mobile downloadable applications for iOS, Windows Mobile, Android environments	Student demonstrates ability to plan and design mobile downloadable mobile applications both individually and in a group.	Practical work sessions, individual work, group work	Defence of individual and group practical works on mobile application development

4.	Ability to present mobile applications and their value to different audiences	Student is able to present fluently information on the process and results of individual and group projects of mobile application development	Self-study of methodical material in Moodle VLE, preparation of presentations on essay and mobile application project topics	Assessment of oral presentations on essay and mobile application project topics
----	---	---	--	---

Links between study programme outcomes and course outcomes

Study programme outcomes	Running number of course outcome			
	1	2	3	4
5. Develop mathematical models integrating the knowledge from various fields and different mathematical modelling techniques, and analyse the modelling results assessing the model adequacy and accuracy		+	+	
10. Work both independently and in an interdisciplinary team, generate ideas, integrate knowledge and skills		+	+	
11. Convey mathematical information to specialists of different fields orally and/or in written form, critically evaluate it				+

Content

No	Content (topics)
1.	Customer value in designing mobile applications
2.	Introduction to mobile communication technologies relevant for application development.
3.	Applications based on mobile messaging. Mobile messaging as e-commerce driver. Scenarios for the implementation of value-added messaging.
4.	Mobile internet trends. Network connectivity issues in mobile applications. Mobile internet services and their integration into internet portals.
5.	Mobile web services - architecture and design. Mobile Web 2.0 applications. Internet of services.
6.	Design specifics of responsive vs adaptive Web design.
7.	Java Micro Edition (J2ME) for applications running on mobile and embedded devices - mobile phones, set-top, digital media device, M2M devices. Design specifics.
8.	Smart devices and M2M applications. Internet of Things (IoT).
9.	Native mobile applications for Android, iOS, Windows Phone operating environments. Design specifics. Cross compiler approach for designing native applications for several platforms
10.	Integrating location information into mobile applications and services.
11.	Human computer interface for mobile applications and services – design principles. User experience design (UXD).
12.	Mobile application security. Mobile e-signature solutions. M-identification.
13.	Project management specifics for mobile application development.
14.	Mobile applications in company ICT infrastructure.

Distribution of workload for students (contact and independent work hours)

Lectures	45 hours
Practical work	15 hours
Individual students work	100 hours
Total:	160 hours

Structure of cumulative score and value of its constituent parts

Final written exam (50%), mid-term written exam (15%), and assessment of practical assignments (35%)
--

Recommended reference materials

No	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	Self study rooms	Other libraries

<i>Basic materials</i>						
1.	2008	P.Golding. Next Generation Wireless Applications. Creating mobile applications in a web 2.0 and mobile 2.0 world.	John Wiley & Sons	0	1	
2.	2004	G. Le Bodic. Mobile messaging, technologies and services	John Wiley & Sons	1	1	
3.	2014	D.Pitt. Modern Web Essentials Using JavaScript and HTML5	InfoQ	Free Internet access: https://www.infoq.com/minibooks/javascript-html5-essentials		
4.	2016	C.Petzold. Creating Mobile Apps with Xamarin.Forms: Cross-platform C# programming for iOS, Android, and Windows	Microsoft Press	Free Internet access and download: https://blogs.msdn.microsoft.com/microsoft_press/2016/03/31/free-ebook-creating-mobile-apps-with-xamarin-forms/		
<i>Supplementary materials</i>						
1.	2012	A.Karahoca (ed.). Advances and Applications in Mobile Computing	InTech	Open Access, CC BY 3.0 license: http://www.intechopen.com/books/advances-and-applications-in-mobile-computing		
2.	2010	H.Dwivedi, C.Clark, D.Thiel. Mobile Application Security	McGrawHill			
3.	2007	F.Hirsch, J.Kemp, J.Ilkka. Mobile Web Services. Architecture and Implementation.	Wiley			

Course programme designed by

Prof.dr. D.Vitkutė-Adžgauskienė