

OSNOVNI PODACI:

	<i>Šifra</i>	<i>Sadržaj</i>
Organizaciona jedinica	01.07.300.	Fakultet informacionih tehnologija
Skraćenica	FIT-CIT	
Katedra	01.06.040.	Katedra za softverski inženjering i vještačku inteligenciju
Predmet/modul	1.02.01.01.003.	Advanced mobile computing
Širi/dopunski naziv		

VRSTA PREDMETA:

Funkcionalna oblast	stručno jezgro
Nivo apstrakcije	Aplikativni
Težinski faktor	viši-srednji

MATIČNOST PREDMETA:

	<i>Šifra</i>	<i>Sadržaj</i>
Naučna oblast	1.02.01.01.003.	Prirodne nauke
Naučno polje	1.02.01.01.003.	Računarstvo i informatika
Uža naučna oblast	1.02.01.01.003.	Računarske nauke
Naučna podoblast	1.02.01.01.003.	Procesno računarstvo
Naučna disciplina	1.02.01.01.003.	Napredno mobilno računarstvo

OPIS PREDMETA:

Educational and professional goals:	<p>The aim of the course is to introduce the student to the advanced techniques of modern mobile computing, and to deal with the specifics of the development of mobile and web applications and their execution in cooperation. Within this subject, students acquire basic knowledge about the development of mobile and web applications in a multiplatform environment. Knowledge of a hands-on approach is acquired, including version control, real-time application development, sensor usage, user interface design, and application testing on real devices and a real server. Through the workshops, the development of a complete project of a mobile application that works in real time and includes communication with a remote server and with remote databases is carried out. The project also deals with the topic of multiplatform programming and the basics of simultaneous development of applications for Android and iOS.</p>
Competences/educational outcomes:	<p>The student will be able to:</p> <ul style="list-style-type: none"> • master the concepts of advanced mobile computing • use the advanced tools of the Android Studio development environment and the Android emulator • creates user interfaces, using XML and graphical tools • understands the basics of gaming approach, manage sound, image and animation control • develops, tests and debugs mobile applications • uses git and github in project development • develops Flutter programs for iOS and Android applications • understands the concept and develops mobile applications for work in real time

	<ul style="list-style-type: none"> through the project, master the knowledge for developing a mobile application that communicates with a remote server and database through the project, masters the knowledge to develop a web portal through which the user monitors and manages, and further distributes multimedia data that was delivered through developed mobile application to a remote database.
Mastered skills:	Students will be able to understand the elements of a modern approach to the development of mobile applications, to understand the specifics of mobile applications compared to applications that work on fixed devices, the concept of XML UI design and Java programming, to use the Android Studio development environment and the Flutter framework, to develop and test basic cross-platform mobile applications that run on Android and iOS operating systems. The student will be introduced to the basic requirements for gaming applications development, such as sound, image and animation control. Students will learn the basics of JavaScript and PHP, and JSON representation of resources, as well as the use of the Bootstrap framework. Through the project, students will also master the basics of developing mobile applications which communicates with remote servers and remote databases, and which upload and download multimedia data using RESTful web services. The student uses real servers and a remote database in the project. Student uses git and github.
Course content:	<p>I: Mobile platforms and mobile services. Programming of mobile and nomadic devices</p> <p>II: Advanced Project Approach: Version Control Systems. Git and Github.</p> <p>III: Basics of gaming approach: Mobile applications with animation and multimedia. Sound and image control.</p> <p>IV: Remote database access and real-time mobile applications</p> <p>V: Creating web applications. Management of user communication between different web applications</p> <p>VI: Project: programming a mobile application for creating and sending images. Sensor Access and Sensor use: Camera, Vibration, GPS, Display, Gyroscope, Accelerometer. API programming.</p> <p>VIII: Programming of mobile application with a remote database. Application of REST principles. Communication with a real remote server.</p> <p>IX: Project - cross-platform programming using Flutter framework and Dart programming language on Windows and macOS operating systems.</p>

METRIKA PREDMETA:

ECTS	Nastavne aktivnosti (čas)					Individualni rad		SVEGA časova rada	
	Kontakt časovi		Vježbe treninzi	Seminarski i stud. radovi	Pedagoške radionice	Stručna i klinič. praksa	Individual. i grupno učenje		Istraživ. izvora
	R	V							
5	20	10	20		24		65	11	150

Jezici izvođenja nastave				
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PREDUSLOVI ZA PRISTUP PREDMETU

Šifra	Naziv predmeta/modula znanja	Ocjena	Opis uslova (dodatni)
1.02.01.01.003.	Mobilno računarstvo		
2.09.04.001.	Sistemska softver (operativni sistemi)		
1.02.01.02.002.	Napredne računarske mreže		

METODIKA IZVOĐENJA PREDMETA

U toku obrade predmeta predviđena su:

- 30 kontakt-sati interaktivnih predavanja;
- 20 sati za vježbe i treninge;
- 24 Pedagoške radionice
- 65 Individualno i grupno učenje
- 11 sati za istraživanje izvora.

Predavanja se vrše prema utvrđenom rasporedu uz korištenje savremenih prezentacionih i demonstracionih sredstava i tehnika sa primjenom interaktivne metode rada sa studentima čime se stiče uvid u njihova predznanja i specifična iskustva zasnovana na obrađivanoj problematici, ali i uvid u kontinuitet savladavanja gradiva. Za predmet "Napredno mobilno računarstvo" predviđeno je 30 kontakt-sati interaktivne nastave.

Predavanja se izvode korištenjem didaktičkih i edukativnih sadržaja u elektronskoj i digitalnoj formi (koji uključuju i snimljena predavanja i mentorske vježbe) na različitim video-prezentacionim medijima (interaktivni multimedijalni optički mediji).

Nastava u cjelini se izvodi primjenom informaciono-komunikacionih tehnologija (ICT) koje omogućavaju studentima da kroz kompjuterski podržano učenje i istraživanje (Computer Assisted Learning & Research) ostvare aktivan odnos u procesu sticanja znanja uz pomoć računarske i komunikacione tehnologije.

EVALUACIJA RADA STUDENTA

Red. br.	Vrsta evaluacije	Parcijalna/konačna	Opciona / obavezna	Procenat učešća
01	Učešće u kontaktnom radu - interakcija na predavanjima	predispitna obaveza	obavezni	10-20 %
02	Seminarski/stručni radovi studenta	predispitna obaveza	obavezni/opcion	20-30 %
03	Ispitne aktivnosti – finalni test (problemski test, pisani ispit)	konačni	obavezni/opcion	30-50 %

LITERATURA / IZVORI (navedena po redosljedu važnosti)

Autor (Prezime, Ime)	Naziv publikacije	Sjedište izdavača	Izdavač	God. izdanja	Vrsta publ.*
a/ Osnovna literatura					
Đukanović Goran	Napredno mobilno računarstvo			2021	multimedija
b/ Dopunska literatura					
Dawn Griffiths, David Griffiths	<i>Android programiranje bez oklevanja</i>	Beograd	CET	2018	knjiga
Rick Boyer, Kyle Merrifield Mew	<i>ANDROID STUDIO IDE kuvar za razvoj aplikacija</i>	Beograd	Kompjuter biblioteka	2016	knjiga
Ronan Schwarz, Phil Dutson, James Steele, Nelson To	<i>Android 4: Izrada aplikacija pomoću paketa Android SDK</i>	Beograd	Mikro knjiga	2014	knjiga
c/ Ostali izvori - časopisi,					
Autor – Prezime, Ime (ukoliko je izvor članak)	Naziv časopisa	Sjedište izdavača	Izdavač	God. izdanja	Vrsta časopisa

c/ Ostali izvori – WEB					
Naziv sajta	Adresa sajta	Naziv rada/hiperlink		Očitano	
Flutter	https://flutter.dev/			22.08.2021	
Android Developers	https://developer.android.com/			22.08.2021	
(*)Vrsta publikacije (knjiga, skripta, kompendium, multimedija)					