UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17)			
Predmet:	Programiranje specifičnih platform		
Course title:	Platform based development		
Študijski program in stopnja Study programme and level	**Študijska smer Study field**	**Letnik Academic year**	**Semester Semester**
Interdisciplinarni univerzitetni študijski program Računalništvo in matematika	ni smeri	3	drugi
Interdisciplinary first cycle academic study programme Computer Science and Mathematics	none	3	second

Vrsta predmeta / Course type	izbirni / elective
Univerzitetna koda predmeta / University course code:	63287

Predavanja Lectures	**Seminar Seminar**	**Vaje Tutorial**	**Klinične vaje work**	**Druge oblike študija**	**Samost. delo Individ. work**	**ECTS**
					180	**6**

Nosilec predmeta / Lecturer:	prof. dr. Zoran Bosnić

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski / Slovene
	Vaje / Tutorial:	slovenski / Slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v letnik študija.	Enrolment in the programme.
Vsebina:	**Content (Syllabus outline):**

Predmet vsebuje teme s področja programiranja specifičnih platform, ki so priporočene v ACMjevem kurikulu za računalništvo. Konkretna vsebina se bo letno prilagajala trendom, zato kurikulum ni omejen na konkretne platforme. pregled platform (spletne, mobilne, igralne, industrijske, vgradne, robotske, paralelne/skalabilne,…), podprti programski jeziki programiranje z uporabo specifičnih knjižnic, programiranje glede na omejitve posamezne platforme, programski jeziki za mobilne platforme, ravnotežje poraba/zmogljivost in analiza izvrševanja programa, omejitve in izzivi mobilnih platform ter brezžična komunikacija, lokacijske aplikacije in nove tehnologije (navidezna in obogatena resničnost,…), programiranje in pristopi za časovno kritične interaktivne platforme, omejitve platform za časovno kritične interaktivne aplikacije, izbrane vsebine iz programiranja industrijskih/robotskih/vgradnih platform, izbrane vsebine iz programiranja igralnih platform. Vaje potekajo konzultacijsko in seminarsko. Gradi se projekt skozi sprinte po Scrum metodi razvoja programske opreme.	The course will include topics in platform based development recommended in the ACM curriculum for CS. The topics will continually adapt to contemporary trends, thus the course is not constrained to a specific platform. overview of platforms (web, mobile, game, industrial, embedded, robotic, paralel/scalable, …), supported/domain-specific programming languages programming via platform-specific APIs programming under platform constraints, mobile platform languages, performance/power tradeoffs and profiling, mobile platform constraints and challenges with wireless communication, location-aware applications and emerging technologies (virtual and augmented reality,…) programming languages and approaches for time-critical interactive platforms, platform constraints for time-critical interactive applications, selected topics from industrial/robotic/embedded platforms programming, selected topics from game platforms programming. Practical part of the course consists of seminar work and consultations (tutorial). Students build the project using sprints as specified by Scrum software engineering methodology.

Temeljni literatura in viri / Readings:

D. Crockford: JavaScript: The Good Parts, O'Reilly Media, 1st edition (May 2008)

P. A. Laplante , S. J. Ovaska :Real-Time Systems Design and Analysis: Tools for the Practitioner, Wiley-IEEE Press, 4 edition (November 22, 2011)

M. Neuburg: iOS 9 Programming Fundamentals with Swift: Swift, Xcode, and Cocoa Basics, O'Reilly Media, 2015.

R. Meier: Professional Android 4 Application Development, 3rd Edition, Wrox, 2012.

R. Ierusalimschy: Programming in LUA, Lua.org, 2013.

Cilji in kompetence:

Cilj predmeta je spoznati različne moderne računalniške platforme in se spoznati s specifikami razvoja programske opreme na teh platformah.

Splošne kompetence:

- Zmožnost kritičnega razmišljanja.

- Zmožnost definirati, razumeti in rešiti kreativne strokovne izzive na področju računalništva in informatike.

- Zmožnost apliciranja in nadgrajevanja pridobljenega znanja.

Predmetno specifične kompetence:

- Zmožnost prenosa znanja sodelavcem v tehnoloških ekipah.

- Veščine in praktično znanje o posebnih strojni opremi platform, specialnih programskih jezikih in omejitvah posameznih platform.

Objectives and competences:

The aim of the course is to gain expertise on several modern platforms and learn the specifics of software development for these.

General competences:

- Ability of critical thinking.

- The ability to define, understand and solve creative professional challenges in computer and information science.

- The ability to apply and upgrade acquired knowledge.

Subject specific competences:

- The ability to transmit knowledge to co-workers in technology groups.

- Practical knowledge and skills of paticular computer hardware of specific platforms, special programming languages and constraints associated with these.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Razumevanje delovanja prevajalnika: poznavanje algoritmov za sintaksno in semantično analizo programov ter algoritmov za generiranje vmesne in strojne kode, poznavanje omejitev prevajalnikov. Poznavanje delovanja prevedenih programov. Uporaba: Prevajalnik je osnovno orodje pri razvoju programske opreme, zato se pridobljeno znanje avtomatsko uporablja pri vsakem programiranju. Refleksija: Spoznavanje in razumevanje odnosa med programiranjem in izvajanjem programov. Prenosljive spretnosti - niso vezane le na en predmet: Algoritmi za analizo strukturiranih besedil, pisanje učinkovito kodiranih programov.	Knowledge and understanding: understanding limitations imposed by various platforms for software developers, mastering the performance/power tradeoff, understanding and comparing specific platform oriented languages with general purpose programming. Application: developing a software product for selected mobile or time-critical platforms, e.g., interactive, game and robotic platforms. Reflection: Besides practical skills students shall gain theoretical background on particularities associated with platform based development. Transferable skills: Programming is the basic skill and an implicitly required prerequisite for most other courses.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in domača naloge. Poseben poudarek je na individualnem delu študentov.	Lectures and homework with special emphasis on individual work.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt):		Type (examination, oral, coursework, project):
Sprotno preverjanje (domače naloge)	50%	Continuing (homeworks)
Končno preverjanje (pisni in ustni izpit)	50%	Final (written and oral exam)
Ocene: 6-10 pozitivno, 1-5 negativno		Grading: 6-10 pass, 1-5 fail.
(v skladu s Statutom UL)		

Reference nosilca / Lecturer's references:

OCEPEK, Uroš, BOSNIĆ, Zoran, NANČOVSKA ŠERBEC, Irena, RUGELJ, Jože. Exploring the relation between learning style models and preferred multimedia types. Computers & Education, ISSN 0360-1315. [Print ed.], Nov. 2013, vol. 69, str. 343-355. , doi: . [COBISS.SI-ID 10047572]

BOSNIĆ, Zoran, KONONENKO, Igor. Estimation of individual prediction reliability using the local sensitivity analysis. Applied intelligence, ISSN 0924-669X. [Print ed.], Dec. 2008, vol. 29, no. 3, str. 187-203, ilustr. [COBISS.SI-ID 6174548]

BOSNIĆ, Zoran, KONONENKO, Igor. Comparison of approaches for estimating reliability of individual regression predictions. Data & Knowledge Engineering, ISSN 0169-023X. [Print ed.], Dec. 2008, vol. 67, no. 3, str. 504-516, ilustr. [COBISS.SI-ID 6923604]

ŠTRUMBELJ, Erik, BOSNIĆ, Zoran, KONONENKO, Igor, ZAKOTNIK, Branko, GRAŠIČ-KUHAR, Cvetka. Explanation and reliability of prediction models : the case of breast cancer recurrence. Knowledge and information systems, ISSN 0219-1377. [Print ed.], 2010, vol. 24, no. 2, str. 305-324, graf. prikazi. [COBISS.SI-ID 7555668]

BOSNIĆ, Zoran, KONONENKO, Igor. Automatic selection of reliability estimates for individual regression predictions. Knowledge engineering review, ISSN 0269-8889, 2010, vol. 25, no. 1, str. 27-47, graf. prikazi. [COBISS.SI-ID 7606356]