UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17)

Predmet:	Izbrana poglavja iz računalništva in informatike
Course title:	Topics in computer and information science

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Interdisciplinarni magistrski študijski program Računalništvo in matematika	ni smeri	1 ali 2	prvi
Interdisciplinary Master's study programme Computer Science and Mathematics	none	1 or 2	first

Vrsta predmeta / Course type	izbirni / elective

Univerzitetna koda predmeta / University course code: 63536

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work		ECTS
45		30			105		6

Nosilec predmeta / Lecturer: prof. dr. Neža Mramor-Kosta

Jeziki / Languages:	Predavanja / Lectures:	slovenski / Slovene, angleški / English
	Vaje / Tutorial:	slovenski / Slovene, angleški / English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v letnik študija.	Enrolment in the programme.

Vsebina:	Content (Syllabus outline):

Predmet je namenjen uveljavljenim gostujočim predavateljem iz tujine ali iz prakse. Ti bodo študentom v okviru predmeta predstavili nove odmevne ideje, metodološke preboje ali uporabne rešitve s področja računalništva in informatike, ki kot take še niso vključene v vsebine obstoječih predmetov. Podrobna vsebina se določi vsako leto posebej glede na predloge in strokovno usmeritev izbranega predavatelja.	The course is intented for established visiting researchers and lecturers and for experts in computer and information science which will introduce students to topics that are interesting due to recent theoretical findings and mehodological breakthroughs or for their applicative value, and are as such not included into the existing curriculum. The specific contents of the course is determined yearly.

Temeljni literatura in viri / Readings:

Thomas H. Cormen, Charles E. Leiserson…: Introduction to Algorithms, 2nd edition, MIT Press, 2001.

Graham, Ronald L., Knuth, Donald E., Patashnik, Oren (1994). Concrete Mathematics (second ed.). Reading, MA: Addison-Wesley Publishing Company. pp. xiv+657. ISBN 0-201-55802-5. MR1397498

O'Regan, Gerard: A Brief History of Computing, Springer, 2008.

Dodatna literatura se predpiše vsako leto posebej glede na vsebino in predloge izbranega predavatelja.

Additional literature is given yearly, with respect to the current topic of the course.

Cilji in kompetence:

Objectives and competences:

Cilj predmeta je spoznati teoretične osnove in praktične implementacije novih metod in tehnologij na področju računalništva in informatike.	The goal of the course is to introduce basic theoretical ideas as well as practical implementations of new methods and technologies in the field of computer and information science

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje: Študenti spoznavajo nova področja in prijeme, ki v obstoječem predmetniku še niso zajeta.

Uporaba: Uporaba najnovejših pristopov in tehnik z izbranega področja računalništva in informatike.

Refleksija: Razumevanje primernosti izbranih pristopov s področja računalništva in informatike za reševanje praktičnih primerov v poslovnih okoljih.

Prenosljive spretnosti - niso vezane le na en

predmet: Reševanje kompleksnih problemov, razvoj kompleksnih sistemov.

Knowledge and understanding: A broader overview and understanding of the field of study, and of up to date methods and concepts.

Application: Applying current approaches and techniques from the specific field of computer and informations science.

Reflection: Understanding the advantages of the chosen approaches in computer and information science in solving specific practical tasks.

Transferable skills: Solving complex problems, designing complex systems.

Metode poučevanja in učenja:

Predavanja, laboratorijske vaje

Learning and teaching methods:

Lectures, lab excersises

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt):		Type (examination, oral, coursework, project):
Sprotno preverjanje (domače naloge, kolokviji in projektno delo)	50%	Continuing (homework, midterm exams, project work)
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:

JURČIČ-ZLOBEC, Borut, MRAMOR KOSTA, Neža. Geometric constructions on cycles. Rocky Mountain journal of mathematics, ISSN 0035-7596, 2004, vol. 34, no. 4, str. 1565-1585. [COBISS.SI-ID 13268057]

KING, Henry C., KNUDSON, Kevin, MRAMOR KOSTA, Neža. Generating discrete Morse functions from point data. Experimental mathematics, ISSN 1058-6458, 2005, vol. 14, no. 4, str. 435-444. [COBISS.SI-ID 13872985]

JAWOROWSKI, Jan, MRAMOR KOSTA, Neža. The degree of maps of free G-manifolds. Journal of fixed point theory and its applications, ISSN 1661-7738, 2007, vol. 2, no. 2, str. 209-213. [COBISS.SI-ID 14569305]

JERŠE, Gregor, MRAMOR KOSTA, Neža. Ascending and descending regions of a discrete Morse function. Computational geometry, ISSN 0925-7721. [Print ed.], 2009, vol. 42, iss. 6-7, str. 639-651. [COBISS.SI-ID 14994265]

AYALA, Rafael, VILCHES, Jose Antonio, JERŠE, Gregor, MRAMOR KOSTA, Neža. Discrete gradient fields on infinite complexes. Discrete and continuous dynamical systems, ISSN 1078-0947, 2011, vol. 30, no. 3, str. 623-639. [COBISS.SI-ID 15865945]