UČNI NAČRT PREDMETA / COURSE SYLLABUS			
Predmet:	Aktualno raziskovalno področje II		
Course title:	Topical research themes II		

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	drugi
Interdisciplinary Masters study programme Computer Science and Mathematics	none	1 or 2	second

Vrsta predmeta / Course type	izbirni

Univerzitetna koda predmeta / University course code: 63546

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
45	10	20			105	6

Nosilec predmeta / Lecturer: Matej Kristan

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:**

Vsebina:	**Content (Syllabus outline):**

Predmet izvajajo (mlajši) učitelji, ki bodo pokrivali novosti iz teoretično usmerjenega raziskovalnega dela. Predstavili bodo nove ideje, metodološke preboje ali nove usmeritve na področju teoretičnega računalništva in informatike, ki še niso vključene v vsebine obstoječih predmetov. Podrobna vsebina in predavatelj se določi vsako leto posebej glede na predloge, potrebe programa in zadnje raziskovalne smernice v svetu.	The course is lectured by (younger) professors who present novelties from theoretically oriented research work. Currently uncovered topics interesting due to recent theoretical findings or methodological breakthroughs are presented. The lecturer and specific contents of the course are determined annually according to the propositions, programme needs, and latest research trends.

Temeljni literatura in viri / Readings:

M. Li, P. Vitányi, An Introduction to Kolmogorov Complexity and Its Applications, 3rd edition. Springer, 2008 J. E. Hopcroft, R. Motwani, J. D. Ullman , Introduction to Automata Theory, Languages, and Computation, 3rd edition. Prentice Hall, 2006. Dodatna literatura se predpiše vsako leto posebej glede na vsebino in predloge izbranega predavatelja. Additional literature is given annually, with respect to the current topic of the course.

Cilji in kompetence: **Objectives and competences:**

Cilj predmeta je prenesti raziskovalne novosti v učni program in študentom omogočiti, da spoznajo njihove teoretične osnove, metodološke novosti in posledice za razvoj novih metod in tehnologij na področju računalništva in informatike.	The goal of the course is a transfer of recent research results into the curriculum. Students will be introduced to novel theoretical ideas as well as their possible impact for development of new methods and technologies in the field of computer and information science.

Predvideni študijski rezultati: **Intended learning outcomes:**

Po zaključku predmeta bo študent: - Poznal nove praktične raziskovalne prijeme, ki v obstoječem predmetniku še niso zajeta. - Znal uporabiti najnovejše pristope in tehnike z izbranega področja računalništva in informatike v praksi.	After completing this course a student will: - Be familiar with the field of study from the practical point of view, and recent new methods and concepts. - Know current practically oriented approaches and techniques from the specific field of computer and

- Razumel primernosti izbranih pristopov s področja računalništva in informatike za reševanje praktičnih primerov v poslovnih okoljih. - Znal reševati kompleksne probleme in razvijati kompleksne sisteme.	information science in. - Understand the advantages of the chosen approaches in computer and information science in solving specific practical tasks. - Know how to solve complex problems, and design complex systems.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, laboratorijske vaje	Lectures, lab work.

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

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

Reference nosilca / Lecturer's references:

Matej Kristan:

– KRISTAN, Matej, PERŠ, Janez, PERŠE, Matej, KOVAČIČ, Stanislav. Closed-world tracking of multiple interacting targets for indoor-sports applications. Computer vision and image understanding, ISSN 1077-3142. [Print ed.], May 2009, vol. 113, no. 5, str. 598-611. [COBISS.SI-ID 6401620]

– KRISTAN, Matej, KOVAČIČ, Stanislav, LEONARDIS, Aleš, PERŠ, Janez. A two-stage dynamic model

for visual tracking. IEEE transactions on systems, man, and cybernetics. Part B, Cybernetics, ISSN 1083-4419. [Print ed.], Dec. 2010, vol. 40, no. 6, str. 1505-1520, ilustr. [COBISS.SI-ID 7709524]

– KRISTAN, Matej, LEONARDIS, Aleš, SKOČAJ, Danijel. Multivariate online kernel density estimation with Gaussian kernels. Pattern recognition, ISSN 0031-3203. [Print ed.], 2011, vol. 44, no. 10/11, str. 2630-2642, ilustr. [COBISS.SI-ID 8289876]

– ČEHOVIN, Luka, KRISTAN, Matej, LEONARDIS, Aleš. Robust visual tracking using an adaptive coupled-layer visual model. IEEE transactions on pattern analysis and machine intelligence, ISSN 0162-8828. [Print ed.], Apr. 2012, vol. 35, no. 4, str. 941-953, ilustr. [COBISS.SI-ID 9431124]

– SULIĆ KENK, Vildana, MANDELJC, Rok, KOVAČIČ, Stanislav, KRISTAN, Matej, HAJDINJAK, Melita, PERŠ, Janez. Visual re-identification across large, distributed camera networks. Image and vision computing, ISSN 0262-8856. [Print ed.], Feb. 2015, vol. 34, str. 11-26. [COBISS.SI-ID 10896980]