

UČNI NAČRT PREDMETA / COURSE SYLLABUS						
Predmet:		Uvod v programiranje				
Course title:		Introduction to programming				
Študijski program in stopnja Study programme and level		Študijska smer Study field		Letnik Academic year		Semester Semester
Univerzitetni študijski program Matematika		ni smeri		1		drugi
First cycle academic study programme Mathematics		none		1		second
Vrsta predmeta / Course type				obvezni		
Univerzitetna koda predmeta / University course code:				M0204		
Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30		45			105	6
Nosilec predmeta / Lecturer:		doc. Matija Pretnar, prof. Andrej Bauer, prof. Marko Petkovšek				
Jeziki / Languages:		Predavanja / Lectures: slovenski/Slovene				
		Vaje / Tutorial: slovenski/Slovene				
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites:		
Opravljen predmet Računalniški praktikum.				Completed course Computer laboratory.		
Vsebina:				Content (Syllabus outline):		

<p>Zgradba računalnika in pojem algoritma. Osnovni koncepti v programiranju: spremenljivke, aritmetika, osnovni podatkovni tipi. Strukturirano programiranje: funkcije, pogojni stavek, rekurzija, zanke.</p> <p>Podatkovni tipi: tabele, slovarji, objekti, datoteke. Organizacija izvorne kode. Orodja za razvoj programske opreme. Osnove računske zahtevnosti algoritmov.</p>	<p>The structure of a computer and the concept of an algorithm. Basic programming concepts: variables, arithmetic, basic data types. Structured programming: functions, conditional statement, recursion, loops.</p> <p>Data types: arrays, dictionaries, objects, files. Managing source code. Software development tools. Basics of computational complexity.</p>
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Temeljni literatura in viri / Readings:

<p>Priročniki in učbeniki za programske jezike, ki jih študenti spoznajo. Manuals and textbooks for programming languages that students learn.</p>
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Cilji in kompetence:

<p>Študent spozna osnovne tehnike programiranja.</p>
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Objectives and competences:

<p>Student learns the basic programming techniques.</p>

Predvideni študijski rezultati:

<p>Znanje in razumevanje: Znanje iz osnov programiranja.</p> <p>Uporaba: Reševanje matematičnih in drugih problemov z računalnikom, predvsem kadar je treba za rešitev problema sestaviti preprost program.</p> <p>Refleksija: Sposobnost programiranja omogoča uporabniku višji nivo nadzora nad računalnikom in mu omogoča reševanje problemov, ki jih z običajnimi aplikacijami ne more rešiti.</p>
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Intended learning outcomes:

<p>Knowledge and understanding: Knowledge of basic programming.</p> <p>Application: Solving mathematical and other problems with a computer, in particular when a simple computer program is required for this task.</p> <p>Reflection: The ability of programming enables a higher lever of control over the computer and enables the student to solve the problems that cannot be solved using the standard applications.</p>

Prenosljive spretnosti – niso vezane le na en predmet: Programerske sposobnosti študent uporabi pri ostalih računalniških in numeričnih predmetih.

Transferable skills: The skill of programming is required in other computer and numerical courses.

Metode poučevanja in učenja:

Predavanja, vaje, domače naloge, konzultacije

Learning and teaching methods:

Lectures, exercises, homework, consultations

Delež (v %) /

Weight (in %)

Načini ocenjevanja:

Assessment:

domače naloge, kolokviji, projekti, pisni izpit, ustni izpit
ocene: 5 (negativno), 6-10 (pozitivno)
(po Statutu UL)

homework, midterm exams, projects,
written exam, oral exam

grading: 5 (fail), 6-10 (pass) (according to
the Statute of UL)

100%

Reference nosilca / Lecturer's references:

Andrej Bauer:

– BAUER, Andrej. A relationship between equilogical spaces and Type Two Effectivity. *Mathematical logic quarterly*, ISSN 0942-5616, 2002, vol. 48, suppl. 1, str. 1-15 [COBISS.SI-ID 12033369]

– AWODEY, Steve, BAUER, Andrej. Propositions as [Types]. *Journal of logic and computation*, ISSN 0955-792X, 2004, vol. 14, no. 4, str. 447-471 [COBISS.SI-ID 13374809]

– BAUER, Andrej, SIMPSON, Alex. Two constructive embedding-extension theorems with applications to continuity principles and to Banach-Mazur computability. *Mathematical logic quarterly*, ISSN 0942-5616, 2004, vol. 50, no. 4/5, str. 351-369 [COBISS.SI-ID 13378649]

Marko Petkovšek:

– PETKOVŠEK, Marko, WILF, Herbert S., ZEILBERGER, Doron. *A=B*. Wellesley (Massachusetts): A. K.

Peters, cop. 1996. VII, 212 str. ISBN 1-56881-063-6 [COBISS.SI-ID 4085337]

– PETKOVŠEK, Marko. Counting Young tableaux when rows are cosets. *Ars combinatoria*, ISSN 0381-7032, 1994, let. 37, str. 87-95 [COBISS.SI-ID 8048473]

– PETKOVŠEK, Marko. Letter graphs and well-quasi-order by induced subgraphs. *Discrete Mathematics*, ISSN 0012-365X. [Print ed.], 2002, vol. 244, no. 1-3, str. 375-388 [COBISS.SI-ID 11414873]

Matija Pretnar:

– PLOTKIN, Gordon, PRETNAR, Matija. Handling algebraic effects. *Logical methods in computer science*, ISSN 1860-5974, 2013, vol. 9, iss. 4, paper 23 (str. 1-36) [COBISS.SI-ID 16816729]

– PRETNAR, Matija. Inferring algebraic effects. *Logical methods in computer science*, ISSN 1860-5974, 2014, vol. 10, iss. 3, paper 21 (str. 1-43) [COBISS.SI-ID 17190745]

– BAUER, Andrej, PRETNAR, Matija. An effect system for algebraic effects and handlers. *Logical methods in computer science*, ISSN 1860-5974, 2014, vol. 10, iss. 4, paper 9 (str. 1-29). <http://arxiv.org/pdf/1306.6316> [COBISS.SI-ID 17191001]