



Univerza v Mariboru



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Fakulteta za naravoslovje in
matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Računalniški praktikum
Course title:	Programming practicum

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalna matematika – dvopredmetni, 1. stopnja		2. ali 3.	4. ali 6.
Educational mathematics – Double-major, 1 st degree		2. or 3.	4. or 6.

Vrsta predmeta / Course type

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15			15		150	6

Nosilec predmeta / Lecturer:

Jeziki / Languages:	Predavanja / Lectures:	SLOVENSKO/SLOVENE
	Vaje / Tutorial:	SLOVENSKO/SLOVENE

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vsebina:

Sistemska programska oprema: operacijski sistem (zgradba OS, vrste in primeri OS), prevajalnik, povezovalnik, nalagalnik, testni program.

Osnove računalniških omrežij.

Programsko okolje: priprava programa,

Content (Syllabus outline):

System software: operating system (functions of OS, structure of OS, varieties of OS, examples of common OS), compiler, linker, loader, debugger.

Fundamentals of computer networks.

Programming environment: program coding,

prevajanje, testiranje in izvajanje.

Značilnosti sodobnih programskih jezikov.

Osnove objektnega programiranja (objekti, metode, razredi, enkapsulacija, dedovanje, polimorfizem).

compiling, testing and executing.

Characteristics of the state-of-the-art programming languages.

Principles of object-oriented programming (objects, methods, classes, encapsulation, inheritance, polymorphism).

Temeljni literatura in viri / Readings:

Deloma odvisni od izbranega programskega jezika:

npr. D. Marshall, Programming Microsoft Visual C# 2005 : The language, Microsoft Press, 2006.

J. G. Brookshear, Computer science : an overview, Addison-Wesley, 2005.

K. B. Bruce, Foundations of object-oriented languages, MIT Press, 2002.

M. Mernik, V. Žumer, Programski jeziki, Fakulteta za elektrotehniko, računalništvo in informatiko, 2003.

Cilji in kompetence:

Spoznati zahtevnejše računalniške koncepte: operacijski sistem in druge vrste systemske programske opreme, računalniška omrežja in sodobne programske jezike.

Objectives and competences:

Know more demanding concepts from computer science: operation system and the other system software programs, computer networks and state-of-the-art programming languages.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Razumevanje zahtevnejših principov računalništva.
- Spoznati vrste systemske programske opreme.
- Sposobnost pisanja kompleksnih programov.

Prenesljive/ključne spretnosti in drugi atributi:

- Prenos znanja računalništva na druga področja (matematika, biologija, kemija, optimizacija, ...).

Intended learning outcomes:

Knowledge and Understanding:

- Be able to understand more demanding principals of computer science.
- To know a variety of system software programs.
- Be able to write a complex computer program.

Transferable/Key Skills and other attributes:

- Knowledge transfer of methods of computer science into other fields (mathematics, chemistry, biology, optimization, ...).

Metode poučevanja in učenja:		Learning and teaching methods:
<ul style="list-style-type: none"> • Predavanja • Računalniške vaje 		<ul style="list-style-type: none"> • Lectures • Computer exercises
Načini ocenjevanja:		Assessment:
<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <p>Naloge</p> <p>Pisni izpit – problemi</p> <p>Pisni izpit – teorija</p> <p>Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.</p> <p>Pozitivna ocena pri nalogah je pogoj za pristop k pisnemu izpitu – problemi, in pozitivna ocena pri pisnem izpitu – problemi je pogoj za pristop k pisnemu izpitu – teorija.</p>	<p>Delež (v %) / Weight (in %)</p> <p>20%</p> <p>50%</p> <p>30%</p>	<p>Type (examination, oral, coursework, project):</p> <p>Coursework</p> <p>Written exam – problems</p> <p>Written exam – theory</p> <p>Each of the mentioned commitments must be assessed with a passing grade.</p> <p>Passing grade of the coursework is required for taking the written exam – problems. Passing grade of the written exam – problems is required for taking the written exam – theory.</p>
Reference nosilca / Lecturer's references:		
<p>1. KORŽE, Danilo, VESEL, Aleksander. A note on the independence number of strong products of odd cycles. <i>Ars comb.</i>, 2012, vol. 106, str. 473-481. [COBISS.SI-ID 16138006]</p> <p>2. TARANENKO, Andrej, VESEL, Aleksander. 1-factors and characterization of reducible faces of plane elementary bipartite graphs. <i>Discuss. Math., Graph Theory</i>, 2012, vol. 32, no. 2, str. 289-297, doi: 10.7151/dmgt.1607. [COBISS.SI-ID 19104264]</p> <p>3. SALEM, Khaled, KLAVŽAR, Sandi, VESEL, Aleksander, ŽIGERT, Petra. The Clar formulas of a benzenoid system and the resonance graph. <i>Discrete appl. math.</i>. [Print ed.], 2009, vol. 157, iss. 11, str. 2565-2569. http://dx.doi.org/10.1016/j.dam.2009.02.016. [COBISS.SI-ID 15142489]</p> <p>4. VESEL, Aleksander. 4-tilings of benzenoid graphs. <i>MATCH Commun. Math. Comput. Chem.</i> (Krag.), 2009, vol. 62, no. 1, str. 221-234. [COBISS.SI-ID 16886536]</p> <p>5. TARANENKO, Andrej, VESEL, Aleksander. Characterization of reducible hexagons and fast decomposition of elementary benzenoid graphs. <i>Discrete appl. math.</i>. [Print ed.], 2008, vol. 156, iss. 10, str. 1711-1724. http://dx.doi.org/10.1016/j.dam.2007.08.029, doi: 10.1016/j.dam.2007.08.029. [COBISS.SI-ID 16140552]</p>		