



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
Matematika	Splošna matematika	1.	2.
Mathematics	General Mathematics	1.	2.

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
30			60		120	7

Nosilec predmeta / Lecturer:

Andrej Taranenko

Jeziki /

Languages:

Predavanja /

Lectures:

Vaje / Tutorial:

SLOVENSKO/SLOVENE

SLOVENSKO/SLOVENE

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

Jih ni.

Prerequisites:

There are none.

Vsebina:

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

Osnove računalniških omrežij.

Programsko okolje: priprava programa, prevajanje, testiranje in izvajanje.

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, compiling, testing and executing.

Značilnosti sodobnih programskih jezikov.

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

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:

- Predavanja
- Računalniške vaje

Learning and teaching methods:

- Lectures
- Computer exercises

Načini ocenjevanja:**Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt) Naloge Pisni izpit – problemi Pisni izpit – teorija Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno. 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.	Delež (v %) / Weight (in %) 20% 50% 30%	Type (examination, oral, coursework, project): Coursework Written exam – problems Written exam – theory Each of the mentioned commitments must be assessed with a passing grade. 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.
Reference nosilca / Lecturer's references:		
1. 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] 2. TARANENKO, Andrej, ŽIGERT, Petra. Resonant sets of benzenoid graphs and hypercubes of their resonance graphs. <i>MATCH Commun. Math. Comput. Chem. (Krag.)</i>, 2012, vol. 68, no. 1, str. 65-77. http://www.pmf.kg.ac.rs/match/content68n1.htm. [COBISS.SI-ID 16051990] 3. KLAVŽAR, Sandi, SALEM, Khaled, TARANENKO, Andrej. Maximum cardinality resonant sets and maximal alternating sets of hexagonal systems. <i>Comput. math. appl. (1987)</i>. [Print ed.], 2010, vol. 59, no. 1, str. 506-513. http://dx.doi.org/10.1016/j.camwa.2009.06.011. [COBISS.SI-ID 15383641] 4. 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] 5. TARANENKO, Andrej, VESEL, Aleksander. On elementary benzenoid graphs: new characterization and structure of their resonance graphs. <i>MATCH Commun. Math. Comput. Chem. (Krag.)</i>, 2008, #Vol. #60, #no. #1, str. 193-216, ilustr. [COBISS.SI-ID 1939989]		