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, 1st 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: Andrej TARANENKO

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Jih ni.	There are none.

Vsebina:	**Content (Syllabus outline):**
Sistemska programska oprema: operacijski sistem (zgradba OS, vrste in primeri OS), prevajalnik, povezovalnik, nalagalnik, testni program.	System software: operating system (functions of OS, structure of OS, varieties of OS, examples of common OS), compiler, linker, loader, debbuger.
Osnove računalniških omrežij.	Fundamentals of computer networks.
Programsko okolje: priprava programa,	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:	**Objectives and competences:**
Spoznati zahtevnejše računalniške koncepte: operacijski sistem in druge vrste sistemske programske opreme, računalniška omrežja in sodobne programske jezike.	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:	**Intended learning outcomes:**
Znanje in razumevanje: • Razumevanje zahtevnejših principov računalništva. • Spoznati vrste sistemske programske opreme. • Sposobnost pisanja kompleksnih programov. Prenesljive/ključne spretnosti in drugi atributi: • Prenos znanja računalništva na druga področja (matematika, biologija, kemija, optimizacija, ...).	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:
• Predavanja • Računalniške vaje	• Lectures • Computer exercises

Načini ocenjevanja: | | **Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt) Naloge Pisni izpit – problemi Pisni izpit – teorija	Delež (v %) / Weight (in %) 20% 50% 30%	Type (examination, oral, coursework, project): Coursework Written exam – problems Written exam – theory
Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.		Each of the mentioned commitments must be assessed with a passing grade.
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.		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. KORŽE, Danilo, VESEL, Aleksander. A note on the independence number of strong products of odd cycles. *Ars comb.*, 2012, vol. 106, str. 473-481. [COBISS.SI-ID 16138006]

2. TARANENKO, Andrej, VESEL, Aleksander. 1-factors and characterization of reducible faces of plane elementary bipartite graphs. *Discuss. Math., Graph Theory*, 2012, vol. 32, no. 2, str. 289-297, doi: 10.7151/dmgt.1607. [COBISS.SI-ID 19104264]

3. SALEM, Khaled, KLAVŽAR, Sandi, VESEL, Aleksander, ŽIGERT, Petra. The Clar formulas of a benzenoid system and the resonance graph. *Discrete appl. math.*. [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]

4. VESEL, Aleksander. 4-tilings of benzenoid graphs. *MATCH Commun. Math. Comput. Chem. (Krag.)*, 2009, vol. 62, no. 1, str. 221-234. [COBISS.SI-ID 16886536]

5. TARANENKO, Andrej, VESEL, Aleksander. Characterization of reducible hexagons and fast decomposition of elementary benzenoid graphs. *Discrete appl. math.*. [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]