UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	**Izobraževalni programski jeziki**
Course title:	Educational programming languages

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalna matematika, dvopredmetni študij, 2. stopnja	Modul D2	**1. ali 2.**	**2. ali 4.**
Educational mathematics, double major 2nd degree	Module D2	**1. or 2.**	**2. or 4.**

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			**15**		**45**	**3**

Nosilec predmeta / Lecturer: Aleksander VESEL

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):
Osnovnih elementi in koncepti programskih jezikov. Zgodnje učenje programskih jezikov. Programski jeziki glede na starostna obdobja, stopnjo razvoja in predznanje. Koncepti postopnega nadgrajevanja izobraževalnih programskih jezikov. Različni primeri postopnega nadgrajevanja:	Basic programming languages' elements and concepts. Early learning of programming languages. Programming languages by age, stage of developments and background knowledge. Koncepts with sequences of programming languages where a student takes a course from easy to

Java, SmallTalk, Lisp.	understand to complex environment.
Izobraževalni programski jeziki in programski vzorci.	Various examples: Java, SmallTalk, Lisp.
	Educational programming languages and programming paradigms.
Primeri izobraževalnih programskih jezikov.	Examples of educational programming languages.

Temeljni literatura in viri / Readings:

Michael Kolling, Introduction to Programming with Greenfoot: Object-Oriented Programming in Java with Games and Simulations, Prentice Hall, 2009.
Jerry Lee Ford, Jr. ,Scratch Programming for Teens, Course Technology PTR, 2008.
Jerry Lee Ford, Jr. , Program Programming for the Absolute Beginner, Course Technology PTR, 2008.
Warren Sande, Carter Sande, Hello World! Computer Programming for Kids and Other Beginners, Manning Publications, 2009.

Cilji in kompetence:

- spoznati koncepte izobraževalnih programskih jezikov
- spoznati primere izobraževalnih programskih jezikov

Objectives and competences:

- to know concepts from educational programming languages
- to know examples of educational programming languages

Predvideni študijski rezultati:

Znanje in razumevanje:
- Poznavanje elementov programskih jezikov.
- Razmevanje pomena zgodnjega učenja programskih jezikov
- Poznavanje konceptov postopnega nadgrajevanja

Prenesljive/ključne spretnosti in drugi atributi:
- Prenos znanja na druga področja izobraževanja (naravoslovje, tehnika, matematika,...)

Intended learning outcomes:

Knowledge and Understanding:
- Knowing programming languages' elements.
- Understanding the importance of early learning of programming languages.
- Knowing concepts of learning paths for educational programming languages.

Transferable/Key Skills and other attributes:
- Transfer of knowledge to other areas education (science, technology, mathematics, , ...)

Metode poučevanja in učenja:

- Predavanja
- Računalniške in teoretične vaje

Learning and teaching methods:

- Lectures
- Computer and theoretical exercises

Načini ocenjevanja:

Assessment:

	Delež (v %) / Weight (in %)	

Izpit:		Exams:
Pisni izpit – problem	50%	Written exam - problems
Pisni izpit – teorija	50%	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.
Opravljen pisni izpit - problemi je pogoj za pristop k pisnemu izpitu - teorija.		Passing grade of 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]