



Univerza v Mariboru



Univerza v Mariboru

Fakulteta za naravoslovje in  
matematiko

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

<b>Predmet:</b>	<b>Izobraževalni programski jeziki</b>
<b>Course title:</b>	Educational programming languages

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalno računalništvo, dvopredmetni študij, 2. stopnja		2.	1.
Educational computer science, double major 2 <sup>nd</sup> degree		2.	1.

**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			30		90	5

**Nosilec predmeta / Lecturer:**

<b>Jeziki / Languages:</b>	<b>Predavanja / Lectures:</b>	<input type="text" value="SLOVENSKO/SLOVENE"/>
	<b>Vaje / Tutorial:</b>	<input type="text" value="SLOVENSKO/SLOVENE"/>

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

**Prerequisites:**

**Vsebina:**

Osnovnih elementi in koncepti programskih jezikov.  
  
Zgodnje učenje programskih jezikov.

**Content (Syllabus outline):**

Basic programming languages' elements and concepts.  
  
Early learning of programming languages.

Programski jeziki glede na starostna obdobja, stopnjo razvoja in predznanje.

Koncepti postopnega nadgrajevanja izobraževalnih programskih jezikov.  
Različni primeri postopnega nadgrajevanja: Java, SmallTalk, Lisp.

Izobraževalni programski jeziki in programski vzorci.

Primeri izobraževalnih programskih jezikov.

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 understand to complex environment.  
Various examples: Java, SmallTalk, Lisp.

Educational programming languages and programming paradigms.

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.
- Razumevanje pomena zgodnjega učenja programskih jezikov
- Poznavanje konceptov postopnega nadgrajevanja

Prenosljive/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

### Learning and teaching methods:

- Lectures

• Računalniške in teoretične vaje	• Computer and theoretical exercises	
<b>Načini ocenjevanja:</b>	<b>Assessment:</b>	
<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <p>Pisni test – problemi</p> <p>Izpit (pisni) - teorija</p> <p>Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.</p> <p>- Pozitivni oceni pri pisnem testu in nalogah sta pogoj za pristop k izpitu.</p>	<p>Delež (v %) / Weight (in %)</p> <p>50%</p> <p>50%</p>	<p>Type (examination, oral, coursework, project):</p> <p>Written test - problems</p> <p>Exam (written) – theory</p> <p>Each of the mentioned commitments must be assessed with a passing grade.</p> <p>- Passing grades of the written test and coursework are required for taking the exam</p>
<b>Reference nosilca / Lecturer's references:</b>		
<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. <a href="http://dx.doi.org/10.1016/j.dam.2009.02.016">http://dx.doi.org/10.1016/j.dam.2009.02.016</a>. [COBISS.SI-ID 15142489]</p> <p>4. VESEL, Aleksander. 4-tilings of benzenoid graphs. <i>MATCH Commun. Math. Comput. Chem. (Krag.)</i>, 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. <a href="http://dx.doi.org/10.1016/j.dam.2007.08.029">http://dx.doi.org/10.1016/j.dam.2007.08.029</a>, doi: 10.1016/j.dam.2007.08.029. [COBISS.SI-ID 16140552]</p>		