



Univerza v Mariboru



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Fakulteta za naravoslovje in
matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Programiranje I
Course title:	Programming I

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika	Uporabna matematika	3.	5. ali 6.
Mathematics	Applied Mathematics	3.	5. 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
45		45			120	7

Nosilec predmeta / Lecturer:

Aleksander VESEL

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:

Vsebina predmeta se prilagaja aktualnim potrebam in razvoju.

predmetno usmerjeno programiranje; navidezni računalnik; byte koda; prevajanje in zagon; elementi programskega jezika Java; operatorji in kontrolne strukture programskega jezika Java; primitivni tipi; kaj je statično; osnove definiranja in uporabe razredov; razredi, objekti, metode, konstruktor; inicializacija, finalizacija; življenjski cikel objekta; smetar;

Content (Syllabus outline):

The contents of this subject is adjusted to the current needs and development.

object oriented programming; virtual machine; byte code; Java language elements; compiling and running; Java language operators and control structures; primitive types; what is static; basics of defining and using classes; classes, objects, methods, constructor; initialization, finalization; object's life cycle; garbage collector; JavaDoc documentation system

JavaDoc dokumentni sistem

dedovanje; polimorfizem; prekrivanje metod; vmesniki; pretvorba tipov; osnovni razredi System, String, StringBuffer, Math, itd.; ovojni razredi; polja; razumevanje paketov; omejevanje dostopnosti (private, public, protected, friendly); strukture za zbirke objektov (Vector, List, Set, HashMap, Map,...); lokalizacija, kodiranje teksta

inheritance; polymorphism; method overloading; interfaces; type casting; basic classes System, String, StringBuffer, Math, etc.; wrapper classes; arrays; understanding packages; limiting access (private, public, protected, friendly); structures for objects collections (Vector, List, Set, HashMap, Map,...); localization, text encoding

Temeljni literatura in viri / Readings:

U. Mesojedec, B. Fabjan, Java 2, temelji programiranja, ISBN 961-6361-30-9, Pasadena, 2004.

B. Eckel, Thinking in Java, The Definitive Introduction to Object Oriented Programming in the Language of the World Wide Web, ISBN 013-1872-48-6, Prentice Hall, 4th ed., 2006.

J. Bloch, Effective Java: Programming Language Guide, ISBN 020-1310-05-8, Addison-Wesley, 2001.

Cilji in kompetence:

Spoznati osnove in naprednejše pristope objektno orientiranega programiranja.

Spoznati jezikovno sintakso Jave, strukturo in platformo.

Spoznati orodja za razvoj aplikacij.

Objectives and competences:

Know basics and advanced approaches to object oriented programming.

Know Java language syntax, structure and platform.

Know tools for application development.

Predvideni študijski rezultati:

Znanje in razumevanje:

- spoznati pojme, koncepte, mehanizme platforme Java
- znati uporabljati orodja za razvoj aplikacij

Prenesljive/ključne spretnosti in drugi atributi:

- uporaba matematičnih pojmov v programskih aplikacijah
- uporaba ustreznih podatkovnih struktur pri implementaciji matematičnih algoritmov
- pridobljena znanja se prenašajo na druge z računalništvom povezane predmete

Intended learning outcomes:

Knowledge and Understanding:

- to know basic notions, concepts, mechanisms of Java platform
- operative knowledge with tools for application development

Transferable/Key Skills and other attributes:

- the usage of mathematical notions in applications
- the usage of appropriate data structures while implementing mathematical algorithms
- the obtained knowledge is transferable to the other computer science oriented subjects

Metode poučevanja in učenja:		Learning and teaching methods:	
• Predavanja • Praktične vaje		• Lectures • Practical exercises	
Načini ocenjevanja:		Assessment:	
Način (pisni izpit, ustno izpraševanje, naloge, projekt)	Delež (v %) / Weight (in %)	Type (examination, oral, coursework, project):	
Pisni test – praktični del	50%	Written test – practical part	
Izpit (ustni) – teoretični del	50%	Exam (oral) – theoretical part	
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 pisnem testu je pogoj za pristop k izpitu.		Passing grade of the written test is required for taking the exam.	
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, KLAUVŽAR, 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](#)]