

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Uvod v programiranje
Course title:	Introduction to Programming

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Računalništvo in spletne tehnologije, visokošolski strokovni študijski program prve stopnje	-	Prvi	Prvi
Computer Science and Web Technologies, first cycle Professional Study Programme	-	First	First

Vrsta predmeta / Course type Obvezni / Obligatory

Univerzitetna koda predmeta / University course code: 2-RST-VS- UP-2016-10-01

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	/	45	/	/	105	6

Nosilec predmeta / Lecturer:

Jeziki / Languages:	Predavanja / Lectures:	Slovenski / Slovenian, Angleški / English
	Vaje / Tutorial:	Slovenski / Slovenian, Angleški / English

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

Pogoj za vključitev v delo je vpis v 1. letnik študija. Pogoj za pristop k izpitu so opravljene vse obveznosti na vajah.

Prerequisites:

Enrolment into the first year of the study. Student has to pass all requirements given at the exercises before examination.

Vsebina:

- *Uvod: programiranje kot reševanje problemov, kratka zgodovina programiranja.*
- *Algoritem in program: diagrami poteka.*
- *Strukturirano in objektno usmerjeno programiranje: ključni koncepti objektno usmerjenega programiranja.*
- *Programski jezik Java: javanski virtualni računalnik.*
- *Osnovni podatkovni tipi.*

Content (Syllabus outline):

- *Introduction: programming as problem solving, brief history of programming.*
- *Algorithm and program: flowcharts.*
- *Structured and object oriented programming: key concepts of object oriented programming.*
- *Java programming language: Java virtual machine.*
- *Basic data types.*
- *Declaring constants and variables.*

- Deklaracije konstant in spremenljivk.
- Prireditveni stavki, izrazi, operatorji.
- Krmilni stavki.
- Tabele, nizi.
- Metode, razredi in objekti, konstruktorji, dedovanje.
- Podprogrami, dogodki, izjeme.
- Napotki za dobro programiranje.

- Assignments, expressions, operators.
- Control flow statements.
- Arrays, strings.
- Methods, classes and objects, constructors, inheritance.
- Subroutines, events, exceptions.
- Good programming practices.

Temeljni literatura in viri / Readings:

- MRHAR, PETER (2002) *Java 2 - prvi korak*. Šempeter pri Gorici: Flamingo.
- MESOJEDEC, UROŠ in FABJAN, BORUT (2004) *Java2: temelji programiranja*. Ljubljana: Pasadena.
- ECK, DAVID J. (2011) *Introduction to Programming Using Java*, 6th Edition. <http://math.hws.edu/javanotes/>.
- ECKEL, BRUCE (2002) *Thinking in Java*, 3rd Edition. <http://www.mindview.net/Books/TIJ/>.
- BARNES, DAVID J. in KOLLING, MICHAEL (2009) *Objects First with Java - A Practical Introduction using BlueJ*, 4th Edition, Harlow: Pearson Education International.
- WIRTH, NIKLAUS (1985) *Računalniško programiranje I*. Ljubljana: DMFA.
- WIRTH, NIKLAUS (1985) *Računalniško programiranje II*. Ljubljana: DMFA.

Cilji in kompetence:

Učna enota prispeva k razvoju naslednjih splošnih in predmetno-specifičnih kompetenc:

Splošne kompetence:

- poznavanje osnov računalništva in informacijske tehnologije
- usposobljenost za izvajanje vseh faz razvoja računalniških aplikacij: načrtovanje, razvoj, zagon, prodaja, vzdrževanje

Predmetnospecifične kompetence:

- poznavanje osnovnih pojmov računalniškega programiranja
- poznavanje osnov programskega jezika Java
- zmožnost zapisati problem v obliki algoritma in pretvorba algoritma v računalniški program z uporabo sodobnih programskih orodij
- sposobnost samostojnega reševanja realnih problemov s pomočjo računalniškega programiranja

Objectives and competences:

The module contributes to the following general and subject-specific competences:

General competences:

- familiarity with the basics of computer science and information technology
- competence to carry out all phases in the development of computer applications: planning, development, start-up, sales, maintenance

Subject-specific competences:

- knowledge of basic principles of computer programming
- basic knowledge of Java programming language
- ability to write a problem in the form of an algorithm and its conversion into a computer program with the use of modern programming tools
- ability to autonomously solve real life problems with computer programming

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka:

- razvije zmožnost logičnega razmišljanja in sposobnost načrtovanja programov
- razume pomen načrtovanja in testiranja programske opreme
- zmore dekompozicijo večjega problema na več manjših in lažje obvladljivih
- zna programirati v programskem jeziku Java

Intended learning outcomes:

Knowledge and understanding:

The student:

- develops the ability of logical thinking and designing computer programs
- understands the importance of software design and testing
- is able to decompose a bigger problem into a set of smaller ones that are easier to handle
- knows how to program in Java

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov)
- *laboratorijske vaje*, kjer bodo študentje na konkretnih problemih ponovili, utrdili in dodatno osvetlili pojme in metode, spoznane na predavanjih
- *seminarska naloga* bo študente naučila samostojnega reševanja praktičnih problemov v programiranju

Learning and teaching methods:

- *lectures* with active student participation (explanation, discussion, questions, examples, problem solving)
- *lab work*, during which the students will use practical problems to repeat and strengthen the topics and methods presented at the lectures
- *student project* will prepare the students to autonomously solve practical programming problems

Delež (v %) /

Weight (in %)

Načini ocenjevanja:**Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt):

Type (examination, oral, coursework, project):

- pisni izpit

100

- written exam