

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
Informatika v sodobni družbi, visokošolski strokovni in univerzitetni študijski program prve stopnje	-	Prvi	Prvi
Informatics in Contemporary Society, first cycle Professional Study Programme and Academic Study programme	-	First	First

Vrsta predmeta / Course type

Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

1-ISD-VS,UN-UP-2016-10-01

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	-	-	45	135	7

Nosilec predmeta / Lecturer:

**Jeziki /
Languages:**

**Predavanja /
Lectures:**

Slovenski, angleški / Slovene, English

Vaje / Tutorial:

Slovenski, angleški / Slovene, English

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

Pogoj za vključitev v delo je vpis v 1. letnik študija, ustreznost prisotnosti na vajah in zagovorjena seminarska naloga.

Prerequisites:

Enrollment into the first year of the study programme, appropriate presence during the lab work and finished student project.

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 stavek, pisanje izrazov, 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.
- Methods, classes and objects, constructors, inheritance.
- Subroutines, events, exceptions. Good programming practices.

Temeljni literatura in viri / Readings:

- Mrhar, P. (2002). Java 2 - prvi korak. Šempeter pri Gorici: Flamingo.
- Mesojedec, U. (1997). Java: Programiranje za Internet. Ljubljana: Pasadena.
- Mesojedec, U., Fabjan B. (2004). Java2: temelji programiranja. Ljubljana: Pasadena.
- Barnes, D.J., Kolling, M. (2004). Objects First with Java - A Practical Introduction using BlueJ, 2nd Edition, Prentice Hall/Pearson Education.
- Wirth, N. (1985). Računalniško programiranje I. Ljubljana: DMFA.
- Wirth, N. (1985). Računalniško programiranje II. Ljubljana: DMFA.
- Učno razvojno okolje za Javo - BlueJ (URL: <http://www.bluej.org/index.html>).

Cilji in kompetence:

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

- poznavanje osnovnih pojmov računalniškega programiranja
- zmožnost zapisati problem v obliki algoritma in pretvorba algoritma v računalniški program z uporabo sodobnih programskih orodij
- razumevanje računalniških sistemov in arhitektur
- sposobnost samostojnega reševanja realnih problemov s pomočjo računalniškega programiranja

Objectives and competences:

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

- knowledge of basic principles of computer programming
- ability to write a problem in the form of an algorithm and its conversion into a computer program with the use of up-to-date programming tools
- understanding of computer systems and architectures
- ability to autonomously solve real life problems with computer programming

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka:

- razvije logično razmišljanja in sposobnosti načrtovanja programov
- razume pomen načrtovanja in testiranja programske opreme
- zmore dekompozicijo večjega problema na več manjših in obvladljivih
- razume, kako računalnik deluje na logični ravni
- operativno pozna programski jezik 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
- understands the logical principles of computers
- is able to write programs in Java

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov)
- *vaje*, kjer bodo študentje na konkretnih problemih ponovili, utrdili in dodatno osvetlili pojme in metode, spoznane na predavanjih
- *kolokviji*: z njimi bodo študentje stimulirani, da sproti študirajo snov, ki bo obravnavana na predavanjih in vajah
- *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
- *midterm exams* will stimulate the students to study concurrently with lectures and lab work
- *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