



Univerza v Mariboru

Fakulteta za elektrotehniko,
računalništvo in informatiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: OSNOVE RAČUNALNIŠKIH SISTEMOV

Course title: COMPUTER SYSTEMS BASICS

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
RAČUNALNIŠTVO IN INFORMACIJSKE TEHNOLOGIJE 1. stopnja UN	RAČUNALNIŠTVO IN INFORMACIJSKE TEHNOLOGIJE	1	1
COMPUTER SCIENCE AND INFORMATION TECHNOLOGIES 1st cycle Academic undergraduate	COMPUTER SCIENCE AND INFORMATION TECHNOLOGIES		

Vrsta predmeta / Course type

Obvezni / Compulsory

Univerzitetna koda predmeta / University course code

61U002

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	0	30	0	0	90	5

Nosilec predmeta / Lecturer:

MILAN ZORMAN

Jeziki /

Predavanja / Lectures: Slovenščina / Slovene

Languages:

Vaje / Tutorial: Slovenščina / Slovene

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

Prerequisites:

Pogojev ni

None

Vsebina:

<ul style="list-style-type: none"> • Uvod v računalništvo: zgodovinski pregled, mehanski, elektromehanski in elektronski računalniki. • Informacijska tehnologija, računalniška pismenost. • Reševanje problemov z računalniki: postopkovno razmišljanje, snovanje rešitev, programiranje. • Računalniška arhitektura: von Neumannov model računalnika. • Sestava računalnika; pregled razvoja ter stanja tehnike sestavnih elementov: centralna procesna enota, vhodno izhodne enote, notranji in zunanji pomnilnik, periferne naprave. • Številski sistemi, pretvorbe in aritmetika. • Logični izrazi in operacije. • Turingov stroj. • Računalniški sistemi in programska oprema. • Računalništvo in intelektualna lastnina. 	Content (Syllabus outline): <ul style="list-style-type: none"> • Introduction to Computer Science: historical timeline; mechanical and electronic computers. • Information technology, computer literacy. • Solving problems with computers: procedural thinking, generating solutions, programming. • Computer architecture: von Neumann's model. • Components of computer architecture; development and state of the art of components: CPU, input – output units, internal and external memory, peripheral devices. • Number systems, conversions and arithmetic. • Logic expressions and operations. • Turing machine. • Computer systems and software. • Computer Science and intellectual property.
---	--

Temeljna literatura in viri / Readings:

<ul style="list-style-type: none"> • Dr. William M Springer II: A Programmer's Guide to Computer Science, Jaxson Media, 2019. • M. E. Vermaat, S. L. Sebok, S. M. Freund, J. T. Campbell, M. Frydenberg,: Discovering Computers 2018: Digital Technology, Data, and Devices, Course Technology, 2017. • B. Christian, T. Griffiths: Algorithms to Live By: The Computer Science of Human Decisions, HarperCollins Publishers, 2017.
--

Cilji in kompetence:

<p>Naučiti študenta osnov delovanja računalnika. Študent dojame vlogo informacijsko komunikacijske tehnologije v sodobnem svetu. Študent se nauči osnovnih aplikacij računalnika v sodobnem svetu</p>	Objectives and competences: <p>The student will learn the basic working of a computer system. The student understands the role of the information and communication technology in real world. The students know the real world applications of computers</p>
---	--

Predvideni študijski rezultati:

<p><u>Znanje in razumevanje:</u></p> <ul style="list-style-type: none"> • poznavati delovanja računalnika • razumeti možnosti uporabe računalniških sistemov in informacijske tehnologije • uporabiti računalniške sisteme in informacijske tehnologije za reševanje problemov • uporabiti številske sisteme, pretvorbe in aritmetiko • uporabiti logične izraze in operacije za implementacijo algoritmov <p><u>Prenosljive/ključne spretnosti in drugi atributi:</u></p> <ul style="list-style-type: none"> • Spretnosti komuniciranja: poznavanje osnovnih terminov s področja računalniških sistemov in informacijske tehnologije. 	Intended learning outcomes: <p><u>Knowledge and understanding:</u></p> <ul style="list-style-type: none"> • present the knowledge in the basics of computers systems • understand possible applications of computer systems and information technology • use computer systems and information technologies to solve problems • use number systems, conversions and arithmetic • use logic expressions and operations to implement algorithms <p><u>Transferable/Key skills and other attributes:</u></p> <ul style="list-style-type: none"> • Communication skills: knowing of basic computers system and information system terminology
--	--

Metode poučevanja in učenja:

<ul style="list-style-type: none"> • predavanja, • vaje. 	Learning and teaching methods: <ul style="list-style-type: none"> • lectures, • lab work.
--	--

Načini ocenjevanja:**Assessment:**

Pisni izpit - 50%	Written exam - 50%
Laboratorijsko delo - 50%	Laboratory work - 50%

Opombe: Pisni izpit se lahko nadomesti s kolokviji v enakem deležu 50 %.

Comments: The exam may be replaced by written midterm examinations in the weight of 50%.

Reference nosilca / Lecturer's references:

- ZORMAN, Milan, ŽLAHTIČ, Bojan, STRADOVNIK, Saša, HACE, Aleš. Transferring artificial intelligence practices between collaborative robotics and autonomous driving. *Kybernetes : the international journal of systems & cybernetics*. 30 Avg. 2022, 19 str. ISSN 0368-492X.
- ČERANIĆ, Davorin, ZORMAN, Milan, SKOK, Pavel. Interleukins and inflammatory markers are useful in predicting the severity of acute pancreatitis. *Bosnian journal of basic medical sciences*. 2020, vol. 20, no. 1, str. 99-105, ilustr. ISSN 1840-4812.
- ŽLAHTIČ, Bojan, ŽLAHTIČ, Grega, KOKOL, Peter, ZORMAN, Milan. Ubiquitous smart devices : source of big data and a solution for big data. V: BARILE, Sergio (ur.), et al. *Cybernetics and systems : social and business decisions*. 1st ed. Abingdon; New York: Routledge, 2019. Str. 270-271. Routledge-Giappichelli systems management. ISBN 978-1-138-59728-0, ISBN 978-0-429-48698-2