



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Računalniške periferne naprave in sistemi
Course title:	Computer Peripheral Devices and Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika		3.	6.
Mathematics		3.	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			30		105	6

Nosilec predmeta / Lecturer:

Krista RIZMAN ŽALIK

Jeziki /

Languages:

Predavanja /

Lectures:

SLOVENSKO/SLOVENE

Vaje / Tutorial:

SLOVENSKO/SLOVENE

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

Jih ni.

Prerequisites:

There are none.

Vsebina:

Razvoj in zgradba računalniških sistemov.
Sekvenčnost obdelav v računalniških sistemih.
Predstavitev podatkov in logična vezja.
Komponente računalniških sistemov.
Hitri pomnilnik (statični, dinamični, hierarhija pomnilnika).
Dodatni pomnilniki in osnove elektronskih, optičnih in magnetnih tehnologij pomnilnikov.
Tehnike stiskanja podatkov in mehanizmi zaznavanja in popravljanja napak.
Delovanje interaktivnih perifernih naprav (tipkovnica, miška, zvok).
Prikazovalniki: delovanje katodne cevi, prikazovalniki na osnovi tekočih kristalov, plazma prikazovalniki in nove razvojne

Content (Syllabus outline):

Computer systems development and architecture.
Sequential execution in computer systems. Data presentation and logical nets.
Components of computer systems:
Other memory and basics of electronic, optical and magnetic technologies of saving data.
Techniques of data compression and mechanisms of errors recognition and correcting.
Working of interactive peripheral devices (keyboard, mouse, sound).
Monitors: working of cathode ray tubes, monitors with liquid crystals, plasma monitors and new technologies.

tehnologije.
Grafične kartice.
Tiskalniki, risalniki, tablice, skenerji.
Naprave za navidezno resničnost.
Zmogljivost računalniških sistemov in nadgradljivost.

Graphical cards.
Printers, plotters, tables and scanners.
Virtual reality devices.
Capacity of computer systems and scalability.

Temeljni literatura in viri / Readings:

Ron White: How computers work, (prevod Kako rade računari), 2004, QUE, 2003.
Žalik, Zadavec, Pogorelec, Računalniške periferne naprave in uporabniški vmestniki, FERi, 2002.
I. Englander, The Architecture of Computer Hardware and Systems Software: An Information Technology Approach, Wiley, 2003.

Cilji in kompetence:

Predstaviti računalniške sisteme in periferne naprave z vidikov: arhitekture, izgradnje, uporabljenih tehnologij, organizacije in principov delovanja.

Objectives and competences:

Main objective is to gain knowledge about the computer systems and peripheral devices from the following views: architectural, how to build, technologies used, organisation and principles of working.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Znanje zgradbe in delovanja računalniških sistemov, perifernih naprav in računalniških tehnologij z ciljem učinkovitejše gradnje, izvajanja in vzdrževanja programske opreme.

Prenesljive/ključne spretnosti in drugi atributi:

- Razumevanje temeljnih principov delovanja in tehnologij računalniških sistemov.

Intended learning outcomes:

Knowledge and Understanding:

- Knowledge of architecture and operating of computer systems and computer peripheral devices and technologies with the aim to efficient build, execute and maintenance of computer systems.

Transferable/Key Skills and other attributes:

- Understanding of activities of computer systems and used technologies for individual components.

Metode poučevanja in učenja:

- Predavanja
- Računalniške vaje

Learning and teaching methods:

- Lectures
- Computer exercises

Načini ocenjevanja:

Assessment:

Način (pisni izpit, ustno izpraševanje, naloge, projekt)
Računalniške naloge
Pisni izpit – teoretični del

Delež (v %) /
Weight (in %)
50%
50%

Type (examination, oral, coursework, project):
Computer exercises
Written exam – 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 računalniških nalogah pogoj za pristop k izpitu.		Passing grade of the Computer exercises is required for taking the exam.
Reference nosilca / Lecturer's references:		
1. ŽALIK, Borut, MONGUS, Domen, RIZMAN ŽALIK, Krista, LUKAČ, Niko. Chain code compression using string transformation techniques. Digital signal processing, ISSN 1051-2004, June 2016, vol. 53, str. 1-10, doi: 10.1016/j.dsp.2016.03.002. 2. RIZMAN ŽALIK, Krista. Maximal neighbor similarity reveals real communities in networks. Scientific reports, ISSN 2045-2322, 2015, vol. 5, art. no. 18374, str. 1-10, doi: 10.1038/srep18374. 3. LUKAČ, Niko, ŽALIK, Borut, RIZMAN ŽALIK, Krista. Sweep-hyperplane clustering algorithm using dynamic model. Informatica, ISSN 0868-4952, 2014, vol. 25, no 4, str. 564-580, doi: 10.15388/Informatica.2014.30. 4. RIZMAN ŽALIK, Krista, ŽALIK, Borut. A local multiresolution algorithm for detecting communities of unbalanced structures. Physica. A, Statistical mechanics and its applications, ISSN 0378-4371. [Print ed.], 2014, vol. 407, str. 380-393, doi: 10.1016/j.physa.2014.03.059. 5. RIZMAN ŽALIK, Krista, ŽALIK, Borut. Validity index for clusters of different sizes and densities. Pattern recognition letters, ISSN 0167-8655. [Print ed.], Jan. 2011, vol. 32, iss. 2, str. 221-234, doi: 10.1016/j.patrec.2010.08.007.		