



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Osnove informacijskih sistemov
Course title:	Fundamentals of Information Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	3	5
Five-year master's degree program Subject Teacher	/		

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
30	15		15		30	3

Nosilec predmeta / Lecturer:

Jeziki / Languages: Predavanja / Lectures:
Vaje / Tutorial:

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

Vsebina:
Content (Syllabus outline):

Podatek in informacija.
 Merilo informacije, enačba informacije, entropija informacije.
 Informacijski sistemi in razvojni koraki življenjskega cikla programske opreme.
 Uveljavljene in novejšje metode in orodja razvoja informacijskih sistemov in programske opreme .
 Atributi kakovosti informacijskih sistemov.
 Vrste informacijskih sistemov.
 Arhitekture informacijskih sistemov: podatkovno usmerjena, pretočna arhitektura, arhitektura z virtualnim strojem, arhitektura klica in vrnitve, aktualne komponente arhitekture.
 Varovanje informacijskih sistemov.

Data and information.
 Measure of information, equation, entropy of information.
 Information systems and development phases of software lifecycle.
 Enforced and new methods and tools for software development of information systems development.
 Quality attributes: execution and development.
 Types of information systems.
 Architectures: data centred dataflow architecture, virtual machine architecture, and call and return architecture, actual component architecture.
 Security of information systems.

Temeljni literatura in viri / Readings:

E.Turban, R.K. Rainer,R. E.Potter, Introduction to Information Technology, 3rd edition, John Wiley & Sons, New Yourk, 2004.
 U. Mesojedec, Java, programiranje za internet, Pasadena, 1997.
 Avison, D. E. in Fitzgerald, G. (2003). Information systems development: methodologies, techniques and tools, McGraw-Hill, London.
 Stevens, P., Pooley, R., Using UML: software engineering with objects and components, Addison-Wesley, 2000.

Cilji in kompetence:

Spoznavanje temeljnih konceptov informacijskih sistemov.
 Spoznavanje metodologij in metod razvoja informacijskih sistemov.

Objectives and competences:

This course gives understanding of basic concepts of information systems and understanding methodologies and methods of information systems development

Predvideni študijski rezultati:

Znanje in razumevanje:
 Znanje konceptov razvoja, vzdrževanja in varovanja informacijskih sistemov.
 Znanje izdelati informacijski sistem.

Intended learning outcomes:

Knowledge and Understanding:
 Knowledge and Understanding:
 Understand how database management systems work
 The knowledge of basic concepts of development, maintenance and security of information systems.
 Database creation and querying with programming language SQL
 the knowledge of development and implementation of information systems.

Metode poučevanja in učenja:

Learning and teaching methods:

Predavanja Računalniške vaje	Lectures Computer exercises
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	Delež (v %) / Weight (in %)	Assessment:
Načini ocenjevanja: Računalniške vaje Seminar Pisni izpit Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno. Pozitivna ocena pri računalniških vajah in seminarju je pogoj za pristop k izpitu.	30% 30% 40%	Computer exercises, Seminar Written exam Each of the obligations must be carried out with a positive assessment. Positive evaluation of computer exercises and seminar is a prerequisite for the exam.

Reference nosilca / Lecturer's references:

RIZMAN ŽALIK, Krista, ŽALIK, Borut. A local multiresolution algorithm for detecting communities of unbalanced structures. *Physica. A, Statistical mechanics and its applications*, 2014, vol. 407, str. 380-393.

RIZMAN ŽALIK, Krista, ŽALIK, Borut. Validity index for clusters of different sizes and densities. *Pattern recogn. lett. (Print)*. [Print ed.], Jan. 2011, vol. 32, iss. 2, str. 221-234.

RIZMAN ŽALIK, Krista. Cluster validity index for estimation of fuzzy clusters of different sizes and densities. *Pattern recogn.*. [Print ed.], Oct. 2010, vol. 43, iss. 10, str. 3374-3390.

RIZMAN ŽALIK, Krista, ŽALIK, Borut. A sweep-line algorithm for spatial clustering. *Adv. eng. softw. (1992)*. [Print ed.], Jun. 2009, vol. 40, iss. 6, str. 445-451.

RIZMAN ŽALIK, Krista. An efficient k'-means clustering algorithm. *Pattern recogn. lett. (Print)*. [Print ed.], July 2008, vol. 29, iss. 9, str. 1385-1391.