UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Informacijsko komunikacijska tehnologija
Course title:	Information and communications technology

Študijski program in stopnja	Študijska smer	Letnik	Semester
Study programme and level	**Study field**	**Academic year**	**Semester**
Enovit magistrski študijski program druge stopnje Predmetni učitelj		**1.**	**zimski**
Five-year master's degree program Subject Teacher		**1.**	**winter**

Vrsta predmeta / Course type obvezni

Univerzitetna koda predmeta / University course code:

Predavanja	Seminar	Sem. vaje	Lab. vaje	Teren. vaje	Samost. delo	ECTS
Lectures	**Seminar**	**Tutorial**	**Laboratory work**	**Field work**	**Individ. work**	
30			30		60	4

Nosilec predmeta / Lecturer: Igor Pesek

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisits:
Jih ni.	None.

Vsebina:	Content (Syllabus outline):

• Pedagoške in tehnološke osnove IKT. • Kibernetika, teorija sistemov, informatika, osnove teorije informacij in komunikacij. Računalniški sistemi. Strojna in programska oprema. • Uporaba IKT v izobraževanju in izobraževalni informacijski sistemi. Pregled stanja in trendov uporabe IKT v SLO in v svetu. Modeli uporabe IKT v izobraževanju. Strategije uporabe IKT v izobraževanju. Ekspertni učni sistemi. • Multimedijski in hipermedijski sistemi. Standardi in normativi. Multimedijske tehnike. Multimedijska in hipermedijska izobraževalna strojna in programska oprema. Multimedijska razvojna orodja. • Izobraževalna omrežja – izobraževalni internet. Tradicionalna področja izobraževalnega interneta, projektno delo, spletna izobraževalna programska oprema, avdio in videokonferenčni učni sistemi. Video na zahtevo. Učenje na daljavo. Spletna razvojna orodja. • Planiranje in evalvacija uporabe IKT v izobraževanju.	• Teaching and technological bases of ICT. • Cybernetics, theory of systems, information science, bases of theory of information and communications. Computer systems. Hardware and software. • Use of ICT in education and educational information systems. State and trends review of use ICT in SLO and world. • ICT models in education. ICT strategies in education. Expert teaching systems. • Multimedia and hypermedia systems. Standards and norms. Multimedia technologies. Multimedia and hypermedia educational hardware and software. Multimedia development tools. • Educational networks – educational Internet. Traditional fields of educational Internet, project work, web educational software, audio and videoconference systems in education. Video on demand. Distance learning. Web development tools. • Planning and evaluation of ICT use in education.

Temeljni literatura in viri / Readings:

- Gerlič: Sodobna informacijska tehnologija v izobraževanju, Ljubljana , DZS, 2000.
- D. Soleša, M. Černetič, I. Gerlič: New media in education. Univerza Novi Sad – Univerza Maribor, 2007.
- O naravi učenja, Uporaba raziskav za navdih prakse, Pariz in Ljubljana, OECD in ZRSŠ, 2013
- Ruth C. Clark, Richard E. Mayer, E-learning and the science of instruction : proven guidelines for consumers and designers of multimedia learning, John Wiley & Sons, 2011
- William Kendall Horton, E-learning by design, John Wiley & Sons, 2006
- S. Carliner, P. Shank, The e-learning handbook : past promises, present challenges, John Wiley & Sons, 2008

Cilji in kompetence:

Objectives and competences:

• Podati poglobljeno teoretično in praktično znanje s področja uporabe IKT v izobraževanju in stroki, • poglobljeno znanje IKT standardov in distribucije podatkov, • poglobljeno znanje elektronskih komunikacij, razviti sposobnosti študentov za samostojno in kreativno reševanje praktičnih problemov z uporabo IKT v izobraževanju in študiju.	• Deep theoretical and practical knowledge of using ICT in education and profession, • deep knowledge of ICT standards and data distributions, • deep knowledge of electronic communications, • abilities to creatively solve problems in practice with ICT systems in education and study.

Predvideni študijski rezultati:

- Teoretično in praktično ozadje IKT naprav,
- prednosti in slabosti IKT sistemov v izobraževanju,
- distribucija in prenos e - podatkov in e-gradiv.
- Uporaba znanj pri uporabi in izdelavi kakovostnih e-gradiv,
- organiziranje in vodenje projektov za izdelavo e-učnih vsebin.

Intended learning outcomes:

- Theoretical and practical background of ICT equipment,
- advantages and disadvantages of ICT systems in education,
- distributions and transmission of e-data and e-materials.
- Knowledge for development of quality e-materials,
  organizing and management projects of ICT learning material development.

Metode poučevanja in učenja:

- Predavanja
- Laboratorijske vaje
- Individualno delo

Learning and teaching methods:

- Lectures
- Laboratory exercises
- Individual work

Delež (v %) /

Načini ocenjevanja: Weight (in %)   **Assessment:**

Teoretični del:		Theoretical part:
• pisni izpit.	40%	• written exam.
• projektna naloga	20%	• project work
Praktični del:		Practical part:
• praktikum – laboratorijsko delo	40%	• practical course – laboratory work

Reference nosilca / Lecturer's references:

1. DOLENC, Kosta, PESEK, Igor, ABERŠEK, Boris. Modular and branched structure of individualized intelligent e-learning materials for science and technology subject course. V: LAMANAUSKAS, Vincentas (ur.). *Science, technology, society and education issues - 2013*, (Problems of education in the 21st century, ISSN 1822-7864, vol. 57). Siauliai: Scientific Methodological Center Scientia Educologica, 2013, str. 16-24.

2. GALTIER, Jerome, PESEK, Igor, PRNAVER, Katja, ŽEROVNIK, Janez. Oriented networks design problem. *Journal of information science and engineering*, ISSN 1016-2364, 2010, vol. 26, no. 4, str. 1231-1242.

3. ZMAZEK, Blaž, PESEK, Igor, MILEKŠIČ, Vladimir, REPOLUSK, Samo, SENEKOVIČ, Jožef, LIPOVEC, Alenka. Vsebinsko-didaktična izhodišča in napotila pri izdelavi i-učbenikov = Contents and didactic guidelines in the

i-textbooks production. V: PESEK, Igor (ur.), et al. *Slovenski i-učbeniki*. Ljubljana: Zavod Republike Slovenije za šolstvo, 2014, str. 29-51, ilustr. http://www.zrss.si/pdf/slovenski-i-ucbeniki.pdf. [COBISS.SI-ID 20590856]

4. PESEK, Igor (urednik), ZMAZEK, Blaž (urednik), MILEKŠIČ, Vladimir (urednik)*. Slovenski i-učbeniki*. Ljubljana: Zavod Republike Slovenije za šolstvo, 2014. ISBN 978-961-03-0248-3. http://www.zrss.si/pdf/slovenski-i-ucbeniki.pdf. [COBISS.SI-ID 274076928]

5. PESEK, Igor, ŽEROVNIK, Janez. New spectral numerical characterization of DNA sequences. *WSEAS Transactions on Biology and Biomedicine*, ISSN 1109-9518, 2008, vol. 5, iss. 10, str. 261-270. http://www.wseas.us/e-library/transactions/biology/2008/29-209.pdf.

6. PESEK, Igor, SCHAERF, Andrea, ŽEROVNIK, Janez. Hybrid local search techniques for the resource-constrained project scheduling problem. V: Hybrid metaheuristics, 4th international workshop, HM 2007, Dortmund, Germany, October 8-9, 2007, proceedings. BARTZ-BEIELSTEIN, Thomas (ur.). *Hybrid metaheuristics : 4th international workshop, HM 2007, Dortmund, Germany, October 8-9, 2007 : proceedings*, (Lecture notes in computer science, ISSN 0302-9743, 4771), (LNCS sublibrary, SL 1, Theoretical computer science and general issues). Berlin; Heidelberg; New York: Springer, cop. 2007, str. 57-68.

7. KELENC, Aleksander, KOS, Tim, KREN, Matej, PESEK, Igor. eXeCute - avtorsko orodje za izdelavo e-gradiv = eXeCute - authoring tool. V: Mednarodna konferenca Splet izobraževanja in raziskovanja z IKT - SIRIKT 2011, Kranjska Gora, 13.-16. april 2011, 13th-16th April 2011. BAČNIK, Andreja (ur.), et al. (Zbornik). Ljubljana: Miška, 2011, str. 1123-1125. [COBISS.SI-ID 18435080]