UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	GEOGRAFIJSKI INFORMACIJSKI SISTEMI
Course title:	GEOGRAPHICAL INFORMATION SYSTEMS

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
LOGISTIKA SISTEMOV 1.stopnja		2.	3.
SYSTEM LOGISTICS 1. degree			

Vrsta predmeta / Course type	OBVEZNI
Univerzitetna koda predmeta / University course code:	UN

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Laboratory work	Druge oblike študija Field work	Samost. delo Individ. work	ECTS
15 e-P 15 a-P		24 e-V 21 a-V			135	7

Nosilec predmeta / Lecturer:	TOMAŽ KRAMBERGER

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisits:
Ni pogojev	None

Vsebina:	Content (Syllabus outline):
▪ GIS koncept, ▪ razvoj GIS-a skozi zgodovino, ▪ tehnike in tehnologije uporabljane v GIS-u, ▪ projekcije, koordinatni sistemi in kartografski datumi, ▪ uvod ARC GIS, ▪ Arc Info ▪ Arc Map, ▪ Arc Catalog, ▪ zajem podatkov, ▪ shranjevanje podatkov, ▪ analiza podatkov, ▪ prikaz podatkov, ▪ organizacija prostorskih podatkov. ▪ tehnologija GPS, Galileo, cestna navigacija,	▪ GIS concept ▪ History of GIS ▪ Techniques and technologies of GIS ▪ Projections, coordination systems and cartographic dates ▪ Introduction to ARC and GIS ▪ Arc Info ▪ Arc Map, ▪ Arc Catalog, ▪ Data collection ▪ Data saving ▪ Data analysis ▪ Date presentation ▪ Organization of spatial data

▪ uporaba tehnologij GIS in GPS v logistiki.	▪ GPS technology, Galileo, road navigation ▪ GIS and GPS technologies in logistics

Temeljni literatura in viri / Readings:

1. Kvamme K., Oštir-Sedej, K., Stančič, Z., Šumrada, R., 1997. Geografski informacijski sistemi. Znanstvenoraziskovalni center Slovenske akademije znanosti in umetnosti Ljubljana, 19-21.
2. Wilson, R.J., Watkins, J.J., Graphs, An introductionary approach, John Wiley, New York, 1990. (Slovene translation: Uvod v teorijo grafov, DMFA Ljubljana 1997.)
3. Understanding GIS: The ARC/INFO Method, Esri Press; Book & CD edition, 1999.

Cilji in kompetence:	Objectives and competences:
Študenti: ▪ spoznajo osnovne koncepte tehnolgije GIS ▪ spoznajo osnove modeliranja logističnih procesov v GIS-u, izgradnjo modelov in njihovo analizo, ▪ spoznajo osnovna orodja programskega paketa Arc Gis, ▪ naučijo se uporabe osnovnih GIS orodij, ▪ naučijo se osnovnih GIS analiz.	Students are farmiliarized: ▪ with the basic concepts of GIS technologies ▪ with the basics of modeling logistics processes in GIS and model design and their analysis ▪ with the basic software tools Arc Gis ▪ with the use of basic GIS tools ▪ with the basic GIS analysis

Predvideni študijski rezultati:	Intended learning outcomes:
Znanje in razumevanje: Študenti znajo: ▪ pojasniti vlogo in pomen GIS modeliranja v logistiki, ▪ opredeliti namen in osnove GIS-a, ▪ spoznajo osnove GIS-a, ▪ uporabljati osnovna orodja GIS za modeliranje osnovnih logističnih problemov.	Knowledge and understanding Students know how to: ▪ explain the role and importance of GIS modeling in logistics ▪ define the purpose and basics of GIS ▪ use the basics of GIS ▪ use the basic GIS tools for modelling the basic logistics problems

Metode poučevanja in učenja:	Learning and teaching methods:

Predavanja: pri predavanjih študent spozna teoretične vsebine predmeta. Del predavanj se izvaja na klasični način v predavalnici, del pa v obliki e-predavanj (e-predavanja se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju). Vaje: pri vajah študent utrdi teoretično znanje in spozna aplikativne možnosti. Del vaj se izvaja na klasični način v predavalnici, del pa v obliki e-predavanj (e-vaje se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju).	Lectures: students understand the theoretical frameworks of the course. Part of the lecture course is in a classroom while the rest is in the form of e-learning (e-lectures may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment). Tutorials: Students enhance their theoretical knowledge and are able to apply it. Part of the seminar is in a classroom while the rest is in the form of e-learning (e-seminars may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment).

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
▪ Pisni izpit, ▪ seminarska naloga.	▪ 70% ▪ 30%	▪ Written examination ▪ Seminar paper

Reference nosilca / Lecturer's references:

1. KRAMBERGER, Tomaž, ŽEROVNIK, Janez. Priority constrained Chinese postman problem. *Logistics and sustainable transport*, 22-05-07, vol. 1, no 1, 15 str. http://www.jlst.org/uploads/priority_constrained_chinese_postman_kramb.zer.pdf.

2. KRAMBERGER, Tomaž, ROSI, Bojan. Do managers have enough quality information for decision-making. *Organizacija (Kranj)*, sep.-okt. 2007, letn. 40, št. 5, str. 207-217.

3. KRAMBERGER, Tomaž, ŽEROVNIK, Janez. A contribution to environmentally friendly winter road maintenance: : optimizing road de-icing. *Transp. res., Part D Transp. environ.*. [Print ed.], July 2008, vol. 13, iss. 5, str. 340-346. http://dx.doi.org/10.1016/j.trd.2008.03.007, doi: 10.1016/j.trd.2008.03.007.

4. KRAMBERGER, Tomaž, ŠTRUBELJ, Gregor, ŽEROVNIK, Janez. Chinese postman problem with priority nodes. *Fund. Computing Decis. Sci.*, 2009, vol. 34, no. 4, str. 233-264. http://fcds.cs.put.poznan.pl/FCDS2/ArticleDetails.aspx?articleId=218.

5. FOŠNER, Maja, KRAMBERGER, Tomaž. Logistics as a part of leisure and tourism industry. V: 15th Annual Conference European Council for Business Education, May 28-30, 2010, Lausanne, Switzerland. *"Co-operation and competition - in the leisure and service industries" : proceedings of the 15th Annual Conference European Council for Business Education, May 28-30, 2010, Lausanne, Switzerland*, (ECBE proceedings of the Annual Conference, 2010). Lausanne: European Council for Business Education: = ECBE, 2010, str. 70-78.