UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Sistemi in tehnike za podporo pri odločanju
Course title:	Systems and Techniques of Decision Support

Študijski program in stopnja Study programme and level	Modul Module	Letnik Academic year	Semester Semester
Informacijske in komunikacijske tehnologije, 2. stopnja	Tehnologije znanja	1	2
Information and Communication Technologies, 2nd cycle	Knowledge Technologies	1	2

Vrsta predmeta / Course type	Izbirni / Elective
Univerzitetna koda predmeta / University course code:	IKT2-710

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Druge oblike	Samost. delo Individ. work	ECTS
30	**30**			**30**	**210**	**10**

**Navedena porazdelitev ur velja, če je vpisanih vsaj 15 študentov. Drugače se obseg izvedbe kontaktnih ur sorazmerno zmanjša in prenese v samostojno delo. / This distribution of hours is valid if at least 15 students are enrolled. Otherwise the contact hours are linearly reduced and transfered to individual work.*

Nosilec predmeta / Lecturer:	Prof. dr. Marko Bohanec
Jeziki / Languages: Predavanja / Lectures:	slovenščina, angleščina / Slovenian, English
Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Zaključen študijski program prve stopnje s področja naravoslovja, tehnike ali računalništva.	Student must complete first-cycle study programmes in natural sciences, technical disciplines or computer science.

Vsebina:	**Content (Syllabus outline):**
Uvod: odločanje in podpora pri odločanju, odločitveni proces, komponente odločanja, vrste odločanja, discipline, ki se ukvarjajo z odločanjem Odločitvena analiza: metode in tehnike modeliranja v odločitveni analizi, odločanje v negotovosti in s tveganjem, odločitvene tabele Odločitveni modeli: odločitvena drevesa, diagrami vpliva, večkriterijski modeli, metode tipa MAUT, analitični hierarhični proces (AHP), metode kvalitativnega večkriterijskega modeliranja	Introduction: decision making and decision support, decision process, components of decision making, taxonomy of decisions, disciplines related to decision making Decision analysis: modeling methods and techniques of decision analysis, decision making under risk and strict uncertainty, decision tables Decision models: decision trees, influence diagrams, multi-criteria models, MAUT (Multi-Attribute Utility Theory) methods, Analytic Hierarchy Process (AHP), qualitative multi-criteria modeling (method DEX)

(metoda DEX) Izbrane aplikacije odločitvenega modeliranja Programi za odločitveno modeliranje: MS Excel, D-SIGFHT, DEXi in podobni Praktično usposabljanje: praktična uporaba izbranih tehnik in orodij za podporo pri odločanju	Selected applications of decision modeling Decision modeling software: MS Excel, Web-HIPRE, DEXi and alike Practical training: practical use of selected decision support techniques and tools

Temeljni literatura in viri / Readings:

- S. Greco, M. Ehrgott, J. Figueira: *Multiple Criteria Decision Analysis: State of the Art Surveys*. Springer, 2016. ISBN 978-1-4939-3094-4
- A. Ishizaka, and P. Nemery, *Multi-criteria Decision Analysis: Methods and Software*. Wiley, 2013. ISBN 978-1-119-97407-9
- M. Bohanec, *Odločanje in modeli* [*Decision-Making and Models*]. 1. ponatis. DMFA - založništvo, 2012. ISBN 961-212-190-7
- M. Bohanec: DEXi: *Program for Multi-Attribute Decision Making, User's Manual*, Version 5.00. IJS Report DP-11897, Jožef Stefan Institute, Ljubljana, 2015.

Cilji in kompetence:	**Objectives and competences:**
Cilj predmeta je spoznati metode, tehnike in sisteme za podporo zahtevnih realnih odločitvenih problemov. Poudarek je na spoznavanju in obvladovanju osnovnih metod odločitvene analize in večkriterijskega modeliranja ter na njihovi uporabi v praksi pri reševanju zahtevnih odločitvenih problemov.	The aim of this course is to learn methods, techniques and systems for supporting complex real-life decision-making tasks. Special emphasis is on learning and mastering basic methods of decision analysis and multi-criteria modeling, and their practical applications for solving complex decision problems.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Študenti bodo z uspešno opravljenimi obveznostmi tega predmeta bodo pridobili: • razumevanje konceptov odločanja, odločitvenih procesov in sistemov za podporo pri odločanju • znanja o pristopih odločitvene analize in razumevanje izbranih metod odločitvenega modeliranja • sposobnost identificirati odločitveni problem ter opredeliti njegove lastnosti in komponente • veščine izdelave odločitvenega modela in njegove uporabe za reševanje realnega odločitvenega problema • veščine uporabe računalniške programske opreme za podporo pri odločanju	Knowledge and understanding: Students successfully completing this course will acquire: • understanding the concepts of decision making, decision processes and decision support systems • understanding the approaches of decision analysis and selected decision modeling methods • the ability to identify decision problems and specify its properties and components • the ability to develop and apply a decision model in real-life decision problems • skills for using decision support and decision modeling software

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminar, konzultacije, samostojno delo	Lectures, seminar, consultancy, individual work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Seminarska naloga	50%	Seminar work

Ustni zagovor	50 %	Oral defense

Reference nosilca / Lecturer's references:

- **M. Bohanec,** Odločanje in modeli [Decision-Making and Models]. 1. ponatis. DMFA - založništvo, 2012. ISBN 961-212-190-7
- **M. Bohanec**, Decision making: A computer-science and information-technology viewpoint. *Interdisciplinary Description of Complex Systems* 7(2), 22-37, 2009.
- **Bohanec, M.,** Trdin, N., Kontić, B.: A qualitative multi-criteria modelling approach to the assessment of electric energy production technologies in Slovenia. *Central European Journal of Operations Research*, 1-15, 2016.
- **Bohanec, M.,** Mileva-Boshkoska, B., Prins, T.W., Kok, E.: SIGMO: A decision support system for identification of genetically modified food or feed products. *Food Control*, 71, 168-177, 2016.
- **M. Bohanec**, V. Rajkovič, I. Bratko, B. Zupan, and M. Žnidaršič, DEX methodology: Three decades of qualitative multi-attribute modelling. *Informatica 37*, 49-54, 2013.