

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Menedžerski informacijski sistemi
Course title: Management Information Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Kibernetska varnost, magistrski študijski program druge stopnje	-	Prvi	Drugi
Cyber Security, second cycle Masters Study Programme	-	First	Second

Vrsta predmeta / Course type

Izbirni / Elective

Univerzitetna koda predmeta / University course code:

5-KV-MAG-IP-MIS-2021-12-14

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	20	-	-	100	5

Nosilec predmeta / Lecturer:

izr. prof. dr. Blaž Rodič

Jeziki / Languages:

Predavanja / Lectures: slovenski, angleški / Slovene, English

Vaje / Tutorial: slovenski, angleški / Slovene, English

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

Študent/študentka mora pred pristopom k izpitu pripraviti in zagovarjati empirično seminarsko nalogo.

Prerequisites:

Prior to the exam, the student has to prepare and present seminar work.

Vsebina:

- Uvod v predmet: kaj je poslovno obveščanje (BI)? Razvoj in prihodnost BI.
- Informatika, informacije in podatki.
- Informacijski sistem. Razvoj informatike. Evolucija BI.
- Upravljalvska piramida. Ravni informacijskih sistemov. Podpora IS poslovnemu sistemu. Razmerje IS in procesov: temeljni, informacijski, in upravljalvski proces.

Content (Syllabus outline):

- Introduction to the course: What Business Intelligence (BI)? Development and the future of BI.
- Information technology, information and data.
- Information system. Development of informatics. The evolution of BI.
- Management Pyramid. Levels of information systems. IS support for the business systems. Relationship between the IS and processes: basic,

<ul style="list-style-type: none"> • Informacijski sistemi na različnih ravneh: Poslovni IS, Integrirani IS, MIS, SPO, EIS. • Čemu lahko rečemo BI? Razlogi za vpeljavo BI. Poslovna vrednost BI. • Zahteve za gradnjo BI. Tipi informacij v BI. • Podpora odločanju z BI. Zahtevnost odločanja. Odločanje na različnih ravneh. Proces odločanja. Pristopi k odločanju. • Večkriterijsko modeliranje. Kvantitativni in kvalitativni modeli. Ekspertni sistemi. • Vodila za načrtovanje SPO. • Področja podpore odločanju: Operacijske raziskave (OR), Sistemi za podporo odločanju (SPO), Sistemi za upravljanje odnosov s strankami (CRM), Upravljanje z znanjem (KMS), Modeliranje in simulacija (MS), Rudarjenje v podatkih. • Skupinsko odločanje in podpora sodelovanju. • Komponente sistemov poslovnega obveščanja • Podatkovno skladišče. Večdimenzionalnost podatkov. OLAP orodja. Vrtilne tabele. • Uporabniški vmesnik BI. Vizualizacija podatkov. • Sistemi za upravljanje poslovne uspešnosti. Metode umetne inteligence v SPO. 	<p>information, and management process.</p> <ul style="list-style-type: none"> • Information systems at different levels: business IS, integrated IS, BI, DSS, EIS. • What can we refer to as BI? The reasons for the introduction of BI. Business value of BI. • Requirements for construction of the BI. Types of information in the BI. • Decision support with BI. Complexity of decision-making. Decision-making at various levels. Decision-making process. Approaches to decision making. • Multicriteria modelling. Quantitative and qualitative models. • Guidelines for DSS design. • Areas of decision support: Operations research (OR), Decision support systems (DSS), Knowledge management systems (KMS), Data mining. • Modelling and simulation, Group decision making. Support for cooperation. • Composition of BI • Data warehouse. Multidimensional data. OLAP tools. Pivot tables. • The user interface of BI. Visualization of data. • Business performance management systems. Artificial intelligence in the DSS.
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Temeljni literatura in viri / Readings:

<ul style="list-style-type: none"> • Turban, E., Pollard, C., Wood, G., Information Technology for Management: On-Demand Strategies for Performance, Growth and Sustainability, 11th Edition, Wiley, 2018 • Rainer, R.K., Management Information Systems 4th Edition, Wiley, 2015 • Sharda, R., Delen, D., Turban, E., Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support, 11th Edition, Pearson, 2020. • Borschchev A., The Big Book of Simulation Modeling. Multimethod Modeling with AnyLogic 8, AnyLogic North America, 2020. • Howson C.: <i>Successful Business Intelligence: Secrets to Making BI a Killer App</i>, 2nd Ed, 2014 • Bohanec, M.: <i>Odločanje in modeli</i>, DMFA Založništvo, Ljubljana 2006

Cilji in kompetence:

Objectives and competences:

Cilji:

Glavni cilj predmeta je seznaniti slušatelje s področjem uporabe večkriterijskega odločitvenega modeliranja in področja poslovnega obveščanja pri podpori odločanju.

Učna enota prispeva k razvoju naslednjih splošnih kompetenc:

- Razumevanje pomena kibernetске varnosti;
- Sposobnost pridobivanja, selekcije, analize informacij in zmožnost njihove interpretacije za celovito reševanje problemov, izzivov in incidentov s področja kibernetске varnosti.
- Poznavanje uveljavljenih metodoloških pristopov za upravljanje varnosti sodobnih informacijskih sistemov in omrežij.

In predmetno specifične kompetence:

- Obvladovanje metod izdelave večkriterijskih odločitvenih modelov.
- Znanje modeliranja odločitvenih procesov.
- razumevanje podpore odločanju s poslovno inteligenco;
- poglobljeno poznavanje nabora metod za podporo pri odločanju ter simulacija odločitvenih modelov.

Objectives:

Courses main objective is to introduce the application of multicriteria decision modeling and business intelligence methods in decision support.

The instructional unit contributes to the development of the following general competences:

- Understanding the importance of cyber security;
- The ability to obtain, select, analyze information, as well as to interpret them to comprehensively solve problems, challenges and incidents in the field of cyber security;
- Knowledge of established methodological approaches for security management of modern information systems and networks.

And Subject-specific competences:

- proficiency in methods for design of multi-criteria decision models;
- decision process modelling skills;
- understanding of BI decision support;
- in-depth understanding of methods for decision support and simulation of decision models.

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka ima/obvlada:

- poznavanje strateškega pomena menedžerskih informacijskih sistemov oz. sistemov za poslovno obveščanje
- poznavanje uporabnosti informacijskih sistemov za podporo menedžmentu
- uporaba informacijskih sistemov kot podporo odločanju
- obvladovanje metod izdelave večkriterijskih odločitvenih modelov

Intended learning outcomes:

Knowledge and understanding:

Students have/master the:

- recognize the strategic importance of management information systems i.e. business intelligence systems,
- recognize the utility of information systems in management support ,
- learn how to use information systems and decision support,
- master multi-criteria decision modelling,
- be familiar with a selection of business intelligence technologies and methods,

- poznavanje izbora tehnologij in sistemov za poslovno obveščanje,
- poznavanje etičnih vidikov uporabe menedžerskih informacijskih sistemov

- understand the ethical aspects of the use of management information systems.

Metode poučevanja in učenja:

- *Predavanja z aktivno udeležbo študentov* (razlaga snovi, pogovori, vprašanja, primeri);
- *Laboratorijske vaje* (večkriterijsko odločanje, podpora odločanju);
- *Individualno delo*; študij znanstvene in strokovne literature in priprava empirične seminarske naloge.

Learning and teaching methods:

- *Lectures with the active participation of students* (presentation, discussion, questions, problems);
- *Laboratory exercises* (multi-criteria modelling, decision modelling);
- *Individual work*: study of scientific and professional literature and development of empirical seminar work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt): <ul style="list-style-type: none"> • pisni izpit • empirična seminarska naloga 	50 50	Type (examination, oral, coursework, project): <ul style="list-style-type: none"> • written exam • empirical seminar work

Reference nosilca / Lecturer's references:

- RODIČ, Blaž. Industry 4.0 and the new simulation modelling paradigm. Organizacija : revija za management, informatiko in kadre, ISSN 1318-5454. [Tiskana izd.], aug. 2017, vol. 50, no. 3, str. 193-207, ilustr., doi: 10.1515/orga-2017-0017
- BRELIH, Marjan, RAJKOVIČ, Uroš, RUŽIČ, Tomaž, RODIČ, Blaž, KOZELJ, Daniel. Modelling decision knowledge for the evaluation of water management investment projects. Central European Journal of Operations Research, ISSN 1435-246X, 2018, vol. , iss. , str. <https://link.springer.com/content/pdf/10.1007%2Fs10100-018-0600-5.pdf>, doi: 10.1007/s10100-018-0600-5.
- KANDUČ, Tadej, RODIČ, Blaž. Optimisation of machine layout using a force generated graph algorithm and simulated annealing. International journal of simulation modelling, ISSN 1726-4529, 2016, vol. 15, no. 2, str. 275-287.
- RODIČ, Blaž, BAGGIA, Alenka. Dynamic airport ground crew scheduling using a heuristic scheduling algorithm. International journal of applied mathematics and informatics, ISSN 2074-1278, 2013, vol. 7, iss. 4, str. 153-163.
- RODIČ, Blaž. Mobile agents for distributed decision support systems. The International Scientific Journal of Management Information Systems, ISSN 1452-774X, 2011, vol. 6, no. 1, str. 20-27.
- RODIČ, Blaž, KLJAJIĆ, Miroljub. Accessing distributed data sources with mobile agents and XML. V: JAŠKOVÁ, Mária (ur.). ECON '05 : [selected research papers], (Research works proceedings, ISSN 0862-7908, Vol. 12, 2005). Ostrava: Technical University of Ostrava, Faculty of Economics. 2005, str. 280-287.

- RODIČ, Blaž, KLJAJIĆ, Miroljub. Integracija simulacijskih orodij v e-poslovni informacijski sistem. V: GRIČAR, Jože (ur.). Izboljšanje konkurenčnosti regije z e-poslovanjem, (Organizacija, ISSN 1318-5454, Letn. 37, 2004, št. 3). Kranj: Moderna organizacija. 2004, str. 162-167.
- ŠKRABA, Andrej, BAGGIA, Alenka, RODIČ, Blaž. Application of a group decision support system in the reform of study programmes. V: DONDON, Philippe (ur.). Recent advances in education and modern educational technologies, (Educational technologies series, 9). [S. l.: s. n.]. 2013, str. 128-134.
RODIČ, Blaž. Issues of e-collaboration and knowledge management in media industries. V: LUGMAYR, Artur (ur.), et al. Information systems and management in media and entertainment industries, (International series on computer entertainment and media technology (Online), ISSN 2364-9488). Cham: Springer. cop. 2016.