

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Sistemi in metode za poslovno obveščanje
Course title: Business Intelligence Systems and Methods

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Računalništvo in spletne tehnologije, magistrski študijski program druge stopnje	-	Prvi	Prvi
Computer science and web technologies, second cycle Master's Study Programme	-	First	First

Vrsta predmeta / Course type

Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

2-RST-MAG-SMPO-2026-09-29

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
25	-	20	-	-	135	6

Nosilec predmeta / Lecturer:**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 imeti pozitivno oceno iz vaj

Prerequisites:

Positively evaluated tutorial coursework is a prerequisite for exam.

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,

• 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. • 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), Skupinsko odločanje in podpora sodelovanju. • Komponente sistemov poslovnega obveščanja • Sestava BI. Podatkovno skladišče. Večdimenzionalnost podatkov. OLAP orodja. Vrtilne tabele. Rudarjenje v podatkih. • Uporabniški vmesnik BI. Vizualizacija podatkov. • Trendi razvoja BI: Sistemi za upravljanje poslovne uspešnosti. Geografski informacijski sistemi. Metode umetne inteligence v SPO, Intelligentni sistemi, Industrija 4.0 in internet naprav (IoT).	information, and management process. • 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. • Areas of decision support: Operations research (OR), Decision support systems (DSS), Knowledge management systems (KMS), Modelling and simulation, Group decision making. Support for cooperation. • BI components • Composition of BI. Data warehouse. Multidimensional data. OLAP tools. Pivot table. Data mining. • The user interface of BI. Visualization of data. • BI development trends: Business performance management systems. Geographic Information Systems. Artificial intelligence in the DSS, Intelligent Systems, Industry 4.0 and Internet of Things (IoT).
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Temeljni literatura in viri / Readings:

- 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, 2016
- 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.: *Successful Business Intelligence: Secrets to Making BI a Killer App*, 2nd Ed, 2014
- Bohanec, M.: *Odločanje in modeli*, DMFA Založništvo, Ljubljana 2006

Cilji in kompetence:

Objectives and competences:

Učna enota prispeva k razvoju naslednjih splošnih kompetenc:

- sposobnost pridobivanja, selekcije, ocenjevanja in umeščanja novih informacij in zmožnost interpretacije v ustreznem kontekstu;
- sposobnost fleksibilne uporabe znanja v praksi;
- sposobnost logičnega sklepanja, ocenjevanja velikostnega reda rezultata, natančnosti izražanja, pisanja in razmišljanja;
- usposobljenost za samoučenje s ciljem obvladovanja najnovejših relevantnih spletnih in mobilnih tehnologij;

in predmetno specifičnih kompetenc:

- sposobnost sinteze izvirnih idej, konceptov in rešitev določenih problemov iz različnih disciplinarnih področij;
- sposobnost timskega dela;
- razumevanje podpore odločanju s poslovno inteligenco;
- poglobljeno poznavanje nabora metod za podporo pri odločanju ter simulacija odločitvenih modelov.

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

- the ability to acquire, select, evaluate and place new information and the ability to interpret it in the appropriate context;
- the ability of the flexible use of knowledge in practice;
- the ability to reason logically, assess the magnitude of the result, and be precise in expression, writing, and thinking;
- ability to self-educate with the aim to master relevant state-of-the-art web and mobile technologies;

and subject-specific competences:

- competence to form original ideas, concepts and solutions for specific problems from different disciplines;
- the ability of the flexible use of knowledge in practice;
- teamwork 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:

Sposobnost študenta/študentke bo:

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

Intended learning outcomes:

Knowledge and understanding:

Students that complete the course will:

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

Metode poučevanja in učenja:

- Predavanja z aktivno udeležbo študentov (razlaga snovi, diskusija, vprašanja, primeri);
- Laboratorijske vaje (metode in programska oprema za podporo 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, examples);
- Laboratory exercises (decision support methods and software);
- Individual work (study of scientific and professional literature and development of empirical seminar work)

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt):

- pisni izpit
- naloge v okviru vaj

Delež (v %) /

Weight (in %)

50 %

50 %

Assessment:

Type (examination, oral, coursework, project):

- written exam
- tutorial coursework

Reference nosilca / Lecturer's references:

- BARBO, Matej, RODIČ, Blaž. Modeling the influence of safety aid market penetration on traffic safety : case of collision warning system for powered two-wheelers. Accident analysis and prevention. [Print ed.]. 2023, vol. 192 (107240), str. 1-11, ilustr. ISSN 0001-4575. DOI: 10.1016/j.aap.2023.107240.
- RODIČ, Blaž, BARBO, Matej. Decision support for traffic safety : case of rear-end collision modelling. *Journal of decision systems*. [in press] 2024, str. 1-12. ISSN 1246-0125. DOI: [10.1080/12460125.2024.2372481](https://doi.org/10.1080/12460125.2024.2372481).
- 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/s10100-018-0600-5.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.
- BARTOL, Tomaž, DOLNIČAR, Danica, BOH PODGORNIK, Bojana, RODIČ, Blaž, ZORANOVIČ, Tihomir. A comparative study of information literacy skill performance of students in agricultural sciences. *Journal of academic librarianship*. [Print ed.]. 2018, iss. 3, vol. 44, str. 374-382. ISSN 0099-1333. DOI: [10.1016/j.acalib.2018.03.004](https://doi.org/10.1016/j.acalib.2018.03.004).
- ŠAVRIČ, Jerneja, RODIČ, Blaž. Role of information system support in project management : case of companies competing at publicly funded calls for projects. V: PANKOWSKA, Malgorzata (ur.). Digital transformation, perspective development, and value creation : research case studies. New York; Abingdon: Routledge, 2024.

Str. [103]-117. Routledge advances in management and business studies. ISBN 978-1-032-45340-8, ISBN 978-1-032-45356-9.