

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	Informacijski sistemi
<b>Course title:</b>	Information Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Računalništvo in spletne tehnologije, visokošolski strokovni študijski program prve stopnje	-	Drugi	Tretji
Computer Science and Web Technologies, first cycle Professional Study Programme	-	Second	Third

**Vrsta predmeta / Course type** Obvezni / Obligatory

**Univerzitetna koda predmeta / University course code:** 2-RST-VS-IS-2020-05-14

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	/	45	/	/	105	6

**Nosilec predmeta / Lecturer:** izr. prof. dr. Blaž Rodič

**Jeziki / Languages:**

<b>Predavanja / Lectures:</b>	Slovenski / Slovenian, Angleški / English
<b>Vaje / Tutorial:</b>	Slovenski / Slovenian, Angleški / English

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

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

**Prerequisites:**

Before taking an exam, student has to prepare and present a seminary work.

**Vsebina:**

- *Uvod v predmet:*  
Namen študija predmeta, povezanost predmeta z drugimi predmeti, vsebina študija predmeta, študijska literatura.
- *Informacijski sistem:*  
Namen in cilji informacijskega sistema. Opredelitev osnovnih konceptov in njihovih notacij. Klasifikacija informacijskih sistemov.
- *Informacijski sistem in organizacija:*  
Vloga informacijskega sistema v organizaciji. Organiziranje podatkov in

**Content (Syllabus outline):**

- *Introduction:*  
The purpose of the subject, connections with other subjects, subject contents, study literature.
- *Information System:*  
Purpose and goals. Basic concepts and notations. Information systems classification.
- *Information system and the organization:*  
The role of IS in the organization. Data and information organization. Data management.

<p>informacij v organizaciji. Upravljanje s podatki.</p> <ul style="list-style-type: none"> <li>• <i>Življenjski cikel informacijskega sistema</i>: strategija, načrtovanje, analiza, oblikovanje, razvoj, uvajanje in vzdrževanje.</li> <li>• <i>Metodologije za razvijanje informacijskega sistema</i>: Informacijski inženiring. Strukturna sistemska analiza in razvoj. Objektni pristop, Poenoten razvojni proces. Strukturne diagramske tehnike in UML, agilne metodologije. Karakteristike metodologij in izbira metodologije.</li> <li>• <i>Trendi razvoja informacijskih sistemov</i>: Računalništvo v oblaku, IS kot storitev.</li> <li>• <i>Varnost in kakovost informacijskih sistemov ter s tem povezani standardi</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Information system lifecycle</i>: strategy, planning, design, development, deployment, operation and maintenance, support.</li> <li>• <i>Information systems development methodologies</i>. Information engineering, structured system analysis and development, object approach, unified development process. Structured diagramming techniques and UML, agile methodologies. Characteristics of methodologies and methodology selection.</li> <li>• <i>IS development trends</i>: cloud computing, IS as a service.</li> <li>• <i>Information systems security and quality, related standards</i>.</li> </ul>
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#### Temeljni literatura in viri / Readings:

- Rainer, R. K, Prince, B. & Cegielski, C. G. (2013). *Introduction to Information Systems: Supporting and Transforming Business*. Wiley.
- Stair, R. & Reynolds, G. (2020). *Principles of Information Systems* (14th ed.). Boston: Cengage Learning.
- Valacich, J. & George, J.(2017). *Modern Systems Analysis and Design* (8th ed.). Pearson.
- Dennis, A., Wixom, B. & Tegarden, D. (2012). *Systems Analysis and Design with UML* (4th ed.). Wiley.
- Whitten, J. L. & Bentley, L. D. (2007). *Introduction to Systems Analysis and Design*. McGraw-Hill.

#### Cilji in kompetence:

*Učna enota prispeva k razvoju naslednjih splošnih in predmetno-specifičnih kompetenc:*

##### *Splošne kompetence:*

- obvladanje raziskovalnih metod, postopkov in procesov
- razvoj kritične in samokritične presoje
- sposobnost fleksibilne uporabe znanja v praksi
- sposobnost za reševanje konkretnih tehničnih in analitičnih problemov z uporabo ustreznih metod in postopkov
- sposobnost pridobivanja, selekcije, ocenjevanja in umeščanja novih informacij in zmožnost interpretacije v ustreznem kontekstu
- razumevanje in uporaba analitičnih metod in njihova uporaba v reševanju konkretnih problemov

#### Objectives and competences:

*The instructional unit contributes to the development of the following general and subject-specific competences:*

##### *General competences:*

- mastering research methods, procedures and processes
- development of critical and self-critical judgement
- ability to use the acquired knowledge in practice in a flexible manner
- ability to solve technical and analytical problems using appropriate methods and procedures
- ability to find, select, evaluate and position the new information as well as appropriate, context-aware interpretation
- understanding and application of analytical methods to practical cases

- razvoj veščin in spretnosti pri uporabi pridobljenega znanja s pomočjo reševanja empiričnih problemov

*Predmetno-specifične kompetence:*

- sposobnost uporabe tehnik za zajem zahtev IS
- spoznavanje komunikacije med predstavniki managementa in informacijske tehnologije
- sposobnost izbire uporabe informacijsko-komunikacijske tehnologije, orodij in sistemov za načrtovanje IS
- sposobnost uporabe sodobnih računalniških orodij namenjenih poslovnemu odločanju in analizi podatkov

- development of skills and abilities by using the obtained knowledge for empirical problem solving

*Subject-specific competences:*

- ability to use appropriate tools and techniques for develop software specification requirements
- ability to develop skills and abilities for communication between representatives of management and information technology
- the ability to choose information and communication technologies, tools and systems for designing and implementing information system
- ability to use modern computer tools for decision support and data analysis

**Predvideni študijski rezultati:**

Znanje in razumevanje:

*Študent/študentka:*

- pozna in razume namen in cilje informacijskega sistema organizacije
- pozna procese, ki jih je mogoče informacijsko podpreti z informacijskim sistemom
- je zmožen identificirati prispevek informacijskega sistema k dodani vrednosti organizacije
- prepozna uporabo spletnih tehnologij pri razvoju informacijskega sistema
- pozna in razume strukturo informacijskega sistema organizacije
- pozna značilnosti posameznih funkcijskih informacijskih sistemov organizacije
- pozna in razume življenjski cikel poslovnega informacijskega sistema
- pozna in razume prednosti in pomanjkljivosti različnih metodologij in tehnik za analizo in razvoj poslovnega informacijskega sistema
- pozna in uporablja metode in tehnike informacijskega inženiringa
- pozna in uporablja osnovne elemente jezika UML
- je zmožen sodelovati pri analizi in razvoju informacijskega sistema organizacije
- je zmožen sinteze pri razvoju informacijskega sistema

**Intended learning outcomes:**

Knowledge and understanding:

*The student:*

- knows and understands the purpose and goals of information system within the organizational context
- knows processes that can be supported by information system
- is able to identify the contribution of the IS to the organization's added value
- uses web technologies by development of information systems
- knows and understands the information systems structure
- recognizes the differences among information systems in different areas of use
- knows and understands business information systems lifecycle
- knows and understands the strengths and weaknesses of various analysis and development methodologies and techniques
- knows and uses information engineering methods and techniques
- knows and uses elementary UML syntax
- is able to take part in information system analysis and development activities
- is able to make a synthesis when developing information system
- on the basis of acquired knowledge is able to judge on suitability of existing information systems

- pridobljeno znanje uporablja za ugotavljanje ustreznosti poslovnega informacijskega sistema

#### Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov)
- *laboratorijske vaje* (delo na osebem računalniku, spoznavanje različnih vrst informacijskih sistemov, spoznavanje orodij za analizo, uporaba različnih diagramskih tehnik)
- individualne in skupinske *konzultacije* (diskusija, dodatna razlaga, obravnava specifičnih vprašanj)

#### Learning and teaching methods:

- *lectures* with emphasis on students' activity (explanation, discussion, cases, problem solving)
- *laboratory training* (work on a personal computer, getting acquainted with several kinds of information systems, learning to use analysis tools and diagramming techniques)
- individual and group consultations (discussion, additional explanation, specific issues)

Delež (v %) /

#### Načini ocenjevanja:

Weight (in %) /

#### Assessment:

Način (pisni izpit, ustno izpraševanje, naloge, projekt):	Delež (v %) / Weight (in %) /	Type (examination, oral, coursework, project):
<ul style="list-style-type: none"> <li>• pisni izpit</li> </ul>	50	<ul style="list-style-type: none"> <li>• written exam</li> </ul>
<ul style="list-style-type: none"> <li>• empirična seminarska naloga s poročili seminarskega dela in eksperimentalnih vaj ter predstavitev naloge</li> </ul>	50	<ul style="list-style-type: none"> <li>• empiric seminary work and corresponding report(s) with an oral presentation</li> </ul>

#### 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, Mirosljub. 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, Mirosljub. 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.