

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

**Predmet:** Informacijski sistemi  
**Course title:** Information Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Informatika v sodobni družbi, visokošolski strokovni študijski program prve stopnje	-	Drugi	Četrta
Informatics in Contemporary Society, first cycle Professional Study Programme	-	Second	Fourth

**Vrsta predmeta / Course type**

Obvezni / Obligatory

**Univerzitetna koda predmeta / University course code:**

1-ISD-VS-IS-2024-09-12

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:**

**Predavanja / Lectures:** Slovenski / Slovenian, Angleški / English  
**Vaje / Tutorial:** 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 informacij v organizaciji. Upravljanje s podatki.

**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.
- *Information system lifecycle:*

- *Življenjski cikel informacijskega sistema*: strategija, načrtovanje, analiza, oblikovanje, razvoj, uvajanje in vzdrževanje.
- *Metodologije za razvijanje informacijskega sistema*: Informacijski inženiring. Strukturna sistemska analiza in razvoj. Objektni pristop, Poenoten razvojni proces. Strukturne diagramske tehnike in UML, agilne metodologije. Karakteristike metodologij in izbira metodologije.
- *Trendi razvoja informacijskih sistemov*: Računalništvo v oblaku, IS kot storitev.
- *Varnost in kakovost informacijskih sistemov ter s tem povezani standardi*.

- strategy, planning, design, development, deployment, operation and maintenance, support.
- *Information systems development methodologies*. 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.
  - *IS development trends*: cloud computing, IS as a service.
  - *Information systems security and quality, related standards*.

### Temeljni literatura in viri / Readings:

- Kenneth C. Laudon, Jane P. Laudon (2020). Management Information Systems: managing the digital firm, 16th Edition, Pearson.
- 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.(2020). Modern Systems Analysis and Design (9th ed.). Pearson.
- Dennis, A., Wixom, B. & Tegarden, D. (2020). Systems Analysis and Design: An Object-Oriented Approach with UML (6th ed.). Wiley.
- J. Hesselberg (2018). Unlocking Agility: An Insider's Guide to Agile Enterprise Transformation, Addison-Wesley Professional.

### Cilji in kompetence:

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

#### *Splošne kompetence:*

- poznavanje in razumevanje širokega nabora aplikacij informacijsko komunikacijske tehnologije v sodobni družbi
- poznavanje in razumevanje interakcij med informacijsko komunikacijsko tehnologijo in sodobno družbo
- usposobljenost za načrtovanje organizacijskih in informacijskih sprememb v organizaciji, ki so potrebne pri uvajanju informacijsko komunikacijske tehnologije ter kakovostni uporabi le-te

*Predmetno-specifične kompetence:*

### Objectives and competences:

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

#### *General competences:*

- knowledge and understanding of a wide range of applications of information communication technology in the modern society
- knowledge and understanding of interactions between ICT and the modern society
- competence for planning of organisational and information changes in an institution, which are required in the introduction of information communication technology and a quality use thereof

- 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

*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
- pridobljeno znanje uporablja za ugotavljanje ustreznosti poslovnega 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

**Metode poučevanja in učenja:**

**Learning and teaching methods:**

<ul style="list-style-type: none"> <li>• predavanja z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov)</li> <li>• laboratorijske vaje (delo na osebem računalniku, spoznavanje različnih vrst informacijskih sistemov, spoznavanje orodij za analizo, uporaba različnih diagramskih tehnik)</li> <li>• individualne in skupinske konzultacije (diskusija, dodatna razlaga, obravnava specifičnih vprašanj)</li> </ul>	<ul style="list-style-type: none"> <li>• lectures with emphasis on students' activity (explanation, discussion, cases, problem solving)</li> <li>• laboratory training (work on a personal computer, getting acquainted with several kinds of information systems, learning to use analysis tools and diagramming techniques)</li> <li>• individual and group consultations (discussion, additional explanation, specific issues)</li> </ul>
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Delež (v %) /

Weight (in %)

**Načini ocenjevanja:**

**Assessment:**

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

**Reference nosilca / Lecturer's references:**

<ul style="list-style-type: none"> <li>• Barbo, M., &amp; Rodič, B. (2023). Modeling the influence of safety aid market penetration on traffic safety: Case of collision warning system for powered two-wheelers. <i>Accident Analysis &amp; Prevention</i>, 192, 107240. <a href="https://doi.org/10.1016/j.aap.2023.107240">https://doi.org/10.1016/j.aap.2023.107240</a></li> <li>• Rodič, B. (2017). Industry 4.0 and the new simulation modelling paradigm. <i>Organizacija</i>, 50(3), 193–207. <a href="https://doi.org/10.1515/orga-2017-0017">https://doi.org/10.1515/orga-2017-0017</a></li> <li>• Kanduč, T., &amp; Rodič, B. (2016). Optimisation of machine layout using a force generated graph algorithm and simulated annealing. <i>International Journal of Simulation Modelling</i>, 15(2), 275–287. <a href="https://doi.org/10.2507/ijsimm15(2)7.335">https://doi.org/10.2507/ijsimm15(2)7.335</a></li> <li>• Rodič, B., &amp; Kanduč, T. (2015). Optimisation of a complex manufacturing process using discrete event simulation and a novel heuristic algorithm. <i>International journal of mathematical models and methods in applied sciences</i>. 2015, vol. 9, pg. 320-329. ISSN 1998-0140.</li> <li>• Kanduč, T., &amp; Rodič, B. (2015). Optimization of a furniture factory layout. <i>Croatian Operational Research Review</i>. <a href="https://doi.org/10.17535/corr.2015.0010">https://doi.org/10.17535/corr.2015.0010</a></li> </ul>
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