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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** |
| **Ime predmeta:** | OSNOVE TEORIJE SISTEMOV |
| **Course title:** | FUNDAMENTALS OF THE THEORY OF SYSTEMS |
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| **Študijski program in stopnja****Study programme and cycle** | **Študijska smer****Study option** | **Letnik****Year of study** | **Semester****Semester** |
| GOSPODARSKA IN TEHNIŠKA LOGISTIKA 1. stopnja |  | 1. | 2 |
| PROFESSIONAL HIGHER EDUCATION STUDY PROGRAMME ECONOMIC AND TECHNICAL LOGISTICS 1st degree |  | 1. | 2 |
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| **Vrsta predmeta (obvezni ali izbirni) /** **Course type (compulsory or elective)** | OBVEZNI |
| COMPULSORY |
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| **Univerzitetna koda predmeta / University course code:** | VS |
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| **Predavanja****Lectures** | **Seminar****Seminar** | **Vaje****Tutorial** | **Klinične vaje****Clinical training** | **Druge oblike študija****Other forms of study** | **Samost. delo****Individual work** |  | **ECTS** |
| 24 e-P 36 a-P  |  | 9 e-V21 a-V |  |  | 90 |  | 6 |
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| **Nosilec predmeta / Course coordinator:** | **BOJAN ROSI** |
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| **Jeziki /Languages:** | **Predavanja / Lectures:** | SLOVENSKI/SLOVENE |
| **Vaje / Tutorial:** | SLOVENSKI/SLOVENE |
| **Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:** |  | **Prerequisites for enrolling in the course or for performing study obligations:** |
| Ni pogojev. |  | None. |
| **Vsebina (kratek pregled učnega načrta):**  |  | **Content (syllabus outline):** |
| * Izhodišča teorije sistemov.
* Razvoj teorije sistemov.
* Osnovne karakteristike sistemov.
* Lastnosti sistemov, struktura in delovanje sistemov ter stanje sistema.
* Sistemski procesi.
* Osnove modeliranja in simulacij~~e~~ sistemov.
* Osnove FUZZY teorije.
* Osnove teorije živih sistemov.
* Metodologija mehkih sistemov.
 |  | * Introduction to the theory of systems.
* Development of the theory of systems.
* Basic characteristics of systems.
* Characteristics of systems, structure and functioning of systems and the state of a system.
* System processes.
* Basic of modelling and simulations of systems.
* Basic of fuzzy theory.
* Basic of theory of living systems.
* Soft systems methodology.
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| **Temeljni literatura in viri / Reading materials:** |
| Bertalanffy, v. L. (1979). Ge*neral Systems Theory, Foundations, Development, Applications, Revised Edition*. Sixth Printing, New York, Brazillier.Rosi, B. (2008). Ali ste pripravljeni dialektično omrežno razmišljati? Maribor, RoBo. Mulej, M. (2000). *Dialektična in druge mehkosistemske teorije*. Maribor: Ekonomsko-poslovna fakulteta, Univerza v Mariboru.ROSI, Bojan. *Smart solutions in the Tezno Business Production Zone in Maribor and upgrade design*. Celje: Fakulteta za logistiko, 2022. 1 spletni vir (1 PDF datoteka (9 str.)), ilustr. <http://fl.um.si/knjiznicaFL/eknjige/Rosi_2021_Smart_solutions_in_the_Tezno_Business_Production_Zone.pdf>.  |
| **Cilji in kompetence:** |  | **Objectives and competences:** |
| Cilji predmeta so:* razumevanje osnovnih pojmov iz teorije sistemov,
* razumevanje temeljnih variant teorij sistemov
* razumevanje ustrezne uporabe sistemskega razmišljanja in sistemskega pristopa pri razreševanju (logističnih) problemov

Kompetence: * študent je zmožen prepoznati in uporabiti ustrezne osnovne pojme teorije sistemov
* študent je zmožen uporabiti sistemsko razmišljanje in sistemski pristop pri razreševanju (logističnih) problemov
* študent je sposoben prepoznati vlogo posameznih sestavin (logističnega) sistema in jih primerno umestiti ter povezati v zaokroženo, dovolj celovito celoto
* študent se nauči praktične uporabnosti sisitemskih pristopov v vsakodnevni praksi
 |  | The objectives of the course are: * understanding of basic concepts from systems theory,
* understanding the basic variants of systems theories
* understanding the appropriate use of systems thinking and a systems approach to problem-solving (in logistics)

Competences: * the student can recognize and use the relevant basic concepts of systems theory
* the student can use systems thinking and a systems approach to solving (logistic) problems.
* the student can recognize the role of individual components of the (logistics) system and place them appropriately and connect them into a rounded, sufficiently complete whole
* the student will learn the practical applicability of systemic approaches in everyday practice
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| **Predvideni študijski rezultati:** |  | **Intended learning outcomes:** |
| Po uspešno zaključenem predmetu so študenti zmožni:* opisati osnovne gradnike (sestavine in povezave) teorije sistemov,
* uporabiti sistemski pristop pri reševanju (logističnih) problemov,
* razlikovati temeljne značilnosti posameznih teorij sistemov,
* uporabiti sistemsko metodologijo v praksi.
 |  | Upon successful completion of this course, students can: * describe the basic building blocks (components and connections) of systems theory,
* use a systematic approach to (logistic) problem-solving,
* distinguish the essential characteristics of individual systems theories,
* use a system methodology in practice.
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| **Metode poučevanja in učenja:** |  | **Learning and teaching methods:** |
| Predavanja: pri predavanjih študent spozna teoretične vsebine predmeta. Del predavanj se izvaja na klasični način v predavalnici, del pa v obliki e-predavanj (e-predavanja se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju).Vaje:pri vajah študent utrdi teoretično znanje in spozna aplikativne možnosti. Praktične strokovne ekskurzije v podjetja v RS. Del vaj se izvaja na klasični način v predavalnici, del pa v obliki e-vaj (e-vaje se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju). |  | Lectures: students understand the theoretical frameworks of the course. Part of the lecture course is in a classroom, while the rest is in the form of e-learning (e-lectures may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment).Tutorials: Students enhance their theoretical knowledge and learn how to apply it. Part of the seminar is in a classroom, while the rest is in the form of e-tutorial (e-seminars may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment). |
| **Načini ocenjevanja:** | Delež (v %) /Share (in %) | **Assessment methods:** |
| Opravljene obveznosti (e-predavanja, e-vaje in predstavitev seminarske/projektne naloga) so pogoj za pristop k izpitu.* Pisni izpit
* E-vaje in E-predavanja
* Predstavitev seminarske/projektne naloge v okviru vaj
 | 70 %10 %20 % | Successful completion of e-lectures, e tutorials and presentation of a seminar/project work at tutorials is a prerequisite for entering the exam. * Written examination
* E-lectures and E-tutorials
* Presentation of a seminar/project work at tutorials
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| **Reference nosilca / Course coordinator's references:**  |
| 1. HRIBAR, Gašper, PODBREGAR, Iztok, ROSI, Bojan. A model of citizens' trust in intelligence services. *Security journal*, ISSN 1743-4645. 2. DRAGAN, Dejan, KESHAVARZSALEH, Abolfazl, POPOVIĆ, Vlado, JEREB, Borut, ROSI, Bojan. Model-based condition monitoring : state-space solution for counter-current heat exchanger. *Journal of engineering thermophysics*, ISSN 1990-5432, 2020, vol. 2, iss. 1, str. 503-517, ilustr. 3. BUTTON, Kenneth John, KRAMBERGER, Tomaž, GROBIN, Klemen, ROSI, Bojan. A note on the effects of the number of low-cost airlines on small tourist airports' efficiencies. *Journal of Air Transport Management*, ISSN 1873-2089. 4. STERNAD, Marjan, JAGRIČ, Timotej, ROSI, Bojan. Railway usage charges based on marginal maintenance costs. *Proceedings of the Institution of Civil Engineers - Transport*, ISSN 1751-7710. 35. GUMZEJ, Roman, ROSI, Bojan. Automated authentication and authorisation of consignors and their consignments within secure supply chains : Elektronski vir. *Tehnički vjesnik*, ISSN 1848-6339, 2018, vol. 25, iss. 1, str. 203-209. 6. GUMZEJ, Roman, ROSI, Bojan. An agent-based simulation of a QoS-oriented supply chain. *Promet*, ISSN 0353-5320. [Print ed.], 2017, vol. 29, no. 6, str. 593-601, ilustr.  |