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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** |
| **Ime predmeta:** | TEORIJA SISTEMOV |
| **Course title:** | SYSTEM THEORY |
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| **Študijski program in stopnja****Study programme and cycle** | **Študijska smer****Study option** | **Letnik****Year of study** | **Semester****Semester** |
| LOGISTIKA SISTEMOV 1. stopnja |  | 2. | 3. |
| SYSTEM LOGISTICS 1st degree |  | 2. | 3. |
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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:** | UN |
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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** |
| 39 a-P21 e-P |  | 12 e-V18 a-V |  |  | 120 |  | 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):** |
| * Uvod v teorijo sistemov.
* Razvoj teorije sistemov.
* Splošne karakteristike sistemov.
* Principi sistemov: lastnosti sistemov, struktura in delovanje sistemov, stanje sistema, sistemski procesi.
* Modeliranje in simulacije sistemov.
* Variante teorije sistemov: FUZZY, teorija živih sistemov, metodologija mehkih sistemov, teorija viabilnih sistemov, kritično sistemsko razmišljanje, dialektična teorija sistemov.
* Konvergentno, divergentno in ustvarjalno/inovativno razmišljanje
* Teorija omrežnega razmišljanja
* Sistemska metodlogija dialektično-omrežnega razmišljanja.
* Sistemske značilnosti pametnih mest in skupnosti
* Sistemski pristop k obvladovanju kompleksnih sistemov na primerih pametnih mest in skupnosti
 |  | * Introduction to the system theory.
* Development of the system theory.
* General characteristics of systems.
* Principles of systems: characteristics of systems, structure and functioning of systems, the state of a system, system processes.
* Modelling and simulations of systems.
* Variant theories of systems: fuzzy, living system theory, soft systems methodology, system theory, critical system thinking, dialectical systems theory .
* Convergent, divergent and creative/innovative thinking
* Theory of network thinking
* System methodology of dialectical networked thinking.
* System characteristics of smart cities and communities
* A systemic approach to the management of complex systems on the examples of smart cities and communities
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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 ključnih pojmov/lastnosti iz teorije sistemov
* razumevanje najbolj razširjenih variant teorij sistemov
* razumevanje ustrezne uporabe sistemskega razmišljanja in sistemskega pristopa pri prepoznavanju in razreševanju kompleksnih problemov

Kompetence: študent je zmožen sistemsko razmišljati in prepoznati kompleksnost problemskih stanj. Pri tem je zmožen uporabiti sistemski pristop, ki je nujen za celovito razreševanje kompleksnih problemov.  |  | The objectives of the course are: * understanding of key concepts/features from systems theory
* understanding the most common variants of systems theories
* understanding the appropriate use of systems thinking and a systems approach in identifying and solving complex problems

Competences: the student can think systematically and recognize the complexity of problem situations. In doing so, he can use the systems approach necessary for a comprehensive solution to complex problems. |
| **Predvideni študijski rezultati:** |  | **Intended learning outcomes:** |
| Po uspešno zaključenem predmetu so študenti zmožni:* opisati ključni namen teorije sistemov,
* uporabiti in oblikovati sistemski pristop pri reševanju kompleksnih problemov,
* razlikovati temeljne značilnosti posameznih teorij sistemov,
* uporabiti sistemsko metodologijo,
* doseči želen nivo celovitosti pri razreševanju kompleksnih problemov.
 |  | Upon successful completion of this course, students can:* describe the critical purpose of systems theory,
* use and design a systematic approach to solving complex problems,
* distinguish the essential characteristics of individual systems theories,
* use a system methodology,
* achieve the desired level of integrity in solving complex problems.
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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. Aktivno sodelovanje gostujočih strokovnjakov.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 can apply it. Active participation of visiting experts. Part of the seminar is in a classroom, while the rest is in the form of e-learning (e-tutorials 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:** |
| * Pisni izpit
* E-vaje in E-predavanja
* Predstavitev seminarske/projektne naloge v okviru vaj

Opravljene obveznosti (e-predavanja, e-vaje in seminarska/projektna naloga) so pogoj za pristop k izpitu. | 70 %10 %20 % | * Written examination
* E-lectures and E-tutorials
* Presentation of a seminar/project work at tutorials

Successful completion of e-lectures, e tutorials and presentation of a seminar/project work at tutorials is a prerequisite for entering the exam.  |
| **Reference nosilca / Course coordinator's references:**  |
| GUMZEJ, Roman, ROSI, Bojan. Automated authentication and authorisation of consignors and their consignments within secure supply chains : Elektronski vir. *Tehnički vjesnik*. 2018, vol. 25, iss. 1, str. 203-209. ISSN 1848-6339. <https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=285638>. [COBISS.SI-ID [512898365](https://plus.cobiss.net/cobiss/si/sl/bib/512898365)], [[JCR](https://plus.si.cobiss.net/opac7/jcr?c=sc=1330-3651+and+PY=2018&r1=true&lang=sl), [SNIP](https://plus.si.cobiss.net/opac7/snip?c=sc=1330-3651+and+PY=2018&r1=true&lang=sl), [WoS](http://gateway.isiknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcAuth=Alerting&SrcApp=Alerting&DestApp=WOS&DestLinkType=FullRecord&KeyUT=000425879800029), [Scopus](http://www.scopus.com/inward/record.url?partnerID=2dRBettD&eid=2-s2.0-85041901434)]2. STERNAD, Marjan, JAGRIČ, Timotej, ROSI, Bojan. Railway usage charges based on marginal maintenance costs. *Proceedings of the Institution of Civil Engineers - Transport*. [Online ed.]. Feb. 2018, no. 1, vol. 171, str. 3-10. ISSN 1751-7710. <http://dx.doi.org/10.1680/jtran.15.00058>, DOI: [10.1680/jtran.15.00058](https://dx.doi.org/10.1680/jtran.15.00058). [COBISS.SI-ID [512834877](https://plus.cobiss.net/cobiss/si/sl/bib/512834877)]6. HRIBAR, Gašper, PODBREGAR, Iztok, ROSI, Bojan. A model of citizens' trust in intelligence services. *Security journal*. vol. 35, str. [226]-247, ilustr. ISSN 1743-4645. <https://doi.org/10.1057/s41284-020-00275-x>, DOI: [10.1057/s41284-020-00275-x](https://dx.doi.org/10.1057/s41284-020-00275-x). [COBISS.SI-ID [65238787](https://plus.cobiss.net/cobiss/si/sl/bib/65238787)]. |