

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

Predmet:	TEORIJA SISTEMOV
Course title:	THEORY OF SYSTEMS

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
LOGISTIKA SISTEMOV 1. stopnja		1.	1.
SYSTEM LOGISTICS 1. degree			

Vrsta predmeta / Course type: OBVEZNI

Univerzitetna koda predmeta / University course code: UN

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Laboratory work	Druge oblike študija Field work	Samost. delo Individ. work	ECTS
30 e-P 30 a-P		15 e-V 15 a-V			120	7

Nosilec predmeta / Lecturer: BOJAN ROSI

Jeziki / Predavanja / Lectures: SLOVENSKI / SLOVENE  
 Languages: Vaje / Tutorial: SLOVENSKI / SLOVENE

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

Prerequisites:

Ni pogojev

None

Vsebina:

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.
- Dinamični sistemi: linearni dinamični sistemi, bločna algebra, dinamika obnašanja linearnih sistemov, zvezni sistemi, diskretni sistemi.
- Modeliranje in simulacije sistemov.
- Variante teorije sistemov: FUZZY, teorija živih sistemov, metodologija mehkih sistemov, teorija viabilnih sistemov, kritično sistemsko razmišljanje, dialektična teorija sistemov.

- Introduction to the theory of systems.
- Development of the theory of systems.
- General characteristics of systems.
- Principles of systems: characteristics of systems, structure and functioning of systems, the state of a system, system processes.
- Dynamic systems: linear dynamic systems, block algebra, the dynamics of the performance of linear systems, continuous systems, discrete systems.
- Modelling and simulations of systems
- Variant theories of systems: fuzzy, theory of living systems, soft systems methodology, theory of variable systems, critical systemic

- Teorija omrežnega razmišljanja.
- Sistemska metodologija dialektično-omrežnega razmišljanja.

- thinking, dialectic theory of systems.
- Theory of network thinking.
  - System methodology of dialectical networked thinking.

Temeljni literatura in viri / Readings:

Rosi, B. Osnove teorije sistemov e-gradivo. 2008, FL.  
 Kljajič, M. Teorija sistemov, FOV, 2008.  
 Rosi, B. Ali ste pripravljene dialektično omrežno razmišljati? 2008, Maribor, RoBo.  
 Mulej, M. Dialektična in druge mehkosistemske teorije, Maribor, EPF, 2000.  
 Rosi, B. Teorija sistemov v praksi, Celje, FL, 2006.  
 Bertalanffy, v. L. General Systems Theory, Foundations, Development, Applications, Revised Edition. Sixth Printing, New York, Brazillier. 1979.  
 Checkland, P. Systems Thinking, Systems Practice, Wiley, Chichester, Velika Britanija. 1981

Cilji in kompetence:

Študenti pri tem predmetu:  
 osvojijo osnove pojmov iz teorije sistemov, spoznajo uporabnost različnih teorij sistemov, se naučijo sistemskega razmišljanja in uporabe sistemskega pristopa pri razreševanju problemov, tj. uporabe teoretičnih osnov na aplikativnih primerih, spoznajo logistiko kot primer sistema s številnimi podsistemi, spoznajo odnose in soodvisnosti med njimi.

Objectives and competences:

In this course students:  
 get the basic grasp of theory of systems, are familiarised with the applicability of different theories of systems, learn to think systematically and to use system approach in problem solving, i.e. the use of theoretical basis for application examples, they are familiarised with logistics as an example of a system with numerous subsystems they are familiarised with relations and interdependence between them

Predvideni študijski rezultati:

- Znanje in razumevanje:
- študenti osvojijo osnovne pojme teorije sistemov,
- študenti se naučijo uporabljati sistemski pristop pri reševanju kompleksnih problemov,
- študenti razlikujejo temeljne značilnosti posameznih teorij sistemov,
- študenti se naučijo uporabljati sistemsko metodologijo.

Intended learning outcomes:

- Knowledge and understanding:
- students understand basic concepts of the theory of systems
- students learn to use system approach in solving complex problems,
- students recognize basic characteristics of separate theories of systems
- students learn to apply system methodology

Metode poučevanja in učenja:

Learning and teaching methods:

<p><b>Predavanja:</b> 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).</p> <p><b>Vaje:</b> Število študentov pri vajah mora biti prilagojeno modernim učnim in izobraževalnim metodam. Del vaj se izvaja na klasični način v predavalnici, del pa v obliki e-predavanj (e-vaje se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju).</p>	<p><b>Lectures:</b> 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).</p> <p><b>Tutorials:</b> Students enhance their theoretical knowledge and are able to apply it. Part of the seminar is in a classroom while the rest is in the form of e-learning (e-seminars may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment).</p>
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Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
<ul style="list-style-type: none"> <li>▪ Pismi,</li> <li>▪ Vaje</li> <li>▪ zagovor seminarske naloge</li> </ul>	<ul style="list-style-type: none"> <li>▪ 70 %</li> <li>▪ 10 %</li> <li>▪ 20 %</li> </ul>	<ul style="list-style-type: none"> <li>▪ Written exam</li> <li>▪ Seminars</li> <li>▪ Defence of project work</li> </ul>

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

<ol style="list-style-type: none"> <li>1. ROSI, Bojan, MULEJ, Matjaž. Diminishing traffic negative impacts over natural environment by a requisitely holistic approach to logistics. <i>Logistics and sustainable transport</i>, 22-05-07, vol. 1, iss. 1, 13 str. <a href="http://www.ilst.sla.si/uploads/transportokolje_rosimulej.pdf">http://www.ilst.sla.si/uploads/transportokolje_rosimulej.pdf</a>.</li> <li>2. LISEC, Andrej, ROSI, Bojan, KAVRAN, Zvonko. Holistic thinking aproach : case study of post network in Slovenia. <i>Promet (Zagreb)</i>, 2008, vol. 20, no. 2, str. 79-86.</li> <li>3. ROSI, Bojan, KRAMBERGER, Tomaž. <i>Ali ste pripravljeni dialektično omrežno razmišljati?</i>. Maribor: RoBo, 2008. 296 str., ilustr., tabele. ISBN 978-961-92334-0-5.</li> <li>4. ROSI, Bojan. Development of transport infrastructure in Slovenia. V: SCHENK, Winfried (ur.), SCHENK, Tilman A. (ur.). <i>Forschung im Spannungsfeld zwischen Geographie und Ökonomie : zum 65. Geburtstag von Konrad Schliephake</i>, (Würzburger Geographische Manuskripte, Heft 75). Würzburg: Institut für Geographie der Universität, cop. 2009, str. 54-60.</li> <li>5. KNEZ, Matjaž, ROSI, Bojan, MULEJ, Matjaž, LIPIČNIK, Martin. Competitiveness by requisitely holistic and innovative logistic management. <i>Promet (Zagreb)</i>, 2010, vol. 22, no. 3, str. 229-237.</li> </ol>
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