UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Ime predmeta:	OSNOVE TEORIJE SISTEMOV
Course title:	FUNDAMENTALS OF THE THEORY OF SYSTEMS

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

Vrsta predmeta (obvezni ali izbirni) / **Course type (compulsory or elective)**	OBVEZNI COMPULSORY
Univerzitetna koda predmeta / University course code:	VS

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-V 21 a-V			90	6

Nosilec predmeta / Course coordinator:	**BOJAN ROSI**
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.	• Introduction to the theory of systems.
• Razvoj teorije sistemov.	• Development of the theory of systems.
• Osnovne karakteristike sistemov.	• Basic characteristics of systems.
• Lastnosti sistemov, struktura in delovanje sistemov ter stanje sistema.	• Characteristics of systems, structure and functioning of systems and the state of a system.
• Sistemski procesi.	• System processes.
• Osnove modeliranja in simulacije sistemov.	• Basic of modelling and simulations of systems.
• Osnove FUZZY teorije.	• Basic of fuzzy theory.
• Osnove teorije živih sistemov.	• Basic of theory of living systems.
• Metodologija mehkih sistemov.	• Soft systems methodology.

Temeljni literatura in viri / Reading materials:

Rosi, B., & Sternad. M. (2010). *Teorija sistemov*. E-gradivo. Celje: Fakulteta za logistiko, Univerza v Mariboru.
Rosi, B. (2008). *Teorija sistemov v praksi*. Celje: Fakulteta za logistiko, Univerza v Mariboru..
Bertalanffy, v. L. (1979). G*eneral Systems Theory, Foundations, Development, Applications, Revised Edition*. Sixth Printing, New York, Brazillier.
Checkland, P. (1981). *Systems Thinking, Systems Practice*. Wiley, Chichester, Velika Britanija.

Cilji in kompetence:

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

Objectives and competences:

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

Predvideni študijski rezultati:

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.

Intended learning outcomes:

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.

Metode poučevanja in učenja:

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).

Learning and teaching methods:

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).

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).	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.		Successful completion of e-lectures, e tutorials and presentation of a seminar/project work at tutorials is a prerequisite for entering the exam.
- Pisni izpit - E-vaje in E-predavanja - Predstavitev seminarske/projektne naloge v okviru vaj	70 % 10 % 20 %	- Written examination - E-lectures and E-tutorials - Presentation of a seminar/project work at tutorials

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. 3
5. 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.