

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta: INFORMACIJSKA PODPORA LOGISTIČNIM SISTEMOM IN PROCESOM
Course title: INFORMATION SUPPORT IN LOGISTICS SYSTEMS AND PROCESSES

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
LOGISTIKA SISTEMOV 2. stopnja		1.	2.
SYSTEM LOGISTICS 2 nd degree		1.	2.

**Vrsta predmeta (obvezni ali izbirni) /
Course type (compulsory or elective)**

OBVEZNI
COMPULSORY

Univerzitetna koda predmeta / University course code:

MAG

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
27 a-P 18 e-P		27 a-V 13 e-V			125	7

Nosilec predmeta / Course coordinator:

ROMAN GUMZEJ

Jeziki /Languages:

Predavanja / Lectures: SLOVENSKI/SLOVENE

Vaje / Tutorial: SLOVENSKI/SLOVENE

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

Ni pogojev.

Prerequisites for enrolling in the course or for performing study obligations:

None.

Vsebina (kratek pregled učnega načrta):

1. Informacijska podpora logističnim procesom (umestitev v SCOR modelu in hierarhiji logističnih informacijskih sistemov).
 2. Snovanje informacijskih sistemov (strateško logistično planiranje, globalni, konceptualni, logični, fizični modeli logističnih sistemov in procesov, dimenzioniranje izvirov zahtev in materialov, procesnih virov, planiranje kapacitet).
 3. Uporaba informacijskih sistemov (odločitveni sistemi, ekspertni sistemi, podatkovno rudarjenje, odkrivanje znanja, sistemi upravljanja znanja, simulacijsko modeliranje kot odločitveni sistem, digitalni laboratorij, analiza zmogljivosti na osnovi ključnih performančnih indikatorjev).

Content (syllabus outline):

1. Information support in logistics processes (placement in the SCOR model and the hierarchy of logistics information systems).
 2. Information systems design (strategic logistics planning, global, conceptual, logical, physical logistics systems and processes models, dimensioning sources of demands and materials, and processes resources, capacity planning).
 3. Information systems utilization (decision support systems, expert systems, data mining, knowledge discovery, knowledge management systems, simulation modelling as decision support system, digital laboratory, performance analysis, based on key performance indicators).

Temeljni literatura in viri / Reading materials:

- Date, C. J. (1999). An Introduction to Database Systems (8th ed.). Addison-Wesley Longman. ISBN 0-321-19784-4.
- Chung, C. C. (2004). Simulation Modeling Handbook - A Practical Approach, CRC Press. ISBN 0-8493-1241-8
- Grant D. B.; Lambert D. M.; Stock J. R. & Ellram L. M. (2006). Fundamentals of Logistics Management, European Edition. McGraw-Hill, Berkshire, UK.
- Flood R. L. (1987). Complexity: A definition by construction of a conceptual framework. Systems Research, 4(3), 177–185.
- Gumzej, R. (2013). Informacijska podpora logističnim sistemom, Celje: Fakulteta za logistiko. ISBN 978-961-6562-90-4. ISBN 978-961-6562-91-1.
- Kent, W. (1983). A Simple Guide to Five Normal Forms in Relational Database Theory, Communications of the ACM, vol. 26, pp. 120-125.
- European Commission. (2019). eGovernment & Digital Public Services. Vir: <https://ec.europa.eu/digital-single-market/en/policies/egovernment> .

Cilji in kompetence:

Cilji predmeta so:

- razumevanje vloge informacijskih sistemov v logističnih sistemih ter SCOR modelu,
- razumevanje konceptov in metod organizacije logističnih podatkov v podatkovne zapise, zbirke, baze, skladišča in tržnice (masivni podatki),
- razumevanje konceptov in metod računalniško podprtega načrtovanja, inženiringa in analitike v logističnih sistemih.

Kompetence, ki jih študenti osvojijo:

- pridobijo pregledna znanja o informacijski podpori logističnim postopkom v proizvodnih, storitvenih, prodajnih, distribucijskih in sistemih javne uprave,
- osvojijo metode računalniško podprtega načrtovanja, inženirstva in analitike za demonstracijo systemskega pristopa k razvoju logističnih sistemov,
- osvojijo koncepte sistemov upravljanja znanja v logistiki na osnovi hierarhičnih, mrežnih, relacijskih, objektnih in kontekstnih modelov baz podatkov,
- osvojijo koncepte simulacijskega modeliranja in analize logističnih procesov na osnovi simulacije na osnovi diskretnih dogodkov, systemske dinamike, agentov in mrežne simulacije.

Predvideni študijski rezultati:

Študent bo po zaključku predmeta zmožen:

- analize, sinteze in vrednotenja logističnih podatkov v logističnih bazah podatkov,
- upravljanja znanja v logističnih informacijskih sistemih,

Objectives and competences:

Course objectives are:

- understanding information systems' role in logistics systems and the SCOR model,
- understanding the concepts and methods of logistics data organization into data records, files, bases, warehouses, and marts (Big Data),
- understanding the concepts and methods of computer aided design, engineering, and analytics in logistics systems.

Competences acquired by students:

- gain encyclopaedic knowledge on logistics procedures information support in production, services, sales, and distribution as well as e-government,
- master methods of computer aided design, engineering, and analytics, demonstrating the systems approach to logistics systems development,
- master concepts of knowledge management systems in logistics based on hierarchical, network, relational, object and context database models.
- master concepts of simulation modelling and analysis of logistics processes by discrete event simulation, systems dynamics, agent-based simulation, and network simulation.

Intended learning outcomes:

Upon completion of the course a student will be capable of:

- analysis, synthesis, and validation of logistic data within logistics databases,

- simulacijskega modeliranja in analize logističnih procesov,
- dimenzioniranja virov logističnih sistemov z determinističnimi in stohastičnimi metodami kvantitativnega modeliranja in analize.

- knowledge management in logistics information systems,
- simulation modelling and analysis of logistics processes,
- capacity planning in logistics systems by deterministic and stochastic quantitative modelling and analysis methods.

Metode poučevanja in učenja:

Predavanja: pri predavanjih študenti spoznajo teoretične osnove predmeta. Predavanja potekajo v živo v predavalnici pa tudi v obliki e-predavanj na videokonferenčni način ter preko namenskih e-učilnic v e-učnem okolju.

Vaje: pri vajah študenti utrdijo teoretično znanje in se ga naučijo uporabiti. Vaje potekajo v živo v predavalnici pa tudi v obliki e-vaj na videokonferenčni način ter preko namenskih e-učilnic v e-učnem okolju.

Learning and teaching methods:

Lectures: during lectures students are familiarised with the theoretical fundamentals of the course. Lectures take place live in the classroom as well as in the form of e-lectures via videoconferencing and dedicated e-classrooms in the e-learning environment.

Tutorials: during tutorials students consolidate their theoretical knowledge and learn to apply it. The tutorials are held live in the classroom as well as in the form of e-tutorials via videoconferencing and dedicated e-classrooms in the e-learning environment.

Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Način (pisni izpit, ustno izpraševanje, naloge, projekt): • raziskovalna naloga, • pisni izpit.	50% 50%	Method (written or oral exam, coursework, project): • research project, • written exam.

Reference nosilca / Course coordinator's references:

1. Simona Šinko, Roman Gumzej, "Towards smart traffic planning by traffic simulation on microscopic level", International journal of applied logistics, [Online], 2021, vol. 11, iss. 1, str. 1-17, ilustr., ISSN 1947-9581, <https://www.igi-global.com/article/towards-smart-traffic-planning-by-traffic-simulation-on-microscopic-level/269705>, DOI: 10.4018/IJAL.2021010101. [COBISS.SI-ID 46118915].
2. Anja Kmetec, Sonja Mlaker Kač, Roman Gumzej, "How to estimate strategic partnerships on the basis of quality criteria in logistics systems", International journal of applied logistics, [Online], 2021, vol. 11, iss. 1, str. 52-65, tabele, ISSN 1947-9581, <https://www.igi-global.com/article/how-to-estimate-strategic-partnerships-on-the-basis-of-quality-criteria-in-logistics-systems/269708>, DOI: 10.4018/IJAL.2021010104. [COBISS.SI-ID 46127107].
3. Tanja Poletan Jugović, Dragan Čišić, Roman Gumzej, "Supply chain service quality improvement by e-marketplace automation", Promet, [Print ed.], 2019, vol. 31, no. 2, str. 185-194, ilustr., ISSN 0353-5320, <https://doi.org/10.7307/ptt.v31i2.3042>, DOI: 10.7307/ptt.v31i2.3042. [COBISS.SI-ID 512990269].
4. Roman Gumzej, Miroslava Rakovska, "Simulation modeling and analysis for sustainable supply chains", V: Sustainable logistics and production in industry 4.0 : new opportunities and challenges, Katarzyna Grzybowska (ur.), Anjali Awasthi (ur.), Rapinder Sawhney (ur.), [S. l.]: Springer Nature, cop. 2020, str. 145-160, ilustr., Ecoproduction, ISBN 978-3-030-33369-0, ISSN 2193-4614, https://doi.org/10.1007/978-3-030-33369-0_9, DOI: 10.1007/978-3-030-33369-0_9. [COBISS.SI-ID 513050429].

5. Roman Gumzej, Informacijska podpora logističnim sistemom, Celje: Fakulteta za logistiko, 2013, XV, 219 str., graf. prikazi, ISBN 978-961-6562-90-4, http://fl.uni-mb.si/knjiznica/wp-content/uploads/2013/12/Gumzej_Informacijska-podpora-logisti. [COBISS.SI-ID 270215680].