

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

**Ime predmeta:** NAPREDNO MODELIRANJE V LOGISTIKI  
**Course title:** ADVANCED MODELING IN LOGISTICS

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
LOGISTIKA SISTEMOV 1. stopnja		3.	6.
SYSTEM LOGISTICS 1 <sup>st</sup> degree		3.	6.

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

OBVEZNI  
COMPULSORY

**Univerzitetna koda predmeta / University course code:**

UN

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 21 a-P		18 e-V 27 a-V			60	5

**Nosilec predmeta / Course coordinator:**

TOMAŽ KRAMBERGER

**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):**

- Osnovni koncepti modeliranja in simulacij.
- Vrste modeliranja in simulacija.
- Primeri modelov praktičnih problemov v logistiki.
- Izvedba simulacij praktičnih problemov v logistiki.

**Content (syllabus outline):**

- Basic concepts of modelling and simulation.
- Types of modelling and simulation.
- Modelling of practical problems in logistics.
- Simulation of practical problems in logistics.

**Temeljni literatura in viri / Reading materials:**

E-gradivo predmeta.  
 Simchi-Levi, D., Chen, X., Bramel, J.: The Logic of Logistics, Springer Series in Operations Research, New York, 1997.

**Cilji in kompetence:**

- Študenti:
- spoznajo osnovne pojme in vrste modeliranja in simulacij,
  - razumejo pomen modeliranja in simulacij

**Objectives and competences:**

- Students:
- get familiar with the basic definitions and types of modelling, and simulation,

- logističnih procesov,
- znajo uporabiti koncepte modeliranja in simulacij za analizo kompleksnejših problemov v logistiki,
- so sposobni ovrednotiti dobljene rezultate ter pripraviti načrt za njihovo implementacijo v praksi.

- understands the impact of modelling and simulation of logistics processes,
- knows how to use concepts of modelling and simulation for the analysis of complex logistics problems,
- are able to evaluate obtained results and to form a plan for their practical implementation.

#### **Predvideni študijski rezultati:**

##### Znanje in razumevanje:

- študenti se naučijo izdelati enostavne simulacijske modele logističnih procesov,
- znajo uporabiti pridobljena znanja, izvesti simulacije ter analizirati obravnavan problem in dobljene rezultate,
- študenti razlikujejo med realnim in simulacijskim okoljem, ter so sposobni dobljene rezultate iz simulacijskega okolja prilagoditi za uporabo v realnem okolju.

##### Prenesljive/ključne spretnosti in drugi atributi:

Študenti se usposobijo za uporabo teoretičnega znanja v praktičnih primerih, predvsem pri procesih, ki so jih spoznali pri predmetih Transportna logistika, Geografski informacijski sistemi in Skladiščno poslovanje in skladiščni sistemi.

#### **Intended learning outcomes:**

##### Knowledge and understanding:

- students learn to make simple simulation models of logistics processes,
- students are able to use the acquired knowledge, perform simulations and analyze the problem and the results obtained,
- students understand the differences between the real and simulation environment, and are able to adjust the obtained results from the simulation model to the real environment.

##### Transferable/Key Skills and other attributes:

Students learn how to apply their theoretical knowledge to practical examples, especially in processes from subjects Transportation logistics, Geographical information systems, Warehouse systems and warehouse operations.

#### **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).

**Vaje:** pri vajah študent utrdi teoretično znanje in spozna aplikativne možnosti. 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).

#### **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).

**Tutorials:** 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-tutorials may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment).

<b>Načini ocenjevanja:</b>	Delež (v %) / Share (in %)	<b>Assessment methods:</b>
<ul style="list-style-type: none"> <li>▪ Opravljene obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu.</li> <li>▪ Pisni izpit.</li> </ul>	70%	<ul style="list-style-type: none"> <li>▪ Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam.</li> <li>▪ Written examination.</li> </ul>

▪ Seminarska naloga.	30%	▪ Oral examination.
----------------------	-----	---------------------

**Reference nosilca / Course coordinator's references:**

KRAMBERGER, Tomaž, MONIOS, Jason, ŠTRUBELJ, Gregor, RUPNIK, Bojan. Using dry ports for port competition : the case of Adriatic ports. *International journal of shipping and transport logistics*, ISSN 1756-6525. [Online ed.], 2018, vol. 10, iss. 1, str. 18-44, ilustr. <http://www.inderscience.com/info/inarticle.php?artid=88319>, doi: [10.1504/IJSTL.2018.10008533](https://doi.org/10.1504/IJSTL.2018.10008533). [COBISS.SI-ID [512889661](#)].

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. [Online ed.], 2018, vol. 72, str. 92-97. <https://www.sciencedirect.com/science/article/pii/S096969971730114X>, doi: [10.1016/j.jairtraman.2017.12.003](https://doi.org/10.1016/j.jairtraman.2017.12.003). [COBISS.SI-ID [512892733](#)].

BUTTON, Kenneth John, KRAMBERGER, Tomaž, VIZINGER, Tea, INTIHAR, Marko. Economic implications for Adriatic seaport regions of further opening of the Northern Sea Route. *Maritime economics & logistics*, ISSN 1479-294X. [Spletna izd.], Mar. 2017, vol. 19, iss. 1, str. 52-67, ilustr. <http://www.palgrave-journals.com/mel/journal/vaop/ncurrent/abs/mel201525a.html>, doi: [10.1057/mel.2015.25](https://doi.org/10.1057/mel.2015.25). [COBISS.SI-ID [512702781](#)].

INTIHAR, Marko, KRAMBERGER, Tomaž, DRAGAN, Dejan. Container throughput forecasting using dynamic factor analysis and ARIMAX model. *Promet*, ISSN 0353-5320. [Print ed.], 2017, vol. 29, no. 5, str. 529-542, ilustr. [COBISS.SI-ID [512879421](#)].

KRAMBERGER, Tomaž, RUPNIK, Bojan, ŠTRUBELJ, Gregor, PRAH, Klemen. Port hinterland modelling based on port choice. *Promet*, ISSN 0353-5320. [Print ed.], 2015, vol. 27, no. 3, str. 195-203, ilustr. <http://www.fpz.unizg.hr/traffic/index.php/PROMTT/article/view/1611>, doi: [10.7307/ptt.v27i3.1611](https://doi.org/10.7307/ptt.v27i3.1611). [COBISS.SI-ID [512689725](#)].