

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

**Ime predmeta:** PAMETNA IN VARNA MOBILNOST  
**Course title:** SMART AND SAFE MOBILITY

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 <sup>nd</sup> degree		1.	2.

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

OBVEZNI  
COMPULSORY

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

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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											
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**Nosilec predmeta / Course coordinator:**

DARJA TOPOLŠEK

**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):**

- Pametna mesta (struktura, standardi, ekološki ter družbeni vplivi pametnega mesta)
- Mobilnost ljudi in blaga (tehnike in instrumenti za upravljanje mobilnosti, MaaS, MoD, načrti mobilnosti, načela celostnega načrtovanja)
- Pametna mobilnost ljudi in blaga v urbanih območjih in skupnostih (mobilnostni sistemi in nadzorni/informacijski centri, kolektivna mobilnost in skupna raba vozil, koncepti mestne/urbane distribucijske logistike in konsolidacijski centri, blagovni tokovi)
- ITS v navezavi s sistemi za omejevanje vstopa v urbana središča (okoljske cone/scheme, nadzor in regulacija parkiranja, ITS v javnem prevozu, interoperabilnost, RFID in NFC tehnologije)
- Prometna varnost v okviru pametne mobilnosti

**Content (syllabus outline):**

- Smart cities (structure, standards, ecological and social impacts of a smart city)
- Mobility of people and goods (mobility management techniques and instruments, MaaS, MoD, mobility plans, principles of integrated planning)
- Smart mobility of people and goods in urban areas and communities (mobility systems and control/information centers, collective mobility and vehicle sharing, city/urban distribution logistics concepts and consolidation centers, commodity flows)
- ITS in conjunction with systems for restricting access to urban centers (environmental zones/schemes, parking control and regulation,

	<p>ITS in public transport, interoperability, RFID and NFC technologies</p> <ul style="list-style-type: none"> <li>• Traffic safety in the context of smart mobility</li> </ul>
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### Temeljni literatura in viri / Reading materials:

Topolšek, D., Cvahte Ojsteršek, T. Pametna in varna mobilnost, e-gradivo (v pripravi)  
 Topolšek, D., Cvahte Ojsteršek, T. (2016). Mestna logistika in mobilistika: e-gradivo. Celje: Fakulteta za logistiko, <http://studij.um.si/>.  
 Anthopoulos, L. G. (2019). Smart city emergence: cases from round the world. Elsevier. <https://www.elsevier.com/books/smart-city-emergence/anthopoulos/978-0-12-816169-2>  
 European Environment Agency (2016). Towards clean and smart mobility : transport and environment in Europe. Luxembourg: Publications Office of the European Union  
 Faulin, J., Grasma, S. E., Hircsh, P. (2019). Sustainable Transportation and Smart Logistics: Decision-Making Models and Solutions. Elsevier.  
 Flügge, B. (2017). Smart mobility - connecting everyone: trends, concepts and best practices. Wiesbaden : Springer Vieweg  
 Hatzelhoffer, L., Kolar-Thompson,L. (2012) Smart city in practice: converting innovative ideas into reality : evaluation of the T-City Friedrichshafen

### Cilji in kompetence:

Cilji predmeta so:

- opredeliti značilnosti mobilnosti ljudi in blaga
- teoretično opredeliti in praktično razložiti strukturo, standarde in vplive pametnega mesta
- teoretično opredeliti pametno mobilnost ljudi in blaga v urbanih okoljih in to prenesti na primere iz prakse
- opredeliti ITS sisteme za omejevanje dostopa in njihov praktični prenos na realne probleme
- teoretično opredeliti prometno varnost v pametni mobilnosti in praktično razložiti vpliv varnosti na mobilnost
- praktično razložiti pristop k reševanju problematike pametne in varne mobilnosti ljudi in blaga

Kompetence, ki jih pridobijo študenti:

- spoznajo in razumejo sistem in elemente pametne in varne mobilnosti ljudi in blaga
- spoznajo in razumejo ITS sisteme za omejevanje vstopa v urbana središča
- spoznajo in razumejo vpliv prometne varnosti na mobilnost ljudi/blaga
- se usposobijo za analiziranje, kritično ovrednotenje in za snovanje posameznih elementov pametne mobilnosti ljudi/blaga
- se usposobijo za prenos teoretičnega znanja na praktične probleme

### Objectives and competences:

The objectives of the course are to:

- identify the characteristics of mobility of people and goods
- theoretically define and practically explain the structure, standards and impacts of a smart city
- theoretically define smart mobility of people and goods in urban environments and transfer this to practical examples
- identify ITS systems for access restrictions and their practical transfer to real problems
- theoretically define road safety in smart mobility and practically explain the impact of safety on mobility
- practically explain the approach to solving the problems of smart and safe mobility of people and goods

Competences acquired by students:

- get to know and understand the system and elements of smart and safe mobility of people and goods
- get to know and understand ITS systems for restricting access to urban centers
- get to know and understand the impact of road safety on the mobility of people / goods
- are trained to analyze, critically evaluate and design individual elements of smart mobility of people/goods

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- are trained to transfer theoretical knowledge to practical problems.

**Predvideni študijski rezultati:**

Znanje in razumevanje:  
Študent bo ob zaključku predmeta zmožen:

- razumeti pomen urejenega mobilnostnega sistema v logističnem sistemu
- razumeti in opredeliti elemente pametnega mesta in mobilnostnega sistema znotraj njih
- evalvirati pomen prometno varnostnega vidika v logističnem sistemu
- organizirati premik ljudi/blaga znotraj pametnih urbanih središč
- zbrati podatke o posameznem elementu pametne in varne mobilnosti ljudi/blaga, jih potem analizirati in ovrednotiti, ter odločati o predlogi

**Intended learning outcomes:**

Knowledge and understanding:  
After completion of the course, the student will be able to:

- understand the importance of an established mobility system in the logistics system
- understand and define the elements of a smart city and the mobility system within it
- evaluate the importance of the traffic safety aspect in the logistics system
- organize the movement of people / goods within smart urban centers
- collect data on individual elements of smart and safe mobility of people / goods, then analyze and evaluate them, and decide on proposals

**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. Praktične strokovne ekskurzije v podjetja in druga okolja. 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. Practical professional excursions to companies and other relevant environments. Part of the tutorials 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>
Opravljenosti obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu.		Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam.
Pisni izpit.	60 %	Written examination.
Raziskovalna naloga.	20 %	Project work.
Ocene sprotnih aktivnosti pri predavanjih in e-predavanjih.	10 %	Grades from activities at lectures and e-lectures.
Ocene sprotnih aktivnosti pri vajah in e-vajah.	10 %	Grades from activities at tutorials and e-tutorials.

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

- TOPOLŠEK, Darja, BABIĆ, Dario, BABIĆ, Darko, CVAHTE OJSTERŠEK, Tina. Factors influencing the purchase intention of autonomous cars. Sustainability. 2020, vol. 12, iss. 24, str. [1]-16, ilustr. ISSN 2071-1050. <https://doi.org/10.3390/su122410303>. [COBISS.SI-ID 42536963]
- CVAHTE OJSTERŠEK, Tina, TOPOLŠEK, Darja. Influence of drivers' visual and cognitive attention on their perception of changes in the traffic environment. European transport research review. [Online ed.]. 2019, vol. 11, no. 45, str. 1-9, ilustr. ISSN 1866-8887. <https://doi.org/10.1186/s12544-019-0384-2>, DOI: 10.1186/s12544-019-0384-2. [COBISS.SI-ID 513043773]
- KRAMAR, Uroš, DRAGAN, Dejan, TOPOLŠEK, Darja. The holistic approach to urban mobility planning with a modified focus group, SWOT, and fuzzy analytical hierarchical process. Sustainability. 2019, vol. 11, iss. 23, str. [1]-29, ilustr. ISSN 2071-1050. <https://doi.org/10.3390/su11236599>, DOI: 10.3390/su11236599. [COBISS.SI-ID 513044029]
- KRAMAR, Uroš, CVAHTE OJSTERŠEK, Tina, STERNAD, Marjan, TOPOLŠEK, Darja, et al. Designing a strategic mobility plan for small and medium sized cities using a multi-stage methodology : case of Celje. Spatium : urban and spatial planning, architecture, housing, building, geodesia, environment. 2015, iss. 33, str. 47-54. ISSN 1450-569X. [COBISS.SI-ID 512685885]
- MRNJAVAC, Edna, KOVAČIĆ, Nataša, TOPOLŠEK, Darja. The logistic product of bicycle destination. Tourism and hospitality management. 2014, vol. 20, no. 2, str. 171-184. ISSN 1330-7533. [COBISS.SI-ID 512612669]
- GAJSKI, Ines, TOPOLŠEK, Darja, CVAHTE OJSTERŠEK, Tina, STERNAD, Marjan. Implementing transport strategies based on sustainable mobility in the County of Varaždin. Tehnički glasnik. 2017, vol. 11, no. 4, str. 221-229, ilustr. ISSN 1846-6168. [https://www.unin.hr/wp-content/uploads/tehnicki\\_glasnik\\_4\\_2017.pdf](https://www.unin.hr/wp-content/uploads/tehnicki_glasnik_4_2017.pdf). [COBISS.SI-ID 512888125]
- CVAHTE OJSTERŠEK, Tina, TOPOLŠEK, Darja. Scientific literature and EU perspectives on urban consolidation centres. Suvremeni promet. 2015, vol. 35, no. 5/6, str. 357-359, tabele. ISSN 0351-1898. [COBISS.SI-ID 512698173]