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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** |
| **Ime predmeta:** |  PAMETNA IN VARNA MOBILNOST |
| **Course title:** |  SMART AND SAFE MOBILITY |
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| **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 2nd degree |  | 1. | 2. |
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| **Vrsta predmeta (obvezni ali izbirni) /** **Course type (compulsory or elective)** | OBVEZNI |
| COMPULSORY |
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| **Univerzitetna koda predmeta / University course code:** | MAG |
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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** |
|  18 e-P 27 a-P |  |   |  |  | 155 |  | 8 |
| **AV** | **EV** | **LV** | **RV** |  |  |  |
|  | 15 | 25 |  |
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| **Nosilec predmeta / Course coordinator:** | **DARJA TOPOLŠEK** |
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| **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):** |
| * 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/sheme, nadzor in regulacija parkiranja, ITS v javnem prevozu, interoperabilnost, RFID in NFC tehnologije.
* Prometna varnost v okviru pametne mobilnosti.
 |  | * 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, ITS in public transport, interoperability, RFID and NFC technologies.
* Traffic safety in the context of smart mobility.
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| **Temeljni literatura in viri / Reading materials:** |
| * Faulin, J., Grasma, S. E., Hircsh, P. (2019). Sustainable Transportation and Smart Logistics: Decision-Making Models and Solutions. Elsevier.
* Berrone, Pascual; Ricart Costa, Joan Enric; Duch T-Figueras, Ana Isabel. (2016). Cities and mobility & transportation : towards the next generation of urban mobility. Barcelona: University of Navarra, Business School, IESE.
* Rodrigue, Jean-Paul; Conway, Allison; Dablanc, Laetitia; Giuliano, Genevivieve; Lee, Jee-Sun; O'Brien, Tom. (2023), City Logistics: Concepts, Policy and Practice. New York: Routledge. https://globalcitylogistics.org/
* Eiza, Max; Cao, Yue; Xu, Lexi. (2020). Toward sustainable and economic smart mobility : shaping the future of smart cities. Hackensack : World Scientific.
* Shroup, Donald. (2018). Parking and the city. New York ; London : Routlege, Taylor & Francis Group.
* Kramarz, Marzena; Dohn, Katarzyna; Przybylska, Edyta; Jonek-Kowalska, Izabela. (2022). Urban logistics in a digital world : smart cities and innovation. Cham : Palgrave Macmillan, 2022
* Plevnik, Aljaž; Mladenovič, Luka; Rye, Tom; Balant, Mojca; Hudoklin, Andraž; Demšar Mitrovič, Polona. (2023). Potovali bomo udobneje, živeli bomo bolje : nacionalne smernice za pripravo Občinske celostne prometne strategije. Ljubljana: Ministrstvo za okolje, podnebje in energijo.
* Evropska komisija. (2020). Strategija za trajnostno in pametno mobilnost – usmerjanje evropskega prometa na pravo pot za prihodnost. Bruselj: Evropska komisija.
 |
| **Cilji in kompetence:** |  | **Objectives and competences:** |
| 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.
 |  | 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,
* are trained to transfer theoretical knowledge to practical problems.
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| **Predvideni študijski rezultati:** |  | **Intended learning outcomes:** |
| 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 predlogih
 |  | 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.
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| **Metode poučevanja in učenja:** |  | **Learning and teaching methods:** |
| 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). |  | 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). |
| **Načini ocenjevanja:** | Delež (v %) /Share (in %) | **Assessment methods:** |
| Opravljene obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu.Pisni izpit.Raziskovalna naloga.Ocene sprotnih aktivnosti pri predavanjih in e-predavanjih.Ocene sprotnih aktivnosti pri vajah in e-vajah. | 60 %20 %10 %10 % | Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam.Written examination.Project work.Grades from activities at lectures and e-lectures.Grades from activities at tutorials and e-tutorials. |

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| **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. [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]. |