

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Ime predmeta:</b>	INOVATIVNOST IN ZELENE TEHNOLOGIJE V LOGISTIČNIH SISTEMIH
<b>Course title:</b>	INNOVATION AND GREEN TECHNOLOGIES IN LOGISTICS 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		3.	5.
PROFESSIONAL HIGHER EDUCATION STUDY PROGRAMME ECONOMIC AND TECHNICAL LOGISTICS 1 <sup>st</sup> degree		3.	5.

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

IZBIRNI
ELECTIVE

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

VS
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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
21 e-P 24 a-P		a-V - 18 e-V- 21 LV - 6			90	6

**Nosilec predmeta / Course  
coordinator:**

MATJAŽ KNEZ
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**Jeziki /Languages:**

<b>Predavanja / Lectures:</b>	SLOVENSKI/SLOVENE
<b>Vaje / Tutorial:</b>	SLOVENSKI/SLOVENE

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

Ni pogojev.
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**Prerequisites for enrolling in the course or  
for performing study obligations:**

None.
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**Vsebina (kratek pregled učnega načrta):**

- Logistični sistemi in zelene tehnologije.
- Inovativnost organizacije na področju uvajanja zelenih tehnologij
- Tehnološke inovacije, priložnosti ter podporni inštrumenti.
- Ekonomičnost integracije zelenih tehnologij v logistične sisteme.
- Energetsko upravljanje v logističnih organizacijah in novi tehnološki koncepti.

**Content (syllabus outline):**

- Logistical systems and green technologies.
- Innovation of the organization in the field of introduction of green technologies
- Technological innovations opportunities and support instruments.
- Economics of green technologies integration in to logistics systems.
- Energy management in logistics organizations and new technological concepts.

- Študije praktičnih primerov tehnoloških inovacij in uvedbe/integracije zelenih tehnologij in zelenih virov energije.

- Case studies of the technological innovation and implementation of green technologies and green energy sources.

### Temeljni literatura in viri / Reading materials:

E-gradivo predmeta.

Knez M., (2022) **Inovativnost in zelene tehnologije v logističnih sistemih** E-gradivo – v pripravi. Univerza v Mariboru, Fakulteta za logistiko.

Muneer, Tariq, Kolhe, Mohan, Doyle Aisling. Electric Vehicles: Prospects and Challenges, 1st Edition, 2017. ISBN: 9780128030400.

McKinnon A., Browne M., Whiteing A. (2012) Green Logistics, Improving the Environmental Sustainability of Logistics.

Muneer T. (2012) Solar Radiation and Daylight Models. Routledge.

Makower J., 2009. Strategies for the Green Economy. McGraw Hill, New York.

MacKinnon D., Shaw J., Docherty I. (2008) Diverging Mobilities? Devolution, Transport and policy Innovation. Elsevier.

Esty D.C., Winston A.S. (2009) Green to Gold. How smart companies use environmental strategy to innovate, create value, and build competitive advantage. John Wiley&Sons, Inc. Hoboken New Jersey.

Trainer T. (2007) Renewable Energy Cannot Sustain a Consumer Society. Springer.

Dodatna literatura: Izbrani članki ter nova izdana literatura s področja predmeta.

### Cilji in kompetence:

Cilji predmeta so:

- Predstaviti zelene tehnologije in trende na trgu
- Teoretično opredeliti in praktično podkrepiti inovativnost v logističnih sistemih oz organizacijah
- Predstaviti podporna okolja za inovativne rešitve in koncepte
- Predstaviti metode za izračun ekonomske upravičenosti investicij v inovativne zelene tehnologije

#### Kompetenncce, ki jih pridobijo študenti:

- Spoznajo koncept inovacij
- Razumejo pomen uvajanja inovacij v logistične sisteme
- Poznajo metode za izračun ekonomske upravičenosti investicij v zelene tehnologije
- Poznajo specifike, ki jih zahtevajo trajnostni logistični sistemi

### Objectives and competences:

The objectives of the course are:

- Introduce green technologies and market trends
- Theoretically define and practically support innovation in logistics systems or organizations
- Present supportive environments for innovative solutions and concepts
- Present methods for calculating the economic viability of investments in innovative green technologies

#### Competences acquired by students:

- They get to know the concept of innovation
- Understand the importance of introducing innovations into logistics systems
- Know the methods for calculating the economic viability of investments in green technologies
- Know the specifics required by sustainable logistics systems

### Predvideni študijski rezultati:

### Intended learning outcomes:

<p>Znanje in razumevanje: Študent bo ob zaključku predmeta zmožen:</p> <ul style="list-style-type: none"> <li>• sposoben izbire in priprave načrta za uvajanje zelenih tehnologij v logistični sistem</li> <li>• reševanja specifičnih problemov uvajanja zelenih z vidika trajnostnih načel</li> </ul> <p>Prenesljive/ključne spretnosti in drugi atributi:</p> <ul style="list-style-type: none"> <li>• študenti se usposobijo za uporabo teoretičnega znanja v praktičnih primerih,</li> <li>• sposobni kritične presoje različnih situacij,</li> <li>• se usposobijo za generiranje in podajanje celovitih predlogov na področju zelenih tehnologij, tehnoloških konceptov ter rešitev.</li> </ul>
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<p>Knowledge and understanding: Upon completion of the course, the student will be able to:</p> <ul style="list-style-type: none"> <li>• able to select and prepare a plan for the introduction of green technologies in the logistics system</li> <li>• solving specific problems of introducing greens from the point of view of sustainable principles</li> </ul> <p>Transferable/Key skills and other attributes:</p> <ul style="list-style-type: none"> <li>• the ability to apply theoretical knowledge to professional practice,</li> <li>• be able to critically evaluate different situations, the ability for generating and delivering comprehensive proposals in the field of green technologies, technological concepts and solutions.</li> </ul>
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**Metode poučevanja in učenja:**

<p>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).</p> <p>Vaje: pri vajah študent utrdi teoretično znanje in spozna aplikativne možnosti. Del vaj se izvaja na klasični način v predavalnici, del v laboratoriju, 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).</p>
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**Learning and teaching methods:**

<p>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).</p> <p>Tutorials: Students enhance their theoretical knowledge and are able to apply it. Part of the seminar is in a classroom and a part in a laboratory, 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).</p>
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Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
<ul style="list-style-type: none"> <li>• Opravljene obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu.</li> </ul>		<ul style="list-style-type: none"> <li>• Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam.</li> </ul>
<ul style="list-style-type: none"> <li>• Pisni izpit.</li> </ul>	65%	<ul style="list-style-type: none"> <li>• Written examination.</li> </ul>
<ul style="list-style-type: none"> <li>• Ocena e-predavanj</li> </ul>	5%	<ul style="list-style-type: none"> <li>• Grade from e-lectures</li> </ul>
<ul style="list-style-type: none"> <li>• Ocena a-vaj</li> </ul>	20%	<ul style="list-style-type: none"> <li>• Grade from a-tutorials</li> </ul>
<ul style="list-style-type: none"> <li>• Ocena laboratorijskih vaj</li> </ul>	5%	<ul style="list-style-type: none"> <li>• Grade from laboratory tutorials</li> </ul>

• Ocena e-vaj	5%	• Grade from e-tutorials
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**Reference nosilca / Course coordinator's references:**

KNEZ, Matjaž, JEREB, Borut, JADRAQUE GAGO, Eulalia, ROSAK-SZYROCKA, Joanna, OBRECHT, Matevž. Features influencing policy recommendations for the promotion of zero emission vehicles in Slovenia, Spain, and Poland. *Clean technologies and environmental policy*. [Online ed.]. 2020. ISSN 1618-9558. <https://doi.org/10.1007/s10098-020-01909-9>, DOI: 10.1007/s10098-020-01909-9. [COBISS.SI-ID 26988291],

KNEZ, Matjaž, KOŽELJ ZEVIK, Gašper, OBRECHT, Matevž. A review of available chargers for electric vehicles. *Renewable & sustainable energy reviews : an international journal*. [Print ed.]. Jul. 2019, vol. 109, str. 284-293, ilustr. ISSN 1364-0321. <https://doi.org/10.1016/j.rser.2019.04.013>, DOI: 10.1016/j.rser.2019.04.013. [COBISS.SI-ID 512988989],

KNEZ, Matjaž, OBRECHT, Matevž. Policies for promotion of electric vehicles and factors influencing consumers' purchasing decisions of low emission vehicles. *Journal of sustainable development of energy, water and environment systems*. 2017, vol. 5, iss. 2, str. 151-162. ISSN 1848-9257. <http://www.sdewes.org/jsdewes/pid5.0139>, DOI: 10.13044/j.sdewes.d5.0139. [COBISS.SI-ID 512832573],

OBRECHT, Matevž, KNEZ, Matjaž. Carbon and resource savings of different cargo container designs. *Journal of cleaner production*, ISSN 1879-1786. [Online ed.], 1 Jul. 2017, vol. 155, 151-156 str. <https://doi.org/10.1016/j.jclepro.2016.11.076>, doi: 10.1016/j.jclepro.2016.11.076. [COBISS.SI-ID 512811837].