

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta: UPRAVLJANJE Z EMBALAŽO V LOGISTIKI
Course title: LOGISTICS PACKAGING MANAGEMENT

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 st degree		3.	5.

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

IZBIRNI
ELECTIVE

Univerzitetna koda predmeta / University course code:

VS

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	e-V	LV			90	6
		24	15	6				

**Nosilec predmeta / Course
coordinator:**

ANDREJ LISEC

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 (kratak pregled učnega načrta):

- Naloge embalaže in pakiranja, vloga embalaže v logistiki
- Embalaža kot osnovni ovoj
- Pravilna izbira embalaže
- Načrtovanje pakirnih enot
- Sestavljanje pakirnih enot v transportne enote
- Označevanje embalaže in GS1 standardi
- Odpadna embalaža in recikliranje ter vračljiva embalaža
- Razbremenilna logistika
- Uporaba 3D tiskanja na primeru embalaže

Content (syllabus outline):

- Packaging and wrapping, the role of packaging in logistics
- Packaging as a basic wrap
- Proper choice of packaging
- Planning of packaging units
- Consolidating packaging units into transport units
- Package labelling and GS1 standards
- Waste packaging and recycling and returnable packaging
- Use of 3D printing on the packaging case

Temeljni literatura in viri / Reading materials:

E-gradivo predmeta.

Ambrož, G., et. al: Razvoj embalaže v krožnem gospodarstvu, Fit media, 2019.

Radonjič, G.: Embalaža in varstvo okolja, Založba Pivec, 2008, COBISS.SI-ID: 60031745.

Paine, F.,A.: Handbook of food packaging, London, Blackie Academic & Professional, 1992, ISBN: 0-216-93210-6, COBISS.SI-ID: 13417733.

Holman, J.: Food: processing, packaging & distribution : science in society project, COBISS.SI-ID: 226652.

Coles, R.: Food packaging technology, Oxford, Blackwell, Boca Raton, CRC Press, 2003, ISBN: 1-84127-221-3, COBISS.SI-ID : 2829432.

Zelena Slovenija: Priročnik Razvoj embalaže v krožnem gospodarstvu, 2019, ISBN 978-961-6282-59-5, COBISS.SI-ID 301422592.

Cilji in kompetence:

Cilji predmeta so:

- opredeliti naloge in osnovne značilnosti embalaže in pakiranja, predstaviti vlogo embalaže v logistiki,
- predstaviti različne vrste embalaže, in opredelitev kako pakirne enote sestavi v transportne enote,
- predstaviti označevanje embalaže in GS1 standarde,
- teoretično opredeliti tehnike in tehnologije embaliranja,
- predstaviti tehnološke procese embaliranja,
- predstaviti ravnanje z odpadki in razbremenilno logistiko.

Kompetence, ki jih študentje osvojijo:

- so sposobni izbrati primerno embalažo glede na njen namen uporabe in področje logistike,
- poznajo različne vrste embalaže in znajo manjše enote embalaže primerno sestaviti v večje enote,
- poznajo različne tehnike in tehnologije embaliranja in so sposobni izbrati primerno tehniko in tehnologijo za namen uporabe,
- poznajo standarde na področju označevanja embalaže,
- poznajo tehnološke procese embaliranja,
- se zavedajo pomena pravnega ravnanja z odpadki in razbremenilne logistike,
- teoretično predstaviti uporabo 3D tiskanje na primeru embalaže.

Objectives and competences:

The objectives of the course are:

- define the tasks and basic characteristics of packaging and wrapping, present the role of packaging in logistics,
- present different types of packaging, and define how to assemble packaging units into transport units,
- present packaging labelling and GS1 standards,
- theoretically define packaging techniques and technologies,
- present technological processes of packaging,
- present waste management and reverse logistics.

Competences that students acquire:

- are able to choose the appropriate packaging according to its purpose and area of logistics,
- know different types of packaging and know how to properly assemble them into larger units,
- know different packaging techniques and technologies and are able to choose the appropriate technique and technology for the purpose of use,
- know the standards in the field of packaging labelling,
- know the technological processes of packaging,
- are aware of the importance of proper waste management and reverse logistics,
- theoretically present the use of 3D printing on the example of packaging.

Predvideni študijski rezultati:

Študent je ob zaključku predmeta zmožen:

Intended learning outcomes:

Upon completion of the course, the student is able to:

- izbrati primerno embalažo glede na namen njene uporabe,
- uporabiti različne vrste embalaže glede na namen njene uporabe,
- izbrati primerne tehnike in tehnologije embaliranja,
- pravilno označiti embalažo na različnih nivojih,
- analizirati tehnološke procese embaliranja,
- pravilno pristopiti k ravnanju z odpadki in načrtovanju razbremenilne logistike,
- uporabiti 3D tiskalnik za namen ustvarjanja embalaže.

- select appropriate packaging according to the purpose of its use,
- use different types of packaging depending on the purpose of its use,
- select appropriate packaging techniques and technologies,
- correctly mark the packaging at different levels,
- analyze technological processes of packaging,
- take the right approach to waste management and material return planning,
- use a 3D printer for the purpose of creating packaging.

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), študentje se udeležijo ekskurzije in izvedejo laboratorijske vaje na področju 3D tiskanja.

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), students take part in excursions and perform laboratory exercises in the field of 3D printing.

Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
<ul style="list-style-type: none"> ▪ Opravljene obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu. <p>Predavanja:</p> <ul style="list-style-type: none"> ▪ Pisni izpit. <p>Vaje:</p> <ul style="list-style-type: none"> ▪ Seminarska naloga z zagovorom pri vajah. <ul style="list-style-type: none"> ▪ Ocena e-vaj. 	<p>70 %</p> <p>20 %</p> <p>10 %</p>	<ul style="list-style-type: none"> ▪ Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam. <p>Lectures:</p> <ul style="list-style-type: none"> ▪ Written examination. <p>Tutorial:</p> <ul style="list-style-type: none"> ▪ Seminar paper with presentation on the tutorials. ▪ Grade from e-tutorials.

Reference nosilca / Course coordinator's references:

1. OBRECHT, Matevž, KNEZ, Matjaž, LISEC, Andrej, WRZALIK, Aleksandra, KOVAČIČ LUKMAN, Rebeka. Sustainable consumption and segmentation of potential low emission vehicle buyers. *System safety : human - technical facility - environment*, ISSN 2657-5450. [Spletna izd.], 2019, vol. 1, iss. 1, str. 425-430, ilustr. <https://doi.org/10.2478/czoto-2019-0055>, doi: [10.2478/czoto-2019-0055](https://doi.org/10.2478/czoto-2019-0055). [COBISS.SI-ID [512987197](https://doi.org/10.2478/czoto-2019-0055)].
2. PEJIĆ, Vaska, CEDILNIK, Marko, LISEC, Andrej. Impact on the environment of industrial packaging waste

transport. *Environmental engineering and management journal*, ISSN 1843-3707. [Online ed.], 2017, vol. 16, no. 5, str. 1155-1160. <http://www.ecozone.ro/reviste.php?revista=21&volum=61&numar=191&RID=27311>. [COBISS.SI-ID 512892221], [JCR, SNIP, WoS do 16. 2. 2018: št. citatov (TC): 0, čistih citatov (CI): 0].

3. ĐORĐEVIĆ, Lena, ANTIĆ, Slobodan, ČANGALOVIĆ, Mirjana, LISEC, Andrej. A metaheuristic approach to solving a multiproduct EOQ-based inventory problem with storage space constraints. *Optimization letters*, ISSN 1862-4480, Aug. 2017, vol. 11, iss. 6, str. 1137-1154, tabele. <https://link.springer.com/content/pdf/10.1007%2Fs11590-016-1009-5.pdf>, doi: [10.1007/s11590-016-1009-5](https://doi.org/10.1007/s11590-016-1009-5). [COBISS.SI-ID 512755517], [JCR, SNIP, WoS do 14. 4. 2019: št. citatov (TC): 1, čistih citatov (CI): 1, Scopus do 29. 4. 2019: št. citatov (TC): 1, čistih citatov (CI): 1].

4. OBRECHT, Matevž, KNEZ, Matjaž, SZEGEDI, Zoltan, NICK, Gabor, LISEC, Andrej. Review of Industry 4.0 and forecasting its future within trends in logistics and development of legislation. *Tér gazdaság ember*, ISSN 2064-1176, 2017, vol. 5, no. 4, str. 59-70, ilustr. http://kgk.sze.hu/images/dokumentumok/folyoirat/TGE_V_evf04_ok.pdf. [COBISS.SI-ID 512926781].

5. LISEC, Andrej, ANTIĆ, Slobodan, CAMPUZANO BOLARÍN, Francisco, PEJIĆ, Vaska. An approach to packaging waste reverse logistics : case of Slovenia. *Transport*, ISSN 1648-3480. [Online ed.], 2017, str. [1-9]. <http://www.tandfonline.com/doi/abs/10.3846/16484142.2017.1326404>, doi: [10.3846/16484142.2017.1326404](https://doi.org/10.3846/16484142.2017.1326404). [COBISS.SI-ID 512892477], [JCR, SNIP, WoS do 4. 1. 2019: št. citatov (TC): 0, čistih citatov (CI): 0, Scopus do 16. 2. 2018: št. citatov (TC): 0, čistih citatov (CI): 0].