

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	TRANSPORTNI SISTEMI IN LOGISTIKA
Course title:	TRANSPORTATION SYSTEMS AND LOGISTIC

Študijski programi in stopnja	Študijska smer	Letnik	Semestri
Strojništvo, tretja stopnja, doktorski	Konstrukcijsko mehanske inženirske znanosti (smer)		Celoletni

Univerzitetna koda predmeta/University course code:

Predavanja	Seminar	Vaje	Klinične vaje	Druge oblike študija	Samostojno delo	ECTS
90					160	10

Nosilec predmeta/Lecturer:

Izvajalci predavanj:	Boris Jerman
Izvajalci seminarjev:	
Izvajalci vaj:	
Izvajalci kliničnih vaj:	
Izvajalci drugih oblik:	
Izvajalci praktičnega usposabljanja:	

Vrsta predmeta/Course type:

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina, Angleščina
	Vaje/Tutorial:	Slovenščina, Angleščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Veljajo splošni pogoji za doktorski študij.	General prerequisites for the third level studies.

Vsebina:

Transportni sistemi in specifični problemi. Sodobna žerjavogradnja in specifičnost funkcij: dinamika na vrveh obešenega bremena, dinamika in dimenzioniranje nosilnih elementov in konstrukcij žerjavov. Transportni sistemi za kontinuirani transport: dinamika in deformabilnost elementov tračnih transporterjev, obratovalne razmere in specifikacije žičniških naprav, značilnosti pri pnevmatskih transporterjih. Logistika in transportni sistemi ter kompleksi. Teoretske osnove tehniške logistike. Predstavitev modelov in sistemov. Logistika produkcije in oskrbovalna logistika. Proizvodna logistika in logistika skladišč. Dobavna veriga in logistični sistemi ter distribucijska logistika. Logistika gradnje tehniških sistemov.

Content (Syllabus outline):

Transport systems and specific problems by existing equipments. The problem definition methods. Modern crane design and specialty of their functions, load dynamics on the ropes, dynamics and dimensioning of elements and construction carrying of it. Transport systems for continuously transport, conveyer's dynamics and deformability of their elements, operation mode and specific problems by rope lifting systems. Pneumatic transport systems and actual specific in environment. Logistic and transport systems inside the complexity of environment. Theoretical basis by technical logistic. Presentation of the models and systems at logistic. Production logistic, chain management and supply logistics. Stock and distribution logistic. Logistic in the production systems of technical systems at all. Logistic of technical systems refectation;

Temeljna literatura in viri/Readings:

- [1] C. Seeßelberg: Kranbahnen, Bemessung und konstruktive Gestaltung; Bauwerk Verlag GmbH, Berlin 2005
- [2] Verschoof J.: Cranes - Design, Practice, and Maintenance; Second edition, Professional Engineering Publishing, 2002
- [3] H.Buhrke, H.J.Kecke, H.Richter: Strömungsförderer; VEB Verlag Technik, Berlin, 1988
- [4] Dieter Arnold: Materialflusslehre, 2. verbesserte Auflage, Vieweg 1998
- [5] Heinrich Martin: Transport- und Lagerlogistik; Planung, Aufbau und Steuerung von Transport- und Lagersystemen; Friedr. Vieweg & Sohn Verlagsgesellschaft mbH, Braunschweig, 1995
- [6] Carlos F. Daganzo: Logistic Systems Analysis; Springer Verlag, 1999
- [7] Martin Christopher :Logistics & Supply Chain Management: creating value-adding networks (3rd Edition) (Financial Times Series), 2005
- [8] Roger Stough: Intelligent Transport Systems: Cases and Policies (Hardcover), 2001

Cilji in kompetence:**Cilji:**

Študent ob prepoznanih konstrukcijskih rešitvah posameznih naprav lahko raziskuje specifične fizikalne in druge lastnosti, ki so pomembne za opredelitev novih spoznanj ali vplivov v posameznih okoljih. Pridobi naj poglobljeno znanje o vlogi in pomenu transportnih sistemov in logistike v sodobnem svetu s ciljem snovanja kompleksnih sistemov in razvoja novih enot ter samostojnega raziskovanja na tem izjemno širokem znanstvenem področju.

Kompetence:

Študent osvoji funkcionalne zahteve in jih poglobljeno poveže z znanimi konstrukcijskimi rešitvami posameznih transportnih naprav, sistemov ali kompleksov v posplošenih logističnih sistemih. Sposoben je zasnovati transportni sistem ter načrtovati njegovo delovanje po logističnih principih. Posebej je usposobljen za raziskave logističnih sistemov v smislu optimalne izrabe transportnih sistemov glede na variacijo parametrov transportne logistike. Usposobljen je za samostojen razvoj in raziskave na tem področju.

Objectives and competences:**Goals:**

The student could research on the basic design solution at the typical equipments. The research should do on the physics and others phenomena, which are important for new characteristic in the different environment. He will deeply study about the rule and meaning of the transport systems and logistic in the new era. The main goal is should be basic understanding for the development of the complex systems and innovative units, self and independent research on these huge and complex fields, which has important rule in our modern life.

Competences:

The student should understand the complex of functional request and could be integrated in the existing design solution by the typical transport equipment, systems and complex in the integrated logistic systems. He should be qualified the transport system and developed his processing on the logistic principles for the economic conditions. His competences are used also for optimization and research of transport systems, where are the parameters of transport logistic nonlinear. He has capabilities for self development and research work on those fields.

Predvideni študijski rezultati:

Študent osvoji funkcionalne zahteve in jih poglobljeno poveže z znanimi konstrukcijskimi rešitvami posameznih transportnih naprav, sistemov ali kompleksov v posplošenih logističnih sistemih. Sposoben je zasnovati transportni sistem ter načrtovati njegovo delovanje po logističnih principih. Posebej je usposobljen za raziskave logističnih sistemov v smislu optimalne izrabe transportnih sistemov glede na variacijo parametrov transportne logistike. Usposobljen je za samostojen razvoj in raziskave na tem področju.

Intended learning outcomes:**Knowledge and understanding:**

The student should understand the complex of functional request and could be integrated in the existing design solution by the typical transport equipment, systems and complex in the integrated logistic systems. He should be qualified the transport system and developed his processing on the logistic principles for the economic conditions. His competences are used also for optimization and research of transport systems, where are the parameters of transport logistic nonlinear. He has capabilities for self development and research work on those fields.

Metode poučevanja in učenja:

Predavanja, laboratorijske vaje, seminarsko delo, e-izobraževanje, konzultacije. Seminarsko delo v čim večji meri navezuje se na področje doktorskega

Learning and teaching methods:

Lectures, laboratory practice & seminar work, e-education, consulting. The seminar work is related, as much as possible, to the student's doctoral research field.

raziskovanja. Študij z uporabo priporočene literature.	Study on a recommended literature basis.
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Načini ocenjevanja:	Delež/Weight	Assessment:
Način (pisni izpit, ustno izpraševanje, naloge, projekt): - naloge (10%) - projekt (seminarska naloga) (70%) - ustno izpraševanje (20%)		Method (written exam, oral examination, assignments, project) • assignments (10%) • project seminar (70%) • oral examination (20%)

Reference nosilca/Lecturer's references:

<p>doc.dr. Boris Jerman JERMAN, Boris, ZRNIĆ, Nenad Đ., JENKO, Matjaž, LERHER, Tone. Energy regeneration in automated high bay warehouse with stacker cranes : Elektronski vir. Tehnički vjesnik, ISSN 1848-6339, 2017, vol. 24, iss. 5, str. 1411-1416. VUJIČIĆ, Andrija, ZRNIĆ, Nenad Đ., JERMAN, Boris. Ports sustainability : a life cycle assessment of zero emission cargo handling equipment. Strojniški vestnik, ISSN 0039-2480, Sep. 2013, vol. 59, no. 9, str. 547-555 JERMAN, Boris, HRIBAR, Anton. Dynamics of the mathematical pendulum suspended from a moving mass. Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku, ISSN 1330-3651, 2013, vol. 20, no. 1, str. 59-64, LANGERHOLC, Marko, ZRNIĆ, Nenad Đ., ĐORĐEVIĆ, Miloš, JERMAN, Boris. Conveyor design optimization as the provision of sustainability. Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku, ISSN 1330-3651, 2013, god. 20, br. 5, str. 837-846</p>
