

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Cargo Science</b>		Code <b>1010614351010600215</b>
Field of study <b>Transport</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 5</b>
Elective path/specialty <b>Road Transport</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>18</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>2</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b>		
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<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	student has a basic knowledge of logistics (including transportation and warehousing) moreover packaging and physics as well
2	<b>Skills</b>	student is able to accumulate information, interpret it, reasoning based on it, express and justify opinions, identify, associate and interpret phenomena occurring in a practice
3	<b>Social competencies</b>	student is aware of the importance and understands non-technical aspects and effects of transportation processes, including those connected with cargos
<b>Assumptions and objectives of the course:</b>		
to give to students a basic theoretical and practical knowledge of cargo management as well as methods and techniques of forming, transporting, handling and storing cargo units in connection with a real life solutions allowing for such operations.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Students know the notion, features and types of cargo units. Know types and methods of forming cargo units. - [T1A_W03]		
2. Students know principles of loading and fastening cargo units on vehicles. Know principles and techniques of cargo units labeling and identification. - [T1A_W03]		
3. Students know main transportation technologies and associated with them legislative aspects. Know principles of cargo units monitoring during transportation processes and loss and damage procedures. - [T1A_W03]		
<b>Skills:</b>		
1. Students are able to design transportation processes of selected types of commodities. Are able to select cargo units forming and fastening methods. - [T1A_U01]		
2. Students are able to assess transportability of cargo units and transportation risks. Are able to select appropriate labeling and identification techniques. - [T1A_U01]		
3. Students are able to carry out a loss and damage procedure (transportation claim). - [T1A_U01]		
<b>Social competencies:</b>		
1. Students are aware of the significance of cargo units forming process and risks and responsibilities associated with this. - [T1A_K01]		
2. Students are aware of potential technical, economic and social effects that an improper / incorrect forming, transportation and storing of cargo units may cause. - [T1A_K02]		
3. Students are able to develop independently their knowledge of cargo management. - [T1A_K01]		

<b>Assessment methods of study outcomes</b>		
A final exam based on the knowledge obtained within the lectures.		
<b>Course description</b>		
<p>Cargo management ? introduction to the subject: the essence of the cargo management, cargo units versus commodities, main types of cargo units, transportability, transportation losses and damage risks, shock sensitivity, basic classifications of commodities and cargo units.</p> <p>Caro units: definition, essence and purpose, cargo units forming means and techniques ? classification and types including: boxes, pallets, containers and batches. Stretch wrapping and strapping.</p> <p>Dimensions of cargo units and packages: basic dimension chains, dimension interrelationships of packages and cargo units ? ISO containers, loading parameters of vehicles.</p> <p>Labeling and identification: definition and basic legislative aspects, main types and methods of labeling, labeling of cargo units (pallettes and containers), basic rules of correct labeling, barcodes, logistics label and RFID.</p> <p>Transportation and handling technologies: definition, types and characteristics, selection of an appropriate technology ? general rules, transportation technology for selected types of commodities ? characteristics and techniques, forklifts (technical characteristics, the 13 basic moves, accessories), palette trucks, semi-trailers and trailers, dump trucks.</p> <p>Loads location and securing on vehicles: a load distribution (basic rules, trailer pins, axle loads and their measurement), factors influencing load safety, load securing ? techniques: belts, fasteners, blocking and bracing, anti-sliding mats, dunnage air bags and the 10 rules of the correct load securing in transportation.</p> <p>Legislative basis of transportation of selected types of commodities: transportation law versus loads that require special treatment, main types of loads that require special treatment, perishable goods, dangerous goods, transportation of animals, and oversized loads.</p> <p>Transportation losses and damages: transportation claims, causes and procedures, insurances, loads monitoring.</p>		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Korzeń Z.: Logistyczne systemy transportu bliskiego i magazynowania. Tom I: Infrastruktura, technika, informacja. Instytut Logistyki i Magazynowania w Poznaniu, Poznań, 1998 (in Polish)</li> <li>2. Mindur L. (red.): Technologie transportowe XXI wieku. Instytut Technologii Eksploatacji ? PIB, Warszawa, 2008 (in Polish)</li> <li>3. Mokrzyński H.: Ładunkoznawstwo. Technologia zabezpieczenia ładunków w transporcie. WKiŁ, Warszawa, 1985 (in Polish)</li> <li>4. Krasowska K., Popek M.: Ładunkoznawstwo. Wydawnictwo Uczelniane AM Gdynia, Gdynia, 2006 (in Polish)</li> <li>5. Podręcznik Stosowania Systemu EAN?UCC. Instytut Logistyki i Magazynowania, Poznań, 2004 (in Polish)</li> <li>6. Prochowski L., Żuchowski A.: Technika transportu ładunków. WKiŁ, Warszawa, 2009 (in Polish)</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Karpień Ł., Skrzypek M.: Towaroznawstwo ogólne. Wydawnictwo Akademii Ekonomicznej</li> <li>2. Korzeniowski A., Skrzypek M., Szyszka G.: Opakowania w systemach logistycznych. Instytut Logistyki i Magazynowania w Poznaniu, Poznań, 2001 (in Polish)</li> <li>3. Lisińska-Kuśnierz M., Ucherek M.: Współczesne opakowania. Wydawnictwo Naukowe PTTŻ, Kraków, 2003 (in Polish)</li> <li>4. Praca zbiorowa: Kody Kreskowe. Rodzaje, standardy, sprzęt, zastosowania. Instytut Logistyki i Magazynowania, Poznań, 2000 (in Polish)</li> <li>5. Pusty T.: Przewóz materiałów niebezpiecznych. Poradnik kierowcy. WKiŁ, Warszawa, 2003 (in Polish)</li> <li>6. Sikorski P.M., Zembrzycki T.: Spedycja w praktyce. Polskie Wydawnictwo Transportowe, Warszawa, 2006 (in Polish)</li> </ol>		
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. Preparation to lectures	14	
2. Participation in lectures	18	
3. Preparation to a final exam	18	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	18	1
Practical activities	0	0