

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Means of Materials Handling and Storage		Code 1010601311010641294
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 2 Classes: - Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: Ryszard Raczyk email: ryszard.raczyk@put.poznan.pl tel. +48 616652054 Faculty of Working Machines and Transportation ul.Piotrowo3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Mathematics at the secondary level. Engineering Mechanics - Statics, Strength of Materials
2	Skills	Define the functions and responsibilities of machines transport, analyzing strength structural nodes, calculating machines functional transport
3	Social competencies	Gaining basic knowledge in the field of engineering statics, in particular in the field of transportation engineering
Assumptions and objectives of the course: Knowledge bases for the construction and operation of materials handling		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Knowledge of the construction of key transport close, defining the technical and operational rules - [K1A_W04,05]		
2. Knowledge of typical power units used in the means of transport - [K1A_W016]		
Skills:		
1. It has the ability to describe and analyze the design of conveyor presented in the literature and commercial brochures - [K1A_U03]		
2. It has the ability of selection of structural elements and components, transportation equipment standard - [K1A_U06]		
Social competencies:		
1. Understand the need for education, especially in technology - [K1A_K01]		
2. Acquiring engineering knowledge in a wide range - [K1A_K02]		
3. Technical culture on a daily basis, exemplary technical college graduate profile - [K1A_K03]		
Assessment methods of study outcomes		
-Rating activity of students in the class.		
-written test		
-Summary assessment of the talks on the basis of individual work, done as a final test		

Course description		
1 The role of materials handling and storage of modern logistics. 2 The unit loads. 3 Components of means of transport: rods, pulleys, wheels, hooks, reels, latches, rail brakes. Lifts, selected designs. 4 Transport trucks. Cranes and cranes? design features, general characteristics. 5 Conveyors in handling. 6 Hoist, components, calculations. 7 Driving mechanism of transport equipment; powertrain components; calculation.		
Basic bibliography:		
1. Raczyk R. Środki transportu bliskiego i magazynowania, Poznań, WPP 2009 2. Kijewski J. in. Maszynoznawstwo, Warszawa, WSiP 1993 3. Korzeń Z. Logistyczne systemy transportu bliskiego i magazynowania, Poznań, ILiM 98		
Additional bibliography:		
1. Kozak B. Części maszyn z elementami mechaniki technicznej, Warszawa WSiP 2000 2. Piątkiewicz A. in. Dźwignice, Warszawa 1977 3. Skrzymowski W. Żurawie przeładunkowe Budowa i eksploatacja, Krosno, KABE 2006 4. Braum Z. Obsługa suwnic, Krosno, KABE 1999		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lecture	30	
2. Repetition the lecture material	5	
3. Consultation	2	
4. Preparation for passing	10	
5. Participation in exam	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	49	2
Contact hours	34	1
Practical activities	0	0