

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Warehouse Management		Code 1010611251010610626
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty Logistics of Transport	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: 1 Laboratory: 1 Project/seminars: -		No. of credits 5
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 %) 5 100% 5 100%
Responsible for subject / lecturer: Adam Redmer Eng. PhD email: adam.redmer@put.poznan.pl tel. +48 61 665 21 29 Faculty of Machines and Transport 3 Piotrowo street, 60-965 Poznan, Poland		Responsible for subject / lecturer: Paweł Zmuda-Trzebiatowski Eng. MSc email: pawel.zmuda-trzebiatowski@put.poznan.pl tel. +48 61 665 27 16 Faculty of Machines and Transport 3 Piotrowo street, 60-965 Poznan, Poland
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	student has a basic knowledge of logistics, business process analysis, management and statistics
2	Skills	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	Social competencies	student is aware of the importance and understands non-technical aspects and effects of warehouse processes, including those connected with inventory
Assumptions and objectives of the course: -to give to students a basic knowledge of warehousing and inventory and to prepare them for warehouse and inventory management using quantitative and qualitative methods.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Students know the notion of the warehouse and inventory management and differences between them. - [K1A_W09]		
2. Students know particular types of warehouses and their functionality. - [K1A_W09]		
3. Students know warehouse processes. - [K1A_W09]		
4. Students know strategic, tactical and operational aspects of warehouse organization. - [K1A_W19]		
5. Students know the essence and basic picking methods. - [K1A_W19]		
6. Students know basic methods of inventory management. - [K1A_W19]		
7. Students know warehouse and inventory management indexes. - [K1A_W19]		
Skills:		
1. Students are able to design a warehouse process. - [K1A_U09]		
2. Students are able to select an appropriate storage technology. - [K1A_U10]		
3. Students are able to select and apply an appropriate picking method. - [K1A_U11]		
4. Students are able to analyze and asses inventory and develop an appropriate management method. - [K1A_U16]		
5. Students are able to carry out index analysis of warehouse and inventories. - [K1A_U18]		
Social competencies:		

1. Students are aware of the significance of warehouse / inventory management and risks and responsibilities associated with them. - [K1A_K01]
2. Students are aware of potential technical, economic and social effects that warehousing and storage may cause. - [K1A_K02]
3. Students are able to develop independently their knowledge of warehousing. - [K1A_K06]

Assessment methods of study outcomes		
-Lectures: a recapitulation written multiple choice test. Laboratories: tests and homework ? reports presenting proposed solutions of selected warehouse management problems (case studies).		
Course description		
-Introduction: basic definitions of warehouse, warehouse management and inventory management; position of warehouse and inventory management in an organizational structure of a company; typical duties of warehouse workers; different types of warehouses and their functionality. Basic warehouse activities against warehouse processes: goods receiving into inventory / unloading, controls, storage, picking, unpicking, cargo units forming / preparation to transport, goods release / loading. Typical problems / decisions on particular warehouse management levels: warehouse layout, an impact of an inventory level / a number of SKUs on a necessary number of pallet slots in a warehouse, everyday warehouse activities planning and controlling; basic quantitative and qualitative methods supporting typical warehouse management decisions. Warehouse equipment: storage techniques and technologies. Indexes in warehouse management: definitions and characteristics of main warehouse and inventory management indexes. Inventory management: the essences of general inventory management strategies ? pull and push; basic definitions of service level, safety stock, economic order quantity ? EOQ, reorder point system ? ROP and Fixed order interval system ? FOI; ABC/XYZ classification methods and the other. Demand forecasting: different forecasting methods and their application to inventory management. Warehouse documentation: typical documents utilized in warehouse processes including warehouse receipt, delivery order, packing list, manifest (shipping list), picking list and the other; typical data types that warehouse documents comprise; methods of issuing warehouse documents including a role of WMSs and EDI technique.		
Basic bibliography:		
1. Coyle J., Bardi E., Langley J.: Zarządzanie logistyczne. PWE, Warszawa, 2002 (in Polish) 2. Dudziński Z., Kizyn M.: Vademecum gospodarki magazynowej. Wydawnictwo ODDK, Gdańsk, 2002 (in Polish) 3. Fertsch M.: Podstawy zarządzania przepływem materiałów w przykładach. ILiM, Poznań, 2003 (in Polish) 4. Krzyżaniak St.: Podstawy zarządzania zapasami w przykładach. ILiM, Poznań, 2008 (in Polish) 5. Rutkowski K. (red.): Logistyka dystrybucji. Wydawnictwo Difin, Warszawa, 2002 (in Polish) 6. Sarjusz-Wolski Z.: Sterowanie zapasami w przedsiębiorstwie. PWE, Warszawa, 2000 (in Polish) 7. Kisperska-Moroń D., Krzyżaniak S. (red.): Logistyka. ILiM, Poznań, 2009 (in Polish)		
Additional bibliography:		
1. Cyplik P.: Zastosowanie Klasycznych Metod Zarządzania Zapasami do Optymalizacji Zapasów Magazynowych - Case Study. LogForum, vol. 1, zeszyt 3, nr 4, 2005 (in Polish) 2. Andrzejczyk P., Zajac J.: Zapasy i Magazynowanie, przykłady i ćwiczenia. ILiM, Poznań, 2009 (in Polish) 3. Szymczak M. (red.): Decyzje logistyczne z Excelem. Difin, Warszawa, 2011 (in Polish) 4. Murphy P.R. jr, Wood D.F.: Nowoczesna Logistyka. Helion, Gliwice, 2011 (in Polish)		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	30	
2. Participation in laboratories	15	
3. Individual work (homework)	15	
Student's workload		
Source of workload	hours	ECTS
Total workload	75	5
Contact hours	45	3
Practical activities	45	2