

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Warehouses Design		Code 1011101451011115177
Field of study Logistics - Full-time studies - First-cycle studies	Profile of study (general academic, practical) general academic	Year /Semester 3 / 5
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 15 Classes: - Laboratory: - Project/seminars: 15		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: dr hab. Inż. Marek Fertsch, prof.nadzw. email: Marek.Fertsch@put.poznan.pl tel. 061 665 3416 Wydział Inżynierii Zarządzania ul. Strzelecka 11, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student has knowledge of the subject technology, technology and logistics infrastructure
2	Skills	The student has the skills of the subject technology, technology and logistics infrastructure
3	Social competencies	The student has the social skills of the subject technology, technology and logistics infrastructure
Assumptions and objectives of the course: Mastering the student's knowledge, skills and social competence related to designing warehouses		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. He can indicate new trends within the logistics and its specific issues (inventory management, logistics, distribution, logistics, manufacturing and sourcing, logistics operation, ekologistyki) and supply chain management - [K1A_W19]		
2. He has a basic knowledge of the life cycle of socio-technical systems (logistics systems) - [K1A_W21]		
3. He knows the basic methods, techniques, tools and materials used in solving simple engineering tasks related to the design of systems and logistics processes - [K1A_W23]		
Skills:		
1. Can search on the basis of literature and other sources and orderly way to present information on the problem located within the logic and its specific issues (inventory management, logistics, distribution, logistics, manufacturing and sourcing, logistics operation, ekologistyki) and supply chain management - [K1A_U01]		
2. Can present by appropriate personal issue falling within the ambit of logistics and its specific issues (inventory management, logistics, distribution, logistics, manufacturing and sourcing, logistics operation, ekologistyki) and supply chain management - [K1A_U02]		
3. Can prepare and present oral presentation concerning specific issues of logistics in the Polish language and a foreign language - [K1A_U04]		
4. Can independently develop given, located within the subject being studied issue - [K1A_U05]		
5. Apply the solution to the problem located within the subject being studied relevant experimental techniques and measurement equipment including computer simulation in the design warehouse design and design of logistics processes handling - [K1A_U08]		

Social competencies:
1. He is sensitive to the effects of non-technical aspects and engineering activities, including its impact on the environment and the associated responsibility for decisions in the field coming within the logistics and supply chain management (T1A_KO2) - [K1A_K02]
2. He is willing to cooperate and work in groups on solving falling within the subject being studied problems - [K1A_K03]
3. He can correctly identify and resolve dilemmas associated with the pursuit of logistics - [K1A_K05]
4. He knows the typical engineering technologies in logistics and its specific issues and supply chain management - [KInzA_W05]

Assessment methods of study outcomes
Forming rating a) project- based discussion on solutions that wants to propose the project b) a lecture based on answers to questions about the material discussed in the previous lecture Rating summary in terms of the project a) on the basis of a public presentation of the project results and discussions about them, b) on the basis of substantive quality of the project prepared in terms of a lecture on the basis of a public presentation on a given topic and answer questions concerning the material discussed in the lecture

Course description
The lecture begins by recalling the essence of the process of storage and making up this process steps. Then discussed are: the definition of storage, types of warehouses. The are kinds of warehouse equipment and rules for its reception (cost optimization selection and operation of equipment). Presented is the process of designing the magazine (optimization of storage area and volume). Documentation is discussed Warehouse (risk analysis, key indicators of operation of the facility, implementing improvements in stock - 5S). Discussed are systems supporting warehouse operations. Presented are possibilities of using simulation in design warehouses. In class project, students prepare a preliminary design by the magazine assumptions made by the teacher or the design process in a selected storage warehouse. Teaching methods: conventional specialist lecture, team project

Basic bibliography:
1. Fertsch M., Projektowanie magazynów, [w:] Fertsch M. (red.), Elementy inżynierii logistycznej, Wydawnictwo Instytutu Logistyki i Magazynowania, Poznań, 2017
2. Gubała M., Popielas J., Podstawy zarządzania magazynem w przykładach, Biblioteka logistyka, Wydawnictwo ILiM, Poznań, 2002.
3. Korzeniowski A. (red.), Zarządzanie gospodarką magazynową, PWE, Warszawa, 1997
4. Korzeń Z., Logistyczne systemy transportu bliskiego i magazynowania, t.1 i 2, Biblioteka logistyka, Wydawnictwo ILiM, Poznań, 1998

Additional bibliography:
1. Fijałkowski J., Technologia magazynowania, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1995.
2. Schramm W., Lager und Speicher, Bauverlag GmbH. Wiesbaden - Berlin, 1995

Result of average student's workload	
Activity	Time (working hours)
1. lecture	15
2. project	15
3. consultation	5
4. individual work	15

Student's workload		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	35	1
Practical activities	20	1