

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Exploitation of logistic systems		Code 1011104361011110000
Field of study Logistics - Part-time studies - First-cycle	Profile of study (general academic, practical) general academic	Year /Semester 3 / 6
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 12 Classes: - Laboratory: 14 Project/seminars: -		No. of credits 1
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		ECTS distribution (number and %) 1 100%
Responsible for subject / lecturer: prof. dr hab. inż Marek Fertsch email: marek.fertsch@put.poznan.pl tel. 61665 34 16 Wydział Inżynierii Zarządzania ul. Strzelecka 11, 60-965 Poznań		Responsible for subject / lecturer: dr inż. Ireneusz Gania email: ireneusz.gania@put.poznan.pl tel. 616653385 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 basics of logistics, functional and phase separation of logistics and logistic systems
2	Skills	The student has the ability to see, associate, interpret phenomena occurring in the area of logistics and operation of logistics systems
3	Social competencies	The student understands and is prepared to bear social responsibility for decisions related to the operation of logistic systems
Assumptions and objectives of the course: -The aim of the course is to master the knowledge, skills and social competences associated with the operation of logistics systems.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. The student has knowledge of physics including mechanics, thermodynamics, optics, electricity and magnetism, nuclear physics and solid state physics, engineering graphics, strength of materials, including knowledge necessary to understand the technical issues related to the operation of logistic systems - [-K1A_W02, K1A_W05, K1A_W06, K1A_W07]		
2. Student can explain the relationship between: information technology (IT), economics and transport organization, production and service management, design of production systems (design of industrial plants) and operation of logistics systems, - [-K1A_W10]		
3. The student has a basic knowledge of the life cycle of socio-technical systems such as logistic systems - [-K1A_W21]		
4. The student has a basic knowledge of the life cycle of industrial products included in the logistics systems - [K1A_W22]		
Skills:		
1. The student is able to search based on the literature of the subject and other sources and in an orderly manner to present information on the problem within logistics and its specific issues: operation of logistic systems - [-K1A_U01]		
2. The student is able to present, using appropriately selected measures, the problem within the framework of logistics and its specific issues: operation of logistic systems - [-K1A_U02]		
3. The student is able to use the proper information and communication techniques in the context of problems within the framework of the subject: operation of logistic systems - [-K1A_U07]		
4. Student is able to choose the right tools and methods to solve the problem within the logistics and operation of logistic systems and to effectively use them - [K1A_U15]		
5. The student is able to prepare well-documented problems in the field of logistic systems in Polish and English - [K1A_U03]		
Social competencies:		

1. The student is aware of the need to learn throughout life; to inspire and organize the learning process of others within the framework of issues related to the operation of logistic systems - [-K1A_K01]
2. The student is sensitive to the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions in the scope of logistics systems within the framework of operation - [-K1A_K02]
3. The student is able to perceive causal relationships in the implementation of goals and to rank the importance of tasks - [-K1A_K04]
4. The student is able to plan and manage in an entrepreneurial way - [K1A_K06]

Assessment methods of study outcomes

Formative assessment:

Based on the current implementation of laboratory tasks

Recapitulative assessment:

On the basis of a written pass, (1) written test in the scope of lecture content; each question is scored on a scale from 0 to 1; the pass result is positive after obtaining at least 55% of points; to pass may be taken after passing the laboratories; (2) discussion of the results of the written test.

Course description

-Lecture: Fundamentals of exploitation of technical systems. Rules for the operation of technical systems. Logistic system as a technical system. Controlling the operation of technical systems. The concept of logistic support as the basis for the operation of the logistics system. Designing a logistics system in terms of its operation. Planning the operation of the logistics system.

Laboratory: 1. RFID technology. 2. Logistics labels design. 3. Planning of transport routes 4. Performing basic registration activities in the WMS program. 5. The development plan for the area in the logistics system. 6. Use of shelves - preliminary activities. 7. Use of shelves - inspection of shelves during operation.

Teaching methods:

Conventional specialist lecture (information transfer in a systematic way),

Laboratory - laboratory method (experiment) (students carry out experiments independently)

Basic bibliography:

1. Legutko S., Podstawy eksploatacji maszyn. Wydawnictwo Politechniki Poznańskiej, Poznań 1999.
2. Blanchard B., Logistics engineering and management, Prentice ? Hall, Inc., Englewood Cliffs, New Jersey 1992
3. Fertsch M. (red.), Elementy inżynierii logistycznej, Wydawnictwo ILiM, Poznań 2017
4. Fertsch M., Słownik terminologii logistycznej, Wyd. ILiM, Poznań 2006

Additional bibliography:

1. Pfohl H.- Ch., Systemy logistyczne. Podstawy organizacji i zarządzania. Wydawnictwo ILiM, Poznań, 2002.
2. Taylor Don G., Introduction to logistics Engineering, CRC Press, Taylor&#38; Francis Group, Boca Raton, London, New York, 2009..

Result of average student's workload

Activity	Time (working hours)	
1. Lectures	12	
2. Laboratory	14	
3. Consultations	4	
Student's workload		
Source of workload	hours	ECTS
Total workload	30	1
Contact hours	26	1
Practical activities	14	0