



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Warehouses Design

### Course

Field of study

Logistics

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Tutorials

Laboratory classes

15

Projects/seminars

Other (e.g. online)

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

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Faculty of Engineering Management

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Responsible for the course/lecturer:

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### Prerequisites

The student starting this subject should have a basic knowledge of the basics of technology and logistics



infrastructure. The student should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

### Course objective

Providing students with basic knowledge related to warehouse design. To develop practical skills related to making decisions regarding the selection of an appropriate system for storing goods and warehouse equipment.

### Course-related learning outcomes

#### Knowledge

1. The student knows the basic issues of construction, technology and techniques in the field of warehouse design [P6S\_WG\_01]
2. The student knows the basic concepts of warehouse design [P6S\_WG\_05]
3. The student knows the best practices in the design of warehouses [P6S\_WK\_06]
4. The student knows the basic methods, techniques, tools and materials used in preparation for conducting scientific research and solving simple tasks in the field of warehouse design [P6S\_WK\_07]

#### Skills

1. The student is able to search on the basis of the literature on the subject and other sources and in an orderly way to present information about the problem included in the design of warehouses [P6S\_UW\_01]
2. The student is able to apply the proper experimental and measurement techniques including computer simulation, to solve the problem within the design of warehouse [P6S\_UW\_03]
3. The student is able to prepare the means of work necessary to work in an industrial environment and knows the safety rules related to this work, including safety problems in the design of warehouses [P6S\_UW\_05]
4. The student is able to assess and make a critical analysis in economic terms of the selected problem, included in the design of warehouses [P6S\_UW\_06]
5. The student is able to design, using appropriate methods and techniques, an object, system or process that meets the requirements within the design of warehouses [P6S\_UW\_07]

#### Social competences

1. The student is aware of the importance of knowledge in the field of warehouse design in solving cognitive and practical problems [P6S\_KK\_01]
2. The student is able to plan and manage in an entrepreneurial manner [P6S\_KO\_01]
3. The student is aware of initiating activities related to the formulation and transfer of information and cooperation in society in the field of warehouse design [P6S\_KO\_02]



4. The student is aware of cooperation and work in a group on solving problems within the design of warehouses [P6S\_KR\_02]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

1. in terms of lectures: acquired knowledge is verified by two 45-minute tests carried out during the 5th and 7th lecture. Each test consists about of 30 questions, with different scores. Passing threshold: after obtaining a minimum of 60% of points.
2. in terms of the laboratory: the skills acquired during laboratory classes are verified on the basis of the progress in the implementation of tasks and partial assessments of the progress of tasks. Passing threshold: 60% of points.

### Programme content

Lecture:

Definition of a warehouse. Types of warehouses. The essence of the warehouse process and the activities that make up this process. Warehouse documentation. Types of warehouse equipment and principles of its selection. Optimizing the costs of selecting and operating equipment. Warehouse design process. Optimization of warehouse space and cubature. IT systems supporting the work of the warehouse. The use of simulation in the design of warehouses.

Laboratory:

Students perform/implement tasks related to the design of the warehouse, which is defined by the lecturer.

### Teaching methods

Lecture: specialist conventional lecture, seminar lecture, multimedia presentation illustrated with examples given on the board

Project: project method, laboratory exercises, brainstorm, computer-based software methods.

### Bibliography

Basic

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, Wydawnictwo ILiM, Poznań, 2002.
3. Korzeniowski A. (red.), Zarządzanie gospodarką magazynową, PWE, Warszawa, 1997.
4. Kudelska I., Pawłowski G., Influence of assortment allocation manage in the warehouse on the human workload, Centrl European Journal of Operations Research 28 (2), 2019.



Additional

1. Fijałkowski J., Technologia magazynowania, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1995.
2. Kudelska I., Niedbał R., Technological and organizational innovation in warehouseing process - research over workload of staff and efficiency of picking stations, E&M Ekonomiczna nad Management, 23(3), 2020.
3. Manzini R. (ed.), Warehousing in the Global Supply Chain. Advanced Models, Tools and Applications for Storage Systems, Springer -Verlag, London, 2012.
4. Magazine "Nowoczesny magazyn".

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes, preparation for tests, execution of tasks) <sup>1</sup>	45	2,0

<sup>1</sup> delete or add other activities as appropriate