



## 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

Projects/seminars

15

Other (e.g. online)

### Number of credit points

3

---

### Lecturers

Responsible for the course/lecturer:

dr inż. Izabela Kudelska

e-mail: [izabela.kudelska@put.poznan.pl](mailto:izabela.kudelska@put.poznan.pl)

tel.61 6653393

Wydział Inżynierii Zarządzania

ul. Jacka Rychlewskiego 2

60-965 Poznań

Responsible for the course/lecturer:

prof. dr hab. inż. Marek Fertsch

e-mail: [marek.fertsch@put.poznan.pl](mailto:marek.fertsch@put.poznan.pl)

tel. 48 61 665 3416

Wydział Inżynierii Zarządzania

ul. Jacka Rychlewskiego 2

60-965 Poznań



### 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. Knows the basic issues of construction, technology and techniques in the field of warehouse design [P6S\_WG\_01]
2. Knows the basic concepts of warehouse design [P6S\_WG\_05]
3. Knows the basic relationships applicable in logistics and its specific issues [P6S\_WK\_04]
4. Knows the basic phenomena and contemporary trends characteristic of warehouse design [P6S\_WK\_05]
5. Knows the best practices in the design of warehouse [P6S\_WK\_06]

#### Skills

1. Can search based on literature and other sources and present information on a problem within the design of warehouse in an orderly manner [P6S\_UW\_01]
2. Is able to apply the proper experimental and measurement techniques to solve the problem within the studied subject, including computer simulation as part of warehouse design [P6S\_UW\_03]
3. Is able to prepare the means of work necessary to work in an industrial environment and knows the safety principles associated with this work, including safety problems in the design of warehouses [P6S\_UW\_05]
4. Is able to assess and make a critical analysis in economic terms of the selected problem, which falls within the design of warehouses [P6S\_UW\_06]
5. 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. Is aware of the recognition of the importance of knowledge in the field of warehouse design in solving cognitive and practical problems [P6S\_KO\_01]
2. Is able to plan and manage in an entrepreneurial manner [P6S\_KO\_01]



3. 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. Is aware of cooperation and work in a group on solving problems within the design of warehouses [P6S\_KR\_01]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:

1. in terms of lectures: acquired knowledge is verified on the basis of answers to questions about the material discussed in the lectures

2. within the scope of the project: the acquired knowledge is verified on the basis of the answers to the questions concerning a given part of the project

Summative rating:

1. in terms of lectures: acquired knowledge is verified on the basis of credit in writing, credit is possible after obtaining a minimum of 60% of points.

2. in the scope of the project: the acquired knowledge is verified on the basis of the presentation of the completed project

### Programme content

1. The essence of the warehouse process and the activities that make up this process.

2. Warehouse definition. Types of magazines.

3. Types of warehouse equipment and rules for its selection. Optimization of equipment selection and operation costs.

4. Warehouse design process. Optimization of warehouse space and volume.

5. Warehouse documentation.

6. IT systems supporting warehouse work. The use of simulation in warehouse design.

### Teaching methods

Lecture: conventional specialist, multimedia presentation

Project: project method

### Bibliography



Basic

1. Fertsch M. 2017, Projektowanie magazynów, [w:] Fertsch M. (red.), Elementy inżynierii logistycznej, Wydawnictwo Instytutu Logistyki i Magazynowania, Poznań.
2. Gubała M., Popielas J. (2002), Podstawy zarządzania magazynem w przykładach, Wydawnictwo ILiM, Poznań.
3. Korzeniowski A. (red.) 1997, Zarządzanie gospodarką magazynową, PWE, Warszawa.
4. Kudelska I., Pawłowski G. (2019), Influence of assortment allocation manage in the warehouse on the human workload, Centrl European Journal of Operations Research 28 (2).

Additional

1. Fijałkowski J. (1995), Technologia magazynowania, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa.
2. Manzini R. (ed.) (2012), Warehousing in the Global Supply Chain. Advanced Models, Tools and Applications for Storage Systems, Springer -Verlag, London.

**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 project, preparation for tests, project preparation) <sup>1</sup>	45	2,0

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