COURSE DESCRIPTION CARD - SYLLABUS

Course name
Warehouse management [S1Trans1>GM]

Course

Field of study
Transport

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes
15

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

Knowledge: student has a basic knowledge of logistics, business process analysis, management and statistics 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 Social competence: student is aware of the importance and understands non-technical aspects and effects of warehouse processes, including those connected with inventory

Course objective

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.

Course-related learning outcomes

Knowledge:
The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport.

Skills:

The student is able to obtain information from various sources, including literature and databases (both in Polish and in English), integrate it properly, interpret it and critically evaluate it, draw conclusions, and comprehensively justify his/her opinion.

Social competences:
The student understands that in technology, knowledge and skills very quickly become obsolete.
The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Lectures: a recapitulation written exam (which may also include computational tasks and is optionally carried out on computers).
Laboratories: average of grades from at least 2 reports (spreadsheet files) presenting individual solutions to selected warehouse management problems (case studies/projects).
Classes (exercises): average of partial grades from a series of short quizzes/tests, possibly also homework.

Programme content

The content of the module program:
1) The core of warehouse management, including inventory management.
2) Warehouse processes.
3) Organization of warehouse and inventory management at the strategic, tactic and operational levels.
4) KPIs in warehouse and inventory management.
5) Warehouse technologies.
6) Inventory management.

Course topics

The content of lectures:
1) Introduction to the subject Definition of warehouse, warehouse management and inventory management and the place of warehouse and inventory management in the organizational structure of the company. Costs of warehousing and inventory. Discussion of typical tasks of warehouse employees based on position cards. Types of warehouses and the functions they perform.
2) Basic activities performed in warehouse work against the background of the warehousing process Receipt of goods, inspections, storage, picking vs. consolidation, decompletion, preparation for shipment, releases.
3) Warehouse documentation Discuss typical documents occurring in the warehouse process (PZ, PW, MM, WZ, RW, picking list and others) and the data contained in them. Methods of creating/generating warehouse documentation, including consideration of WMS functionality and data exchange tools such as EDI.
4) Determinants of warehousing decisions made at different levels of management Overall warehouse management plan. Influence of the amount of stored inventory on the necessary number of locations, organization of warehouse work, planning of daily warehouse operations and control of warehouse operations. Discussion of simple qualitative and quantitative methods to support these decisions.
5) Indicators in warehouse applications Discuss basic indicators for evaluating the efficiency of warehouse and inventory management.
6) Warehouse equipment Storage technologies and technical solutions.
7) Inventory management The essence and global inventory management strategies - pull and push. Basic inventory control concepts, including SL, safety stock, EOQ economic order size methods, square root principle - SRL, "bull whip" effect, and inventory renewal methods based on maximum and information level (periodic and continuous review). Practical implementation of demand analysis - ABC/XYZ method and others.

The content of exercises (adjusted to the lectures program):
1) Inventory analysis - structure.
2) Inventory control - MIN/MAX.

3) Inventory control - SRL and EOQ.
4) Analysis of the warehouse process flow.
5) Organization of warehouse management.
6) Indicators in warehouse applications.

The content of laboratories (adjusted to the lectures and exercises programs):
1) Inventory analysis - ABC/XYZ (construction of the tool in a spreadsheet and its application to real data).
2) Inventory analysis - structure (construction of the tool in a spreadsheet and its application to real data).
3) Inventory control - MIN/MAX (construction of the tool in a spreadsheet and its application to real data).

Teaching methods

1. Lectures including multimedia presentation, movies
2. Laboratories – work with a spreadsheet
3. Tutorials/Exercises – quantitative and qualitative problems solving

Bibliography

Basic
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
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., Zając 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)

Breakdown of average student's workload

	Hours	ECTS
Total workload	85	3,00
Classes requiring direct contact with the teacher	60	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	25	1,00