COURSE DESCRIPTION CARD - SYLLABUS

Course name
Special magazines [S2MiBP1-PCh>MS]

Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
1/1

Area of study (specialization)
Refrigerated Vehicles

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: 1. The student has an extended and deepened knowledge of mathematics useful for formulating and solving complex technical tasks concerning various means of transport; 2. The student has extended and deepened knowledge of physics useful for formulation and solution selected technical tasks, in particular for correct modeling of problems real. SKILLS: The student is able to obtain information from various sources, including literature and databases data, both in Polish and in English, integrate them properly, make them interpretation and critical evaluation, draw conclusions, and comprehensively justify formulated by self opinions; SOCIAL COMPETENCES: The student is able to think and act in an entrepreneurial way, incl. finding commercial applications for the created system, bearing in mind not only business benefits, but also social activities carried out

Course objective

The aim of the course is to familiarize students with the most important issues regarding the organization and equipping modern warehouses dedicated to cooled products. In particular they are are issues devoted to: designing and organizing the work of reloading fronts, racks warehousing and creating transport systems for lifting and lift trucks and other means of internal transport used in internal logistics (stacker cranes, conveyors, manipulators, etc.), as well as the implementation of the most important phases of storage (receipt, storage, completion, edition).

Course-related learning outcomes

Knowledge:
Has extended knowledge of thermodynamics and fluid mechanics to the extent necessary to understand the principle of operation and calculations of thermodynamic and flow processes occurring in working machines such as heating, cooling, drying, thermal and pressure agglomeration, etc., pneumatic transport, energy conversion, etc.
Has knowledge of the principles of safety and ergonomics in the design and operation of machines and the threats that machines pose to the natural environment.
Has general knowledge of standardization, EU recommendations and directives, national, industry and international standards systems, and industrial standards.

Skills:
He can estimate the potential threats to the environment and people from the designed working machine and vehicle from a selected group.
Is able to carry out basic measurements of mechanical quantities on the tested working machine with the use of modern measuring systems.
Is able to use the acquired knowledge in the field of thermodynamics and fluid mechanics to simulate thermodynamic processes in technological systems of machines, using specialized computer programs.

Social competences:
It is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment.
It is ready to initiate actions for the public interest.
Is ready to fulfill professional roles responsibly, taking into account changing social needs, including:
- developing the professional achievements,
- maintaining the ethos of the profession,
- observing and developing the rules of professional ethics and acting towards the observance of these rules.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Classes - written test
Lectures - written exam

Programme content

Introduction to the technical aspects of modern logistics infrastructure in terms of facilities special. Construction and operation of warehouse racks. Dimensioning of warehouse racks (pallet and flow racks). Designing reloading stations in warehouses refrigeration. Internal transport: transport carts, conveyors, stacker cranes). Algorithm determining the demand for refrigerated trucks. Work cycle modeling stacker cranes in automated refrigerated warehouses. Picking: organization, modern implementation technologies.

Course topics

none

Teaching methods

1. Lecture with multimedia presentation

2. Laboratory exercises - solving design tasks

Bibliography

Basic
1. Wojciechowski Ł., Wojciechowski A., Kosmatka T., Infrastruktura magazynowa i transportowa, Wyd. WSL, Poznań, 2009;
2. Korzeń Zb., Logistyczne systemy transportu bliskiego i magazynowania. Tom I ? Infrastruktura, technika, informacja, Biblioteka Logistyka, Poznań 1998;
3. Korzeń Zb., Logistyczne systemy transportu bliskiego i magazynowania. Tom II ? Projektowanie, modelowanie, zarządzanie, Biblioteka Logistyka, Poznań 1998.
Additional
1. Niemczyk A., Zarządzanie magazynem, wyd. II, Wyd. WSL, Poznań, 2015;
2. Fijałkowski J., Transport wewnętrzny w systemach logistycznych. Wybrane zagadnienia, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00