POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Organization and equipment of food warehouses [N1Trans1>OiWMŻ]

Course

Field of study	Year/Semester
Transport	3/6
Area of study (specialization)	Profile of study
–	general academic
Level of study	Course offered in
first-cycle	Polish
Form of study	Requirements
part-time	elective

Number of hours

Lecture	Laboratory classes	Other
9	9	0
Tutorials	Projects/seminars	
0	0	

Number of credit points

1,00

Coordinators

dr hab. inż. Łukasz Wojciechowski prof. PP
lukasz.wojciechowski@put.poznan.pl

Lecturers

Prerequisites

Student has basic knowledge of physics, mechanics, logistics and management in transport field .

Course objective

The aim of the course is to familiarize students with the most important issues regarding the organization and equipment for modern warehouses, including in particular: loading fronts, racks, lift trucks, other means of internal transport used in internal logistics (stacker cranes, conveyors, manipulators, etc.), design and implementation the most important stages of storage (receipt, storage, picking, release).

Course-related learning outcomes

Knowledge:
1. The student has knowledge of important development trends and the most important technical achievements and of other related scientific disciplines, in particular transport engineering;
2. The student has a basic knowledge of the life cycle of means of transport, both equipment and software, and in particular about the key processes occuring in the product life cycle;
3. The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering.

Skills:
1. The student is able to properly plan and conduct perform experiments, including measurements and computer simulations, interpret the obtained results, and correctly draw conclusions;
2. Student is able, when formulating and solving tasks in the field of transport, to apply appropriately selected methods, including analytical, simulation or experimental methods;
3. Student is able to make a critical analysis of the functioning of transport systems and other technical solutions and to evaluate these solutions, including: is able to effectively participate in the technical inspection and assess the transport task from the point of view of non-functional requirements, has the ability to systematically conduct functional tests;
4. The student is able - in accordance with the given specification - to design (create a model of a fragment of reality), formulate a functional specification in the form of use cases, formulate non-functional requirements for selected quality characteristics) and implement a device or a widely understood system in the field of means of transport, using appropriate methods, techniques and tools;
5. The student can communicate in Polish and English using specialized terminology, using various techniques, both in the professional environment and in other environments, also with the use of tools in the field of transport engineering;
6. The student is able to prepare and present, in Polish and English, a well-documented study of problems in the field of transport engineering, including oral presentations;
7. The student is able to organize, cooperate and work in a group, assuming various roles in it, and is able to properly define priorities for the implementation of a task set by himself or others.

Social competences:
1. 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;
2. The student is aware of the social role of a technical university graduate, in particular, he/she understands the need to formulate and transfer to the society, in an appropriate style, information and opinions on engineering activities, technological achievements, as well as the achievements and traditions of the transport engineer profession;
3. The student correctly identifies and solves dilemmas related to the profession of a transport engineer.

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. Construction and operation of warehouse racks. Dimensioning of warehouse racks (pallet and flow racks). Designing of reloading stations in warehouses. Internal transport: lift trucks, cranes, conveyors, robots and manipulators). Algorithm for determining the demand for forklifts in warehouses (fork-lift trucks, reach trucks etc.). Picking: organization, modern implementation technologies.

Course topics

Teaching methods

Lecture: multimedia presentations; Exercises: solving problems

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	30	1,00
Classes requiring direct contact with the teacher	18	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	12	0,50