POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name

Designing refrigeration and storage systems

Course

Field of study	Year/Semester
Construction and Exploitation of Means of Transport	1/1
Area of study (specialization)	Profile of study
Food Industry Machines and Refrigeration	general academic
Level of study	Course offered in
Second-cycle studies	polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
18	0	
Tutorials	Projects/seminars	
9	0	

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Arkadiusz Stachowiak, prof. PP

Faculty of Civil and Transport Engineering

Responsible for the course/lecturer:

dr hab. inż. Łukasz Wojciechowski

Faculty of Civil and Transport Engineering

Prerequisites

KNOWLEDGE: Has basic information in the field of food storage technology, refrigeration and storage techniques.

SKILLS: Can measure the basic parameters of a refrigeration system in order to diagnose its condition.

SOCIAL COMPETENCES: Understands the importance of refrigeration and refrigerated transport as a means of reducing food waste and its environmental risk.

Course objective

Learning the principles of designing refrigeration and storage systems on the example of food warehousest

Course-related learning outcomes

Knowledge

1. Knows the guidelines for storing food products in controlled temperature conditions.

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2. Has knowledge of the principles of designing refrigerated storage facilities, with particular emphasis on the methods of heat balance and selection procedures for refrigeration system components.

3. He knows the organization of loading and unloading works and the selection of additional warehouse equipment.

Skills

1. Can make a comprehensive project of fruit / vegetable storage.

2. Is able to adapt a general-purpose warehouse for cooling purposes.

Social competences

Understands the importance of refrigeration, refrigerated transport and storage as a means of reducing food waste and its threat to the environment

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Ongoing monitoring of preparation (discussion) and activity in the classroom. Written credit for classes.

Programme content

Guidelines for the storage of food products under controlled temperature conditions. Principles of designing refrigerated storage facilities with particular emphasis on thermal balance methods and procedures for selecting components of the refrigeration system. Organization of loading and unloading works and selection of additional warehouse equipment. Presentation of professional computer tools used in the design of refrigerated warehouses (eg AutoCAD, AutoCAD MEP, KOMORA - proprietary software, etc.). The procedure for adapting a general-purpose warehouse for cooling purposes (retrofit). A comprehensive fruit / vegetable storage project.

Teaching methods

1. Lecture with multimedia presentation

2. Exercises - solving design tasks

Bibliography

Basic

1. Gruda Z., Postolski J. Zamrażanie żywności WNT Warszawa 1994

2. Gutkowski K. Chłodnictwo. Wybrane zagadnienia obliczeniowe WNT Warszawa 1992

3. Adamicki F., Czerko Z. Przechowalnictwo warzyw i ziemniaka PWRiL Warszawa 2000

4. Urlich H.J., Technika chłodnicza - poradnik. IPPU MASTA, Gdańsk 1999

Additional

POZNAN UNIVERSITY OF TECHNOLOGY

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Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	1,8
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,2

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[1] delete or add other activities as appropriate