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
Design of refrigeration bodies

Course

Field of study	Year/Semester
Transport	4/7
Area of study (specialization)	Profile of study
Food transport	general academic
Level of study	Course offered in
First-cycle studies	polish
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	30	0
Tutorials	Projects/seminars	
0	0	

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Przemysław Tyczewski

Faculty of Civil and Transport Engineering

Responsible for the course/lecturer:

dr hab. inż. Arkadiusz Stachowiak, prof. PP

Faculty of Civil and Transport Engineering

Prerequisites

KNOWLEDGE: has basic knowledge of cargo science and the basics of bodybuilding; knows the basics of technical drawing and the use of AutoCAD.

SKILLS: can perform basic construction calculations, drawing documentation with the use of AutoCAD; knows how to develop a computer program on the basis of a given computational algorithm

SOCIAL COMPETENCES: is aware of acting in a professional manner; understands the need for continuous training

Course objective

Getting to know the theoretical and practical problems related to the design and execution of refrigeration plants

Means of transport of food. The use of computer tools for the design of refrigerated bodies.

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Course-related learning outcomes

Knowledge

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

2. 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 design elements of means of transport using data on environmental protection.

2. The student is able to design elements in the field of transport engineering and construct simple machines.

3. The student is able to design means of transport with appropriate external requirements (e.g. regarding environmental protection).

Social competences

1. The student understands that in technology, knowledge and skills very quickly become obsolete

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. Compulsory laboratory report.

Programme content

Food as cargo (loading and transport susceptibility). Agreement on the international transport of perishable foodstuffs and the means of transporting them. Isothermal bodies (thermal insulation materials, production of structural elements, assembly technology). Additional equipment (movable floor, spreader bars). Loading platforms. Certification tests of isothermal bodies. Procedures for diagnosing the condition of isothermal bodies. Preparation of means of transport for loading. Characteristics of design solutions of refrigerated bodies for food transport. Estimating the dimensions of the body, insulation thickness. Strength analysis of selected body elements: bottom binding frame, aggregate mounting, side and rear door frames. Using AutoCAD for visualization in the body design process. Determination of axle loads for vehicles with oversized bodies - calculation algorithm. Estimation of the cooling capacity demand for food transport bodies (DIN8959 standard, calculation algorithm). Characteristics of chillers used in food transport - selection rules, assembly methods.

Teaching methods

1. Lecture with multimedia presentation

2. Laboratory exercises - solving project tasks

Bibliography

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Basic

1. Zwierzycki W., Bieńczak K. [red.] Pojazdy chłodnicze w transporcie żywności, Systherm Serwis, Poznań 2006.

2. Kwaśniowski S.[red.] Pojazdy izotermiczne i chłodnicze, Navigator nr 7, Wrocław 1997.

3. Pikoń A., AutoCAD 2007 PL. Helion, Warszawa 2007.

Additional

1. Bieńczak K., Modelowanie warunków termicznych chłodniczego przewozu żywności. Wydawnictwo Politechniki Poznańskiej, Poznań, 2009.

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	4,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	45	2,0

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[1] delete or add other activities as appropriate