COURSE DESCRIPTION CARD - SYLLABUS

Course name

Heating and cooling devices

Course

Field of study	Year/Semester
Transport	1/2
Area of study (specialization)	Profile of study
Road transport	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	elective

Number of hours

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

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Krzysztof Bieńczak prof.PP

e-mail:krzysztof.bienczak@put.poznan.pl

tel. 616655888

Faculty of Civil and Transport Engineering

Responsible for the course/lecturer:

Prerequisites

KNOWLEDGE:

Student has a general knowledge of the impact of technical facilities and technologies on the environment

SKILLS:

Student is able to define the threats to the environment that constitute a specific technological process implemented in the area of production and operation of food machines and refrigeration devices and to indicate ways of counteracting these threats.

SOCIAL COMPETENCES:

Work in the interdisciplinary team. Ability to lead a team and expand team knowledge.

Course objective

Overview of the transport rules for products requiring controlled temperatures.

Course-related learning outcomes

Knowledge

Has ordered and theoretically founded general knowledge related to key issues in the field of transport engineering. Has advanced detailed knowledge of selected issues in the field of transport engineering.

Skills

Is able to obtain information from literature, databases and other sources (in Polish and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and exhaustively justify opinions. Is able to make a critical analysis of existing technical solutions and propose their improvements.

Social competences

Student understands that in the field of transport engineering, knowledge and skills very quickly become obsolete.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lecture is verified on the basis of a written exam in the form of test. The skills acquired during the exercises are verified on the basis of a final test in the form of a written test.

Programme content

Transport of food and dangerous poducts at controlled temperatures. Classification of vehicles for transport under controlled temperatures. Devices that ensure the cryptoclimate in the cargo space. Rules for the operation of devices responsible for the parameters of the cryptoclimate.

Teaching methods

Information and problematic lecture with a multimedia presentation. Exercises - solving problems.

Bibliography

Basic

1. Zwierzycki W., Bieńczak K., Pojazdy chłodnicze w transporcie żywności , Syntherm Poznań 2006

2. Kwaśniowski S., Pojazdy izotermiczne i chłodnicze, Navigator Wrocław 1997

Additional

1. B. Guziński, Chłodnictwo dla praktyków, Systherm Serwis, Poznań 2013

Breakdown of average student's workload

	Hours	ECTS
Total workload	102	4,0
Classes requiring direct contact with the teacher	27	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	75	3,0

[1] delete or add other activities as appropriate