



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Refrigeration, air conditioning and heating equipment in transport

Course

Field of study

Year/Semester

Transport

2/3

Area of study (specialization)

Profile of study

general academic

Level of study

Course offered in

First-cycle studies

polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

15

0

Tutorials

Projects/seminars

0

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

prof. dr hab. inż. Krzysztof Bieńczyk

Faculty of Civil and Transport Engineering

Prerequisites

Knowledge: Has a general knowledge of the impact of technical facilities and technologies on the environment

Skills: Is able to define categories of threats to the environment as a specific technological process implemented in the area of production and operation of food machinery and refrigeration equipment and indicate ways to counteract these threats.

Social competences: Work in an interdisciplinary team. Ability to lead a team and expand team knowledge

Course objective

Learning the basic principles of building refrigeration, air conditioning and heating devices

Course-related learning outcomes

Knowledge



1. Has knowledge of significant directions of development and the most important technical achievements and other related scientific disciplines, in particular transport engineering
2. Has basic knowledge of the life cycle of means of transport, both hardware and software, and in particular about the key processes taking place in them

Skills

1. Can obtain information from various sources, including literature and databases, both in Polish and in English, integrate them properly, interpret and critically evaluate them, draw conclusions, and comprehensively justify their opinions
2. Can see in the process of formulating and solving tasks in the field of transport engineering also non-transport aspects, in particular social, legal and economic issues

Social competences

Is aware of the importance of knowledge in solving engineering problems and 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

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final tests

Programme content

Principles of construction of cooling, air-conditioning and heating devices used in means of transport in order to ensure appropriate temperature conditions. Characteristics of the basic components of refrigeration, air conditioning and heating devices (compressors, heat exchangers, valves, safety elements). Refrigerants. Environmental aspects of using refrigerants.

Teaching methods

Lecture with presentation, experimental classes

Bibliography

Basic

1. B. Gaziński Klimatyzacja pojazdów samochodowych, Systherm Serwis, Poznań 2016
2. B. Gaziński, Chłodnictwo dla praktyków, Systherm Serwis, Poznań 2013
3. S. Kwaśniewski, Pojazdy chłodnicze i izotermiczne, Nawigator, Wrocław 1997

Additional

1. K. Kalinowski, Amoniakalne urządzenia chłodnicze tom.1 i 2, Masta, Gdansk 2005



Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	30	1,0

¹ delete or add other activities as appropriate