



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Operation of refrigeration equipment in transport

### Course

Field of study

Year/Semester

Transport

1/2

Area of study (specialization)

Profile of study

Refrigerated transportation

general academic

Level of study

Course offered in

Second-cycle studies

polish

Form of study

Requirements

full-time

elective

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

15

0

Tutorials

Projects/seminars

0

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Arkadiusz Stachowiak, prof. PP

Responsible for the course/lecturer:

dr inż. Tomasz Rochatka

Faculty of Civil and Transport Engineering

Faculty of Civil and Transport Engineering

### Prerequisites

KNOWLEDGE: Has a general knowledge of the structure and operation of a compressor refrigeration device.

SKILLS: Can identify the basic components of a compressor refrigeration device (solutions for food transport).

SOCIAL COMPETENCES: Ability to lead a team and expand team knowledge.

### Course objective

Developing the ability to diagnose and repair compressor refrigeration equipment used in food transport.

### Course-related learning outcomes

Knowledge

Student has advanced and detailed knowledge of the processes occurring in the life cycle of transport systems



Student has knowledge of ethical codes related to scientific and research work in the field of transport engineering

Student knows the economic, legal and other conditions of the operations of transport companies

#### Skills

Student is able - when formulating and solving engineering tasks - to integrate knowledge from various areas of transport (and, if necessary, also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects

Student is able to assess the usefulness and possibility of using new achievements (methods and tools) and new products of transport technology

#### Social competences

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

Student understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

#### 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 a test. The skills acquired during the classes are verified on the basis of a final test in the form of a written test and obligatory individual reports on laboratory classes.

#### Programme content

Methods and tools for controlling work parameters of cooling systems. The most common cause of performance loss in compressor refrigeration equipment. Ecological and economic effects of loss of performance in refrigeration systems. Checking the tightness of compressor refrigeration equipment (legal requirements, implementation methods). Filling, emptying refrigeration systems. Odzyck, regeneration and utilization of refrigerants. Requirements for personnel servicing refrigeration equipment.

#### Teaching methods

Information and problematic lecture with a multimedia presentation. Laboratory exercises - problem solving, laboratory (experiment) method.

#### Bibliography

Basic

1. Bonca Z. Automatyka chłodnicza i klimatyzacyjna. Wyd. WSM Gdynia 1995.
2. Ullirch H.J., Technika chłodnicza - poradnik. IPPU MASTA, Gdańsk 1998.



3. Czapp M., Charun H., Bohdal T. Wielostopniowe urządzenia chłodnicze WSI Koszalin 1994
4. B. Gaziński, Technika chłodnicza dla praktyków, Systherm Serwis, Poznań 2005

Additional

1. B. Gaziński Klimatyzacja pojazdów samochodowych, Systherm Serwis, Poznań 2016

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	70	3,0
Classes requiring direct contact with the teacher	40	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	30	1,0

<sup>1</sup> delete or add other activities as appropriate