



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Automation, diagnostics and repair of refrigeration and food equipment

### Course

Field of study

Construction and Exploitation of Means of Transport

Area of study (specialization)

Food Industry Machines and Refrigeration

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

4/7

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

45

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr inż. Tomasz Rochatka

Responsible for the course/lecturer:

dr inż. Aleksandra Rewolińska

Faculty of Civil and Transport Engineering

Faculty of Civil and Transport Engineering

### Prerequisites

Has basic knowledge of physics, mechanics and strength of materials

### Course objective

Getting to know the elements of refrigeration automation. Getting to know the organization and planning principles of service and repair works as well as methods of restoring the serviceability of cooling devices.

### Course-related learning outcomes

Knowledge

Has basic knowledge of technical thermodynamics, i.e. the theory of thermodynamic transformations, heat flow, thermal machines and heating, drying and cooling devices. Has basic information on the maintenance and repair of devices.

Skills

He can obtain information from literature, the Internet, databases and other sources. Can integrate the



obtained information, interpret and draw conclusions from it, and create and justify opinions. Can design a simplified device repair production process.

#### Social competences

He is aware of the importance of maintaining the efficiency of machines and devices in the food industry and the related responsibility for the decisions made.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Credit based on the test of knowledge of the lectures and the current control of preparation for the laboratory exercises and the assessment of their course and reports.

#### Programme content

Scientific knowledge. Development of automation, concepts related to automation, automatic systems, methods of regulating cooling systems, regulation and control of compressors, evaporators and condensers, controllers of cooling systems. Methods of repair organization. Diagnostic systems. Technological processes of repairing machines and devices. Methods of repairing machines and devices.

#### Teaching methods

1. Lecture with multimedia presentation
2. Laboratory with taking measurements

#### Bibliography

##### Basic

1. Nosal S. Inżynieria odnowy maszyn, wybrane zagadnienia Politechnika Poznańska 2017
2. Cypko J., Cypko E. Podstawy technologii i organizacji napraw pojazdów mechanicznych. Wkił, Warszawa 1989
3. Kostrzewa S., Nowak B. Podstawy regeneracji części pojazdów mechanicznych. Wkił, Warszawa, 1986
4. Klimpel A., Napawanie i natryskiwanie cieplne. Technologie, WNT, Warszawa, 2000
5. Adamiec P., Dziubiński P., Regeneracja i wytwarzanie warstw wierzchnich elementów maszyn transportowych, Wyd. Pol. Śląskiej, Gliwice, 1999

##### Additional



### Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	60	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