



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering of refurbishment of food and cooling devices

### Course

Field of study

Year/Semester

Transport

1/2

Area of study (specialization)

Profile of study

Refrigerated 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)

9

0

0

Tutorials

Projects/seminars

0

9

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr inż. Aleksandra Rewolińska

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### Prerequisites

Knowledge: Basic knowledge of the design, technology and operation of machines.

Skills: Logical thinking, using information obtained from the library and the Internet

Social competences: Understands the needs of learning and acquiring new knowledge

### Course objective

Acquainting with methods of restoring the fitness of machines



### Course-related learning outcomes

#### Knowledge

The student has advanced detailed knowledge of selected issues in the field of transport engineering

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

#### Skills

The student is able to correctly use the selected method of estimating the labor consumption of manufacturing technical objects

The student is able to make a critical analysis of existing technical solutions and propose their improvements (improvements)

The student is able to assess the usefulness of methods and tools for solving an engineering task consisting in the construction or evaluation of the transport system or its components, including the limitations of these methods and tools

#### Social competences

The 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:

Written test of the lecture and completion of the project

### Programme content

Methods of mating and regeneration of machine parts, machining to repair dimensions, methods: cold and hot plastic deformation, welding, resistance and friction welding, galvanic and chemical methods. The use of plastics in machine repair, bonding and sealing, including the use of anaerobic-contact adhesives. Application conditions and selection criteria of the regeneration method. Controlling the durability of machines in repair processes.

### Teaching methods

1. Lecture with multimedia presentation
2. Exercise method (subject exercises, practice exercises) - in the form of auditorium exercises

### Bibliography

#### Basic

1. Nosal S., Inżynieria odnowy maszyn : wybrane zagadnienia – Wydanie I. – Poznań, 2017
2. Jóska M., Kowalczyk J., Mańczak R., Nosal S., Ulbrich D., Inżynieria odnowy pojazdów samochodowych, Tom 1 Inżynieria obsługiwaniana Poznań, 2019



3. Jósko M., kowalczyk J., Mańczak R., nosal S., Ulbrich D., Inżynieria odnowy pojazdów samochodowych, Tom 2 Inżynieria naprawy Poznań, 2019
4. Cypko J., Cypko E. Podstawy technologii i organizacji napraw pojazdów mechanicznych. Wkił, Warszawa 1989
5. Kostrzewa S., Nowak B. Podstawy regeneracji części pojazdów mechanicznych. WKiŁ, Warszawa, 1986

Additional

1. Klimpel A., Napawanie i natryskiwanie cieplne. Technologie, WNT, Warszawa, 2000
2. Adamiec P., Dziubiński P., Regeneracja i wytwarzanie warstw wierzchnich elementów maszyn transportowych, Wyd. Pol. Śląskiej, Gliwice, 1999

**Breakdown of average student's workload**

|  | Hours | ECTS |
|--|-------|------|
| Total workload   | 48    | 3,0  |
| Classes requiring direct contact with the teacher  | 18    | 1,5  |
| Student's own work (literature studies, preparation for tutorials, preparation for tests) <sup>1</sup> | 30    | 1,5  |

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