COURSE DESCRIPTION CARD - SYLLABUS

Course name
Refrigeration vehicle restoration engineering [S2MiBP1-PCh>IOPCh]

Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
2/3

Area of study (specialization)
Refrigerated Vehicles

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

Knowledge: Basic information on the design, technology and operation of vehicles. 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 refrigerated vehicles.

Course-related learning outcomes

Knowledge:
1. Has an extended knowledge of the processes occurring in the surface layer of machine structural elements and surface engineering methods.
2. Has extended knowledge of modern construction materials such as carbon plastics, composites, ceramics, in terms of their construction, processing technology and applications.
3. Has extended knowledge of material strength in the field of nonlinear models, fracture and fatigue strength, calculations of statically indeterminate structures, structure stability.

Skills:
1. Can correctly select the optimal material and technology of its processing for typical parts of working machines, taking into account the latest material engineering achievements.
2. Can perform basic measurements of mechanical quantities on the tested working machine with the use of modern measuring systems.
3. Can design a technology of exploitation of a selected machine with a high degree of complexity.

Social competences:
1. Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.
2. Is ready to initiate actions for the public interest.
3. Is willing to think and act in an entrepreneurial manner.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Written test of the lecture and completion of the project

Programme content

General characteristics of the truck fleet.
Characteristics of vehicle maintenance and repair systems.
Stages of the technological process of vehicle repair.
Washing vehicles, assemblies and parts.
Verification - assessment of the technical condition of vehicles.
Rules for dismantling vehicle assemblies and parts.
Methods of repairing vehicle assemblies and parts.

Course topics

1. The lecture covers the following topics:
General characteristics of the truck fleet with particular emphasis on refrigerated trucks. This issue includes current knowledge about the truck fleet in the country, truck repair plants, and the labor market.
Characteristics of maintenance and repair systems and methods of repairing motor vehicles.
Stages of the technological process of vehicle repair. The issue includes discussion of individual stages of the process, such as: disassembly, verification, cleaning, repair, and assembly. Examples of technological repair processes.
Presentation of repair methods - replacement of parts, repair using mechanical processing, repair of parts using gluing, regeneration using spray metalization, repair of parts using welding methods, regeneration of parts using electroplating.

2. As part of the exercises, students develop detailed documentation of a selected technological process for repairing or servicing a selected element of an assembly or part.

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. Jósko M., kowalczyk J., Mańczak R., nosal S., Ulbrich D., Inżynieria odnowy pojazdów samochodowych, Tom 1 Inżynieria obsługiwania 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	50	3,00
Classes requiring direct contact with the teacher	30	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00