



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Techniques for manufacturing rail vehicles

Course

Field of study

Year/Semester

Construction and Exploitation of Means of Transport

1/1

Area of study (specialization)

Profile of study

Railway Vehicles

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

0

0

Tutorials

Projects/seminars

0

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

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Prerequisites

The student has a basic knowledge of the aging processes of technical objects. In addition, he knows the technologies of construction and repair of rail vehicles and knows the main production technologies of selected sets of rail vehicles, assembly methods and final acceptance. He can use the acquired knowledge to plan the production and repair process of a rail vehicle. He can solve specific technical and technological problems occurring during the production and repair of a rail vehicle. The student is able to work in a group, organize the repair and production process in its main outline. The student is able to determine the priorities important in solving the tasks set before him. The student shows independence in solving technical problems, gaining and improving the acquired knowledge and skills.



Course objective

The aim of the course is to learn about the physical aging processes of rail vehicles. Presentation of technology for the construction and repair of vehicles, as well as familiarization with assembly and final acceptance of rail vehicles.

Course-related learning outcomes

Knowledge

1. Has general knowledge of standardization, EU recommendations and directives, national, industry 1. Has an orderly, theoretically founded knowledge of technical and operational parameters of means of transport, knows the basic units and parts. He knows the life cycle of means of transport.
2. Has knowledge in the field of technical operation, knows the technical and economic aspects of vehicle operation, selection of operating parameters, factors forcing changes in condition and types of damage.

Skills

1. Can obtain information from literature, the Internet, databases and other sources, both in Polish and in foreign languages.
2. Can communicate using various techniques in the professional environment, using the formal notation of a construction, technical drawing, concepts and definitions from the field of study.
3. Can analyze objects and technical solutions, can search in catalogs and on manufacturers' websites ready components of machines and devices, assess their suitability for use.
4. Can design the technology of making a simple handling system and the technology of assembly and disassembly of this system.

Social competences

1. Understands the need and knows the possibilities of continuous training, knows the need to acquire new knowledge for professional development.
2. Is aware of responsibility for their own work and is ready to comply with the principles of teamwork and responsibility for jointly performed tasks.
3. Is aware of transferring the acquired knowledge to the public, makes efforts to make the information understandable.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test

Programme content

Steels and plastics used in the construction and repair of rail vehicles, damage to assemblies and parts of the drive system, springing, driving, vehicle structure, equipment and other elements, organization of the technological department with the plant, physical processes of using rail vehicles, technology of



manufacturing and repairing vehicles, assemblies and elements such as vehicle frames, boxes, bogie frames, wheel sets and others, assembly of components and machines, devices and electrical installations, assembly tests, safety during vehicle repair and production, final acceptance.

Teaching methods

Lecture: multimedia presentation, illustrated with examples given on the board.

Bibliography

Basic

1. Kozłowski M.: Budowa i eksploatacja pojazdów, t. II ? Obsługa, diagnostyka i naprawa zespołów i podzespołów. Wyd. Vogel Publishing, Wrocław 2003.
2. Marczewski R., Płończak Z., Podemski J.: Wagony towarowe ? poradnik techniczny. WKŁ, Warszawa 1975.
3. Cypko J., Cypko E.: Podstawy technologii i organizacji naprawy pojazdów mechanicznych. WKŁ, Warszawa 1989
4. Gieżyński S.: Technologia wytwarzania pojazdów szynowych. Wydawnictwo Politechniki Poznańskiej, Poznań 1979.

Additional

1. Moczarski M.: Podstawy organizacji i techniki obsługi pojazdów szynowych. Wydawnictwo. Politechniki Warszawskiej, Warszawa 1986.
2. Gronowicz J., Technologia naprawy pojazdów szynowych, maszyny i urządzenia elektryczne. Wydawnictwo Politechniki Poznańskiej, Poznań 1993.
3. Marczewski R., Podemski J., Wózki wagonowe. Wydawnictwo Komunikacji i łączności, Warszawa 1980.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	15	0,5

¹ delete or add other activities as appropriate