



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Drive motors for compressors and pumps

Course

Field of study

Year/Semester

Transport

3/6

Area of study (specialization)

Profile of study

Engineering of Pipeline Transport

general academic

Level of study

Course offered in

First-cycle studies

Polish

Form of study

Requirements

part-time

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

9

9

0

Tutorials

Projects/seminars

0

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr inż. Piotr Lijewski

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tel. 61 665 20 45

Piotrowo 3, 60-965 Poznan

Prerequisites

The student has a basic knowledge of mechanics and machine construction as well as thermodynamic processes. The student is able to interpret the obtained information and formulate conclusions about the acquired knowledge. The student is aware of the importance and understands the need to use internal combustion engines in industry and economy.

Course objective

The aim is to get acquainted with the construction and operation of internal combustion piston engines as well as the necessity and method of use in transport

Course-related learning outcomes

Knowledge



The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport

The student has ordered and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues in this discipline of transport engineering

The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering

Skills

The student is able to obtain information from various sources, including literature and databases (both in Polish and in English), integrate it properly, interpret it and critically evaluate it, draw conclusions, and comprehensively justify his/her opinion

Student is able, when formulating and solving tasks in the field of transport, to apply appropriately selected methods, including analytical, simulation or experimental methods

The student can communicate in Polish and English using specialized terminology, using various techniques, both in the professional environment and in other environments, also with the use of tools in the field of transport engineering

Social competences

The student understands that in technology, knowledge and skills very quickly become obsolete

The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - written test. Obtaining a pass from a minimum of 51% of the overall points. Oral questioning is possible in order to raise the obtained grade.

Laboratories - positive evaluation of the reports on the exercises performed

Programme content

Basic elements of the internal combustion engine, their structure and function, systems and auxiliary elements of the engine, division of engines

Internal combustion engines cycles, engine processes - concepts and dependencies

Basic definitions and relationships between engine operating parameters; power, torque, efficiency, average indicated and effective pressure, engine energy balance, engine characteristics



Consumables; fuels and oils, engine operating conditions depending on the application (stationary and traction engines), cooperation with the power receiver

Teaching methods

Informative (conventional) lecture (information transfer in a structured way)

Bibliography

Basic

1. Serdecki W. (red.): Badania silników spalinowych Laboratorium. WPP, Poznań, 2012 lub późniejsze wydania.
2. Wajand Jan A., Wajand Jan T.: Tłokowe silniki spalinowe średnio- i szybkoobrotowe. WNT, Warszawa, 2005.
3. Niewiarowski K.: Tłokowe silniki spalinowe. WKiŁ, Warszawa, 1983.

Additional

1. Materiały producentów silników, konferencyjne i branżowe: Combustion Engines, MTZ, SAE .

Breakdown of average student's workload

| | Hours | ECTS |
|---|-------|------|
| Total workload | 28 | 1,0 |
| Classes requiring direct contact with the teacher | 18 | 0,7 |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹ | 10 | 0,3 |

¹ delete or add other activities as appropriate