



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fuels and lubricants

### Course

Field of study

Mechanical Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

9

Laboratory classes

9

Other (e.g. online)

Tutorials

0

Projects/seminars

0

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

prof. dr hab. inż. Wiesław Zwierzycki

Responsible for the course/lecturer:

Faculty of Civil and Transport Engineering

### Prerequisites

KNOWLEDGE: Has knowledge of the construction and production of fuels, oils, plastic lubricants (and specialized liquids) in transport means.

SKILLS: Can learn using various sources of information.

SOCIAL COMPETENCES: the student is aware of the social and economic importance of environmental protection

### Course objective

Getting to know the basics of construction, production, ownership and use of fuels and lubricants for means of transport

### Course-related learning outcomes

Knowledge

1. Has knowledge of the construction and production of fuels, oils, plastic lubricants (and specialist liquids) for means of transport



2. Has knowledge of the aging of oils and plastic greases for means of transport and the methods of diagnosing their condition

3. Has basic knowledge of measurement methods for fuels and lubricants

#### Skills

1. Can use technical terminology

2. Is able to draw conclusions from the results of experimental research on lubricants and fuels for means of transport

3. Is able to analyze technical solutions in the field of lubricants and fuels for means of transport

#### Social competences

1. Is aware of the importance of following the rules of professional ethics.

2. Understands the impact of combustion of fuels and lubricants on the natural environment

3. Is aware of the importance of collecting and utilizing used lubricants for means of transport

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

Learning outcomes presented above are verified as follows:

Written and oral exam

#### Programme content

Construction and production of lubricating oils and fuels.

Consumables for the automotive industry and industry.

Engine fuels.

Storage and distribution of engine fuels.

Fuel and lubricant tests for transport means.

Fuel and lubricant diagnosis systems.

#### Teaching methods

1. Lecture: multimedia presentation.

2. Laboratory exercises: carrying out the tasks given by the teacher - practical exercises

#### Bibliography

Basic

1. Górski K., Górski W., Napędy lotnicze. Materiały pędne i smary, Wydawnictwo Komunikacji i łączności, Warszawa - 1986



2. Zwierzycki W., Płyny eksploatacyjne do środków transportu drogowego, Wydawnictwo Politechniki Poznańskiej, Poznań - 2006

3. Czarny R., Smary plastyczne, Wyd. NT, Warszawa 2004

Additional

### Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	36	1,2
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	24	0,8

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