



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fuels and lubricants

	Course
Field of study	Year/Semester
Mechanical and Automotive Engineering	2/2
Area of study (specialization)	Profile of study
	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	15	
Tutorials	Projects/seminars	
0	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



Has knowledge of the principles of safety and ergonomics in the design and operation of machines and the threats that machines pose to the natural environment.

Has basic knowledge about selected technologies of machine works in agriculture, construction, transport, food industry, etc.

Has extended knowledge of the life cycle of machines, the principles of operation of working machines and destructive processes occurring during operation, such as tribological wear, corrosion, surface fatigue and volumetric aging of the material.

Skills

He can correctly select the optimal material and its processing technology for typical parts of working machines, taking into account the latest achievements in material engineering.

Can plan and carry out experimental research of specific processes taking place in machines and routine tests of a working machine or a vehicle from a selected group of machines.

He can design the technology of exploitation of a selected machine with a high degree of complexity.

Social competences

It is ready to initiate actions for the public interest.

Is willing to think and act in an entrepreneurial manner.

Is ready to fulfill professional roles responsibly, taking into account changing social needs, including:

- developing the professional achievements,
- maintaining the ethos of the profession,
- observing and developing the rules of professional ethics and acting towards the observance of these rules.

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	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	20	1,0

¹ delete or add other activities as appropriate