COURSE DESCRIPTION CARD - SYLLABUS

Course name
Fuels and lubricants [N2MiBP1>PiS]

Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
1/2

Area of study (specialization)
Heavy-duty Machines

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
9

Laboratory classes
9

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

prof. dr hab. inż. Wiesław Zwierzycki
wieslaw.zwierzycki@put.poznan.pl

Lecturers

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:

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.

Course topics

none

Teaching methods

1. Lecture: multimedia presentation.
2. Laboratory exercises: carrying out the tasks given by the teacher - practical exercises

Bibliography

Basic
1. Górska 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	30	2,00
Classes requiring direct contact with the teacher	18	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	12	1,00