

## POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS) pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

# **COURSE DESCRIPTION CARD - SYLLABUS**

Course name			
Fuels and lubricants			
Course			
Field of study		Year/Semester	
Aerospace Engineering		3/5	
Area of study (specialization)		Profile of study	
Aircraft engines and airframes		general academic	
Level of study		Course offered in	
First-cycle studies		Polish	
Form of study		Requirements	
full-time		compulsory	
Number of hours			
Lecture	Laboratory class	es Other (e.g. online)	
15	15		
Tutorials	Projects/semina	S	
Number of credit points 3			
Lecturers			
Responsible for the course/lecturer: prof. Wiesław Zwierzycki		Responsible for the course/lecturer: PhD Łukasz Wojciechowski	
email: wieslaw.zwierzycki@put.poznan.pl		email: lukasz.wojciechowski@put.poznan.pl	
tel.: 61 6652237		tel.: 61 6652376	
Institute of Working Machines and Motor Vehicles		Institute of Working Machines and Motor Vehicles	
ul. Piotrowo 3, 60-965 Poznań		ul. Piotrowo 3, 60-965 Poznań	

#### Prerequisites

Has knowledge about the construction and preparation of fuels, oils, greases (and specialized liquids) in aerial technology

#### **Course objective**

Understanding the basics of building, obtaining, properties and use of aerial fuels and lubricants

## **Course-related learning outcomes**

Knowledge



## POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS) pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

1. Has knowledge about the construction and preparation of fuels, oils, greases (and specialized liquids) in aerial technology -

2. Has knowledge about the aging of oils and greases in aerial technique and methods of diagnosing their condition -

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

Skills

- 1. Is able to use technical terminology
- 2. Can draw conclusions from the results of experimental research on lubricants and aerial fuels

3. Is able to analyze technical solutions in the field of aerial lubricants and fuels

Social competences

1. Is aware of the importance of maintaining the principles of professional ethics

2. Understands the impact of burning fuels and lubricants on the environment

3. Is aware of the importance of the collection and management of used lubricants in aerial technology.

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 lubricants and fuels.

Lubricants and fuels for the automotive and industry.

Motor fuels (automotive and aviation).

Warehousing and distribution of motor fuels.

Research on aerial fuels and lubricants.

Fuel and lubricant diagnosis systems.

Fuels and lubricants for aircrafts.

PART - 66 (THEORY - 11.25 hours, PRACTICE - 11.25 hours)

MODULE 16. PISTON ENGINE

16.8 Lubricants and fuels

Properties and specifications;

Fuel additives;

## POZNAN UNIVERSITY OF TECHNOLOGY



EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS) pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

## **Teaching methods**

#### **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	80	3,0
Classes requiring direct contact with the teacher	46	2,0
Student's own work (literature studies, preparation for laboratory	34	1,0
classes, preparation for tests <sup>1</sup>		

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