

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Oils, Fuels and Other Exploitation Materials for Motor Vehicles</b>		Code <b>1010611261010610213</b>
Field of study <b>Transport</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 6</b>
Elective path/specialty <b>Food Transport</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>1</b> Classes: <b>-</b> Laboratory: <b>1</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> prof. dr hab. inż. Wiesław Zwierzycki email: Wieslaw.Zwierzycki@put.poznan.pl tel. tel. 61-665 2236 Wydział Maszyn Roboczych i Transportu ul. Piotrowo 3 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Student has basic knowledge of chemistry, operation principle of combustion engine and industrial machines.
2	<b>Skills</b>	Student can learn from different knowledge sources.
3	<b>Social competencies</b>	Student understands the need for continuous learning.
<b>Assumptions and objectives of the course:</b> Basic knowledge of chemistry, production process, properties and exploitation of fuels and lubricants (and other exploitation fluids)		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Student has basic knowledge of chemistry and production process of mineral and synthetic oils. - [K1A_W03]		
2. Student knows properties and different kind of: engine oils, gear oils, other industry oils - [K1A_W03]		
<b>Skills:</b>		
1. Student knows properties and different kind of: engine oils, gear oils, other industry oils - [K1A_U01]		
2. Student can choose right lubricant to given device by working conditions and show the right replacement - [K1A_U17]		
<b>Social competencies:</b>		
1. Student is aware of importance of storage and management of used oils. - [K1A_K02]		
2. Student understands the influence of fuel combustion and ageing oils to environment. - [K1A_K06]		
<b>Assessment methods of study outcomes</b>		
Written and oral exam		
<b>Course description</b>		
Chemical structure and production process of mineral and synthetic oils. Lubricants used in automotive (engine oils, gear oils, greases). Other automotive exploitation fluids (brake fluids, coolants, vehicle windscreen washing fluids). Engine fuels (distribution problems). Industrial exploitation fluids (machine oils, compressors oils, turbines oils etc.). Ageing of exploitation fluids (diagnostics states). Exploitation fluids versus environmental.		

<b>Basic bibliography:</b>		
1. Zwierzycki W.: Oleje, paliwa i smary dla motoryzacji i przemysłu, Wyd. ITeE, Radom 2001 (486 str.) - również serwer Biblioteki PP - materiały dydaktyczne on-line.		
2. Zwierzycki W.: Płyny eksploatacyjne dla środków transportu drogowego. Charakterystyka funkcjonalna i ekologiczna. Wyd. Politechniki Poznańskiej, Poznań 2006 (333 str.)		
<b>Additional bibliography:</b>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Participation in lecture	15	
2. Consultations	5	
3. Exam preparedness	5	
4. Participation in exam	2	
5. Preparedness to laboratories	14	
6. Participation in laboratories	15	
7. Consultations	5	
8. Consolidation on lecture	3	
9. Preparedness to exam	8	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	72	3
Contact hours	42	2
Practical activities	30	1