

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Gas fuels transportation II</b>		Code <b>1010635321010634492</b>
Field of study <b>Transport</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 2</b>
Elective path/specialty <b>Engineering of Pipeline Transport</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>9</b> Classes: <b>9</b> Laboratory: <b>-</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> <b>Technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b>  dr inż. Rafał Ślefarski email: rafal.slefarski@put.poznan.pl tel. 616652218 Faculty of Transport Engineering ul. Piotrowo 3 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Knowledge about methods for analysis of thermodynamics iflow phenomena in transport process of geasous fuels. Knowledge about production, pretreatment and storage process of gaseous fuels. (PRK6)
2	<b>Skills</b>	The ability to analyze simple transport systems in terms of efficiency, flow phenomena and impact on the natural environment. (PRK6)
3	<b>Social competencies</b>	Awareness of the necessity to broaden the scope of acquired knowledge and skills. Ability to comply with the rules applicable during lecture and laboratory classes, ability to communicate with the closest environment during lectures and exercises and to perform work in a laboratory team (PRK6)
<b>Assumptions and objectives of the course:</b> To acquaint students with knowledge related to current gas markets, pricing and integration with green gas fuel production systems.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Has extended knowledge about selected pheomena in fird of transport engineering - [T2A_W03] 2. Knows the modern technics and tools used in solving of engineering problems, and scientific works in the engineering transport - [T2A_W06]		
<b>Skills:</b>		
1. Is able to integrate knowledge from various transport areas (and if necessary also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects during formulating and solving engineering tasks. - [T2A_U05] 2. Is able to use new conceptually methods for solving complex problems in the field of transport engineering, including atypical tasks and tasks containing a research components - [T2A_U10]		
<b>Social competencies:</b>		
1. Understands the importance of using the latest knowledge in the field of transport engineering in solving of research and practical problems - [T2A_K02] - [T2A_K02]		
<b>Assessment methods of study outcomes</b>		

<p>Lecture: the written examination                  The evaluation of student knowledge will be held based on an answers on 5 questions from the material presented during the lectures.                  Classes - evaluation reports made exercises and final test</p>		
<b>Course description</b>		
<p>Natural gas market, the functionality, international aspects of natural gas market, gas price prediction, production and transportation process of hydrogen, integration of gas network with green methane systems, design and calculation of gas reduction station for high and low pressure, underground gas reduction station</p>		
<b>Basic bibliography:</b>		
<p>1. Molenda J.: Gaz ziemny. Paliwo i surowiec, WNT, Warszawa                  2. Vademecum Gazownika, praca zbiorowa                  3. A. Osiadacz: Stacje gazowe, teoria i projektowanie</p>		
<b>Additional bibliography:</b>		
<p>1. Dobski, T.: Combustion Gases in Modern Technologies, 2scd Ed., Wydawnictwo Politechniki Poznańskiej</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Participation in the lecture	15	
2. Fixing the lecture	7	
3. Preparing to pass the lecture	7	
4. Participation in the completion of the lecture	2	
5. Preparation for the classes	10	
6. Participation in the classes	15	
7. Fixing the knowledge from classes	7	
8. Preparing to pass classes	7	
9. Participation in the completion of the lecture	2	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	62	3
Contact hours	32	2
Practical activities	30	1