

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Safety in transportation		Code 1010604311010601302
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 9 Classes: 9 Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: Adrian Gill email: adrian.gill@put.poznan.pl tel. 665 20 17 Transport Engineering Politechnika Poznańska		Responsible for subject / lecturer: Adrian Gill email: adrian.gill@put.poznan.pl tel. 665 20 17 Transport Engineering pl. M.Skłodowskiej-Curie 5
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	In mathematics, physics and the basis of probability within the limits set in college
2	Skills	can apply the scientific method to solve research problems
3	Social competencies	Knows the limits of their own knowledge and skills, able to clearly formulate questions, understands the need for further education, able to prioritize important in solving the tasks posed in front of him, show independence in solving problems, acquire and improve their knowledge and skills
Assumptions and objectives of the course: Learning the methods and practical skills to solve problems in the management of safety in transport		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has the knowledge of safety issues and risk management: basic concepts, the need for safety analysis, risk management methods; risk models known methods of risk analysis. Procedures for identifying sources of hazards and risks, risk assessment, risk evaluation; understands the issues of dealing with hazards and risk monitoring and risk communication - [K1A_W23]		
Skills:		
1. Is able to communicate using a variety of techniques in a professional environment and other environments using the results of risk analysis, concepts and definitions in the scope of the study area - [K1A_U02]		
2. Has the preparation required in industrial environment, knows safety rules for the job, is able to use for technical standards on unification, safety and recycling of machinery and equipment - [K1A_U08]		
3. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions - [K1A_U01]		
Social competencies:		
1. . Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions in short and long-term aspect - [K1A_K02]		
2. Is able to identify and resolve the dilemmas associated with the profession, among others. problems at the technology/environment level - [K1A_K06]		
3. Is aware of the transfer of knowledge to society, takes steps to ensure that the information is understandable - [K1A_K08]		

Assessment methods of study outcomes	
Final test	
Course description	
<p>The main issues of transport safety. Health hazards and lives of people of means of transport. The perception of human security in transport. Risk as a measure of hazards in transport. Conceptual apparatus associated risks. The overall risk management algorithm in transport. Methods of risk management. Qualitative methods of risk analysis. Quantitative methods of risk analysis. Risk assessment in transport. The limitations of risk. Source of the hazard in transport and examples of their analysis. A comprehensive emergency system to reduce the effects of hazards in land transport</p>	
Basic bibliography:	
<ol style="list-style-type: none"> 1. Analiza ryzyka w transporcie i przemyśle, pod redakcją Marka Młyńczaka, Navigator 6, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 1997 2. Bezpieczeństwo pracy i ergonomia, część 1 i 2, pod redakcją Danuty Koradeckiej, Wyd. Centralnego Instytutu Ochrony Pracy, Warszawa 1999 3. Gill, A., Warstwowe modele systemów bezpieczeństwa do zastosowań w transporcie szynowym [Layered models of safety systems for rail transport applications]. Wydawnictwo Politechniki Poznańskiej, Poznań, 2018. 4. Horst W., Ryzyko zawodowe na stanowisku pracy, część 1, Ergonomiczne czynniki ryzyka. Wydawnictwo Politechniki Poznańskiej, Poznań 2004 5. Jaźwiński J., Ważyńska-Fiok K., Bezpieczeństwo systemów. Wyd. Naukowe PWN, Warszawa, 1993 6. Kadziński. A., Gill A., Koncepcja implementacji metody TRANS-RISK do zarządzania ryzykiem w komunikacji tramwajowej, czasopismo Logistyka, nr 3/2011, wersja CD 7. Konieczny J., Zarządzanie w sytuacjach kryzysowych, wypadkach i katastrofach. Oficyna Wyd. GARMOND, Poznań ? Warszawa 2001 8. Markowski A.S. (red.), Zapobieganie stratom w przemyśle, część 3, Zarządzanie bezpieczeństwem procesowym. Wyd. Politechniki Łódzkiej, Łódź 2000 9. Radkowski S., Podstawy bezpiecznej techniki. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2003 10. Szopa T., Niezawodność i bezpieczeństwo. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2009 11. Szymanek A., Bezpieczeństwo i ryzyko w technice. Wyd. Politechniki Radomskiej, Radom 2006 12. Zintegrowany System Bezpieczeństwem Transportu. Tom 2. Uwarunkowania rozwoju integracji systemów bezpieczeństwa transportu. Redaktor pracy zbiorowej Krystek R., Politechnika Gdańska, Gdańsk 2009, WKŁ, Warszawa 2009 	
Additional bibliography:	
<ol style="list-style-type: none"> 1. Borysewicz M., Potemski S., Ryzyko poważnych awarii rurociągów przesyłowych substancji niebezpiecznych. Metody oceny. Wyd. Centralnego Instytutu Ochrony Pracy ? Państwowego Instytutu Badawczego, Warszawa 2002 2. Najmiec A., Widerszal-Bazyl M., Stres w pracy mechaników lotniczych, Zawody trudne i niebezpieczne, Bezpieczeństwo pracy nr 11/2006 3. Obora H., Metoda analizy błędów pracownika w układzie ergonomicznym HRA, Zeszyty Naukowe Akademii Ekonomicznej w Krakowie, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków 2004, nr 648, s. 77+89 4. Pihowicz W., Inżynieria bezpieczeństwa technicznego. Wydawnictwa Naukowo- Techniczne, Warszawa 2008 5. Skuza L., Co warto wiedzieć o ryzyku zawodowym. Wyd. Ośrodka Doradztwa i Doskonalenia Kadr, Gdańsk 2003 6. Terelak J.F., Człowiek i stres. Oficyna Wydawnicza BRANTA, Bydgoszcz-Warszawa 2008 	
Result of average student's workload	
Activity	Time (working hours)
1. Participation in the lecture	15
2. Strengthening the lecture	1
3. Consultation	1
4. Exam Preparation	6
5. Participation in the exam	2
6. Prepare for Training	2
7. Participation in exercises	15
8. Strengthening exercises content	1
9. Consultation	1
10. Preparing to pass	5
11. Participation in the completion	1
Student's workload	

Source of workload	hours	ECTS
Total workload	50	2
Contact hours	35	1
Practical activities	0	0