

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Threats results</b>		Code <b>1011101271011123003</b>
Field of study <b>Safety Engineering - Full-time studies - First-</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>4 / 7</b>
Elective path/specialty <b>-</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>15</b> Classes: <b>30</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>4</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		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b>  dr Jerzy S. Marcinkowski email: jerzy.s.marcinkowski@put.poznan.pl tel. tel. 61-6653408 ; 61 6653374 Wydział Inżynierii Zarządzania ul. Strzelecka 11,60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	A student has full knowledge of safety, occupational safety management, occupational risk and ways to manage it,
2	<b>Skills</b>	The student knows how to interpret the causes of arduousness, harm and hazard at work and work processes. The student knows the methods of diagnosis. The student is able to determine the effects of the work process caused by arduousness, hazards and danger at workplace
3	<b>Social competencies</b>	Students can follow the methods he got acquainted with as part of the course.
<b>Assumptions and objectives of the course:</b> The aim of the course is to familiarize students with the principles and methods of diagnosing risks and consequences of the working process.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. A student knows the importance of most dependencies that are applicable to a given discipline for Safety Engineering - [[K1A_W03] ] 2. The student has a structured, theoretically founded knowledge of the hazards, their impacts, risks and monitoring, identification and assessment of the events criticality that occur in the workplace - [[K1A_W09]] 3. The student knows the methods of risk assessment, threats modelling, proceeding in the face of threats and incidents, methodologies for assessing the criticality of events, determining the causes of accidents in the work environment and / or human life, health and safety costs - [[K1A_W21]]		
<b>Skills:</b>		

<p>1. Student can acquire, integrate, interpret data from literature, database or other properly matched sources, both in English or other foreign language accepted as an international language of communication within Safety Engineering, as well as to draw conclusions, formulate and justify opinions - [[K1A_U01]]</p> <p>2. Can create, both in English and Polish language, a well- documented report of problems within Safety Engineering, which present the results of their own research - [[K1A_U03]]</p> <p>3. Can prepare and give oral presentation relating to detailed issues within the realm of Safety Engineering in Polish and other foreign language. - [[K1A_U04]]</p> <p>4. . Can use analytical, simulation and experimental methods to formulate and solve engineering tasks - [[K1A_U09]]</p> <p>5. Can, while formulating and solving engineering tasks, discern their systemic and non-technical aspects and also socio-technical, organizational and economic approach - [[K1A_U10]]</p> <p>6. The student can, according to predetermined specifications design and implement a simple device, object, system or process, typical of Safety Engineering - [[K1A_U16.]]</p>
<p><b>Social competencies:</b></p> <p>1. Student is aware of and understands the importance and impact of non-technical aspects of engineering, including its impact on the environment and the associated accountability for the decisions - [[K1A_K02]]</p> <p>2. Student is fully aware of the responsibility that he has taken for his own work and expresses readiness to comply with the rules of team work as well as responsibility for mutually realized and completed tasks. - [[K2A_K3]]</p> <p>3. The student can determine some causal relationships in the process of targets implementation and rank pertinence of alternative or competitive tasks - [ [K2A_K4]]</p> <p>4. The student is aware of the social role of a technical college graduate, especially understands the need for the formulation and communication to the society - [[K1A_K07]]</p>

<p><b>Assessment methods of study outcomes</b></p>
<p>Formative assessment:</p> <p>Classes: on the basis of a report presentation</p> <p>Lectures: on the basis of oral answers for the questions connected with the presented material during current and previous lectures</p> <p>Collective assessment:</p> <p>Classes: grade for the presentation: classes</p> <p>Lectures: exam or a written pass in the form of answering 3-5 questions, from a set of questions that will be previously given; every answer is scored 1-3 point; credits will be given after achieving at least 5 points when answering 3 questions, and 8 point when giving answers to 5 questions.</p>
<p><b>Course description</b></p>
<p>1 The nature and the concept of risk.</p> <p>2 Environmental risks and occupational hazards.</p> <p>.1. What are work related, and what environmental health risks posed by chemicals.</p> <p>2.2. Environmental hazards</p> <p>2.3. Uncertainty factors of the effects of environmental hazards to a man.</p> <p>2.4. Need for assessment of the impact of occupational hazards to a man.</p> <p>3. Identification of occupational hazards in work processes</p> <p>4.Characteristics of mechanisms that are created during the damage caused by occupational hazards</p> <p>4.1. Internal causes (independent errors and dependent design and construction regulations),</p> <p>4.2. External causes (interaction of other technical objects, natural phenomena).</p> <p>5. The strategy of prevention and elimination of the causes of failures and technical objects disasters caused by hazards.</p> <p>6. Models of development and dealing with failures- events tree, tree damage, the matrix and the state vector</p>
<p><b>Basic bibliography:</b></p> <p>1. Jerzy S. Marcinkowski, Podstawy bezpieczeństwa pracy (Basics of occupational safety), Wyd. PP , Poznań, 2011</p> <p>2. Jerzy S. Marcinkowski i Wiesława M. Horst, Podstawy zarządzania bezpieczeństwem i zdrowiem w pracy ( Basic occupational health and safety management) ,Wyd. PP., Poznań, 2012</p> <p>3. Wiesława M. Horst (red.)Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy (Ergonomics with the elements of occupational safety and health) 4 tomy, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011</p> <p>4. .Leszek Pacholski( red.) Ergonomia (Ergonomics), Wyd. PP. Poznań, 1986</p>
<p><b>Additional bibliography:</b></p> <p>1. Jerzy S., Marcinkowski ,Auditowanie systemów zarządzania bezpieczeństwem pracy ( SZBP) (Auditing and occupational safety management systems (SZBP),Wyd. PP. Poznań, 2012</p> <p>2. Leszek Pietrzak, Analiza wypadków przy pracy dla potrzeb prewencji (Analysis of accidents at work for the prevention), Wyd. PIP GIP, Warszawa, 2007</p>

<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. . Participation in lectures	15	
2. Participation in classes	30	
3. Preparation for classes	15	
4. Preparation for a written credits- presentation (based on classes)	45	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	105	4
Contact hours	45	2
Practical activities	45	2