

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ergonomics		Code 1011104331011120136
Field of study Logistics - Part-time studies - First-cycle	Profile of study (general academic, practical) general academic	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 16 Classes: - Laboratory: 12 Project/seminars: -		No. of credits 5
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 5 100% 5 100%
Responsible for subject / lecturer: prof. dr hab. inż. Edwin Tytyk email: edwin.tytyk@put.poznan.pl tel. 61-665-33-77; 61-665-33-74 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań		Responsible for subject / lecturer: mgr inż. Anna Stasiuk-Piekarska email: anna.stasiuk-piekarska@put.poznan.pl tel. 61-665-33-79; 61-665-33-74 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge from secondary school about human being, work conditions problems and production technology area.
2	Skills	Can acquire data from literature, database or other properly matched sources, also in English
3	Social competencies	Can work in a group
Assumptions and objectives of the course: Acquainting students with some fundamental concepts of humanizing working conditions, in relation to the processes of activities management which are present in corrective and conceptual ergonomics. Ergonomicity of working conditions ought to be perceived by the students as a quality category, that guarantees better quality and effectiveness of work processes.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. has basic knowledge of equipment and machines life cycle - [K01-InzA_W01] 2. has basic knowledge of products life cycle - [K02-InzA_W01] 3. has basic knowledge of social-technical systems life cycle - [K03-InzA_W01] 4. knows fundamental methods, techniques, tools and materials that are applied in solving simple engineering tasks relating Management Engineering - [K04-InzA_W02] 5. has basic knowledge necessary to knowing non-technical knowledge... - [K05-InzA_W03] 6. knows typical industrial technologies - [K07-InzA_W05]		
Skills:		
1. can conduct a critical analysis of the ways in which technical solutions - [K01-InzA_U05] 2. can suggest improvements (advancements) of existing technical solutions that are characteristic of Engineering - [K01-InzA_W06] 3. can assess the utility of routine methods and tools for solving simple engineering tasks - [K01-InzA_W07]		
Social competencies:		
1. can come up with a suggestion how to make use of state-of-the-art technology (techniques and technology) within products design - [K01-InzA_K2]		

Assessment methods of study outcomes	
<p>Forming rating:</p> <ul style="list-style-type: none"> - in the scope of the laboratory: a report from each laboratory, 2 tests to check knowledge (one of the exercises performed in room 013, the second from the exercises performed in room 217); - in the area of ??lectures: activity cards. <p>Summary rating:</p> <ul style="list-style-type: none"> - in the laboratory scope: the average of the grades obtained from the testing tests and reports; - in the field of lectures: a test exam on theoretical issues. Issues are given at the last lecture. The test includes 25 questions, each answer (scored from 0-1 points), the sum of points is converted into a grade. The date of the exam set in the session. Students can use the consultation before the exam. 	
Course description	
<p>Genesis of ergonomics in terms of technology and science development. Science components and characteristics of ergonomics. Ergonomics vs. health and safety- economic aspects. Human-technical object system and his environment. Interpretation of a system as a workplace. Objectives and range of ergonomic activity. Current trends on ergonomic research. Methods of ergonomic diagnosing. Analysis of physical workload and thermal management of a body. Analysis of mental loads related to work. Load optimization rules. Mechanisms of perception and information processing. Selection rules for signalling and control equipment. Developing spatial parameters of workplace, machines and tools based on anthropometric data. Assessment and development of working environment (mechanical vibrations, noise, microclimate, lighting, harmful radiation, air pollution). Rules of ergonomic design. Examples of ergonomic design regarding mounting, dispatcher, computer based positions. Ergonomics in relation to elderly and disabled people.</p> <p>Teaching methods:</p> <ol style="list-style-type: none"> 1) Lecture - the method of giving: a monographic lecture with problem elements 2) Laboratory exercises - experimental and auditory method 	
Basic bibliography:	
<ol style="list-style-type: none"> 1. Ergonomia w technice (Ergonomics in technology) , Edwin Tytyk, Marcin Butlewski, Wydawnictwo Politechniki Poznańskie, Poznań , 2011 2. Projektowanie ergonomiczne (Ergonomic design), Edwin Tytyk, Wydawnictwo Naukowe PWN, Warszawa, 2001 3. Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne (Ergonomics design of workplaces), Ewa Górska, Edwin Tytyk, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998 4. Diagnoza ergonomiczna stanowisk pracy (Ergonomic diagnosis of workplaces), Ewa Górska, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998 5. Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy (Ergonomics with elements of safety and health protection at work). Wiesława Horst (red.), Wydawnictwo Politechniki Poznańskiej, Poznań, 2011 6. Diagnozowanie środowiska pracy (Diagnosing of work environment), Malgorzata Wejman, Wydawnictwo Politechniki Poznanskiej, Poznan, 2012 	
Additional bibliography:	
<ol style="list-style-type: none"> 1. Ryzyko zawodowe na stanowisku pracy. Ergonomiczne czynniki ryzyka (occupational risk. Ergonomical risk factors), Wiesława M. Horst. Wyd. PP, Poznań, 2004. 2. Atlas antropometryczny populacji polskiej (Anthropomorphic atlas of Polish population), Ewa Nowak, Wydawnictwo Instytutu Wzornictwa Przemysłowego, Warszawa, 2000 3. Ergonomia produktu. Ergonomiczne zasady projektowania produktów (Product ergonomics. Ergonomic rules for product design), Jan Jabłoński (red.), Wydawnictwo Politechniki Poznańskie, Poznań, 2006 4. Podstawy ergonomii i fizjologii pracy (Fundamentals of ergonomics and work physiology), Jerzy Olszewski, Wydawnictwo Akademii Ekonomicznej, Poznań, 1997 5. DzU 2009.105.869 Rozporządzenie Rady Ministrów z dnia 30 czerwca 2009 r. w sprawie chorób zawodowych 6. PN-EN ISO 7250-1:2010 Podstawowe wymiary ciała ludzkiego do projektowania technicznego - Część 1: Określanie wymiarów ciała ludzkiego oraz punkty odniesienia (oryg.) 	
Result of average student's workload	
Activity	Time (working hours)
1. Taking part in lectures	16
2. Taking part in laboratories	12
3. Preparing to laboratories	20
4. Preparing to writing and oral exam	20
5. Discuss of labor exercises and exam	10
6. Elaborating of labor reports	25

Student's workload		
Source of workload	hours	ECTS
Total workload	103	5
Contact hours	38	2
Practical activities	12	1