

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ergonomics		Code 1011101331011120136
Field of study Engineering Management - Full-time studies -	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - Laboratory: 30 Project/seminars: -		No. of credits 5
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		ECTS distribution (number and %)
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		
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		

Credits (based on laboratories) will be given on the basis of reports that include conducted analyses and measurements.
 Written test (based on lectures)

Course description

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.

Basic bibliography:

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. Diagnoza ergonomiczna stanowisk pracy (Ergonomic diagnosis of workplaces), Ewa Górską, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998
4. Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne (Ergonomics design of workplaces), Ewa Górską, Edwin Tytyk, 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), Małgorzata Wejman, Wydawnictwo Politechniki Poznańskiej, Poznań, 2012

Additional bibliography:

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. Total workload	80
2. Contact hours	60
3. Practical activities	30
4. Preparing to classes and lectures	15
5. Preparing to exam	5

Student's workload

Source of workload	hours	ECTS
Total workload	80	5
Contact hours	60	3
Practical activities	30	2