

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ergonomics and Safety		Code 1010615231010628540
Field of study Mechanical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 2 / 3
Elective path/specialty Heavy Machinery	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 9 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
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 %) 1 100% 1 100%
Responsible for subject / lecturer: Marek - Zablocki email: marek.zablocki@put.poznan.pl tel. 616652056 IT ul. Piotrowo 3		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	basic knowledge from the field of theory of machines, machine structure, science about man;
2	Skills	logical thinking, utilisation of information acquired from the library, Internet, standards, catalogues;
3	Social competencies	understanding the need of acquiring transferred knowledge;
Assumptions and objectives of the course: Gaining knowledge on the subject: significance of ergonomomy in the activities of engineers		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has knowledge about safety and ergonomics in the design and operation of the machines and the risks that machines create for the environment. - [K2A_W08]		
Skills: 1. Is able to perform a fairly complex design project of an average working machine or a subsystem using modern CAD tools, - [K2A_U07]		
Social competencies: 1. Understands the need for lifelong learning; is able to inspire and organize the learning process of others. - [K2A_K01] 2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment, is aware of responsibility for decisions. - [K2A_K02] 3. Is able to set priorities for realization of undertaken tasks. - [K2A_K04] 4. Is aware of social role of mechanical engineer, understands the need for and is able to deliver opinions and knowledge in the field of machine design, particularly through the media. - [K2A_K06]		
Assessment methods of study outcomes		
Course credits obtained on the basis of a colloquium		

Course description		
<p>Basic concepts: origins of ergonomics as a scientific discipline, legal protection of man; Position of ergonomic designing in the methodology of technical designing in machine construction (requirements in the process of technical designing); Anthropotechnical and sociotechnical systems, somatic and receptor interrelationships in the system; Analysis of anthropometric, biomechanical and psychic features and assisting design work in ergonomics: traditional approach and utilisation of CAD systems, motion capture devices or 3D scanning; Analysis of anthropometric and biomechanical features in virtual features; Detailed principles of product ergonomic designing in machine construction; Contemporary fields of ergonomic activity, e.g.: ergonomics for senior citizens and persons with disabilities; ergonomics of extreme works; ergonomics of leisure time and sport (design criteria, requirements, standardisation); Instances of knowledge integration in ergonomic designing: e.g.: typography and its significance for designing of signalling and controlling equipment; building engineering and the applied canons of human body; designing of forms of technical objects employing empirical investigations of somatic and receptor traits of the human body; Development trends in designing for needs of ergonomics.</p>		
<p>Basic bibliography:</p> <ol style="list-style-type: none"> Górska E.: Ergonomia, Wyd. Politechniki Warszawskiej, W-wa 2002 Ergonomia produktu. Ergonomiczne zasady projektowania produktów przemysłowych, praca zbiorowa pod redakcją J. Jabłońskiego, Wydawnictwo Politechniki Poznańskiej, Poznań 2006 Pacholski, L.: Ergonomia, Wydawnictwo Politechniki Poznańskiej, Poznań 1986 Tytek E.: Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Warszawa-Poznań 2001 Górska E.: Ergonomia, Wyd. Politechniki Warszawskiej, W-wa 2002 Ergonomia produktu. Ergonomiczne zasady projektowania produktów przemysłowych, praca zbiorowa pod redakcją J. Jabłońskiego, Wydawnictwo Politechniki Poznańskiej, Poznań 2006 Pacholski, L.: Ergonomia, Wydawnictwo Politechniki Poznańskiej, Poznań 1986 Tytek E.: Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Warszawa-Poznań 2001 		
<p>Additional bibliography:</p> <ol style="list-style-type: none"> Słowikowski J.: Metodologiczne problemy projektowania ergonomicznego w budowie maszyn, Wydawnictwo Centralny Instytut Ochrony Pracy, Warszawa 2000 Winkler T.: Komputerowo wspomaganie projektowanie systemów antropotechnicznych, WNT, Warszawa, 2005 Cooper R.: Rehabilitation Engineering Applied to Mobility and Manipulation, Institute of Physics Publishing Bristol and Philadelphia, Bristol 1995 Słowikowski J.: Metodologiczne problemy projektowania ergonomicznego w budowie maszyn, Wydawnictwo Centralny Instytut Ochrony Pracy, Warszawa 2000 Winkler T.: Komputerowo wspomaganie projektowanie systemów antropotechnicznych, WNT, Warszawa, 2005 Cooper R.: Rehabilitation Engineering Applied to Mobility and Manipulation, Institute of Physics Publishing Bristol and Philadelphia, Bristol 1995 		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for the lecture	1	
2. Participation in the lecture	15	
3. Fixing the content of the lecture	1	
4. Participation in consultations	1	
5. Preparation for the sentence	1	
6. Participation in passing the lecture	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	25	1
Contact hours	15	0
Practical activities	0	0