

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ergonomics in machine design		Code 1010601221010621277
Field of study Mechanical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
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: 1 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 technique;
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; importance of taking into consideration of somatic and receptor relations in the system man - technical object during the process of machine construction;		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Is up-to-date with the latest trends in mechanical engineering, i.e. increase in safety and ease of operation. - [K1A_W18] 2. Has a basic knowledge of the impact of technological change on the organization of social life, health and psyche of individuals in human-machine interactions. - [K1A_W21]		
Skills: 1. Is able use the languages: native and international at a level sufficient to enable understanding of technical texts and writing using dictionaries with technical descriptions of machines in their field technology (knowledge of technical terminology). - [K1A_U01] 2. Is able to obtain information from the literature, internet, databases and other sources. Can integrate the information to interpret and learn from them, create and justify opinions. - [K1A_U03] 3. Is able to prepare technical documentation (descriptive and graphic) of an engineering task. - [K1A_U04] 4. Has the ability to self-educate using modern teaching tools such as remote lectures, webpages and databases, educational software, electronic books. - [K1A_U06] 5. Is able to competently advise in the selection of equipment for a given application in the industry covered by chosen specialization, based on the acquired knowledge about an equipment group. - [K1A_U25]		
Social competencies:		

1. Understands the need and knows the possibilities of lifelong learning. - [K1A_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 and responsibility for own decisions. - [K1A_K02]
3. Is aware of the importance of behavior in a professional manner, compliance with the rules of professional ethics and respect for cultural diversity. - [K1A_K03]

Assessment methods of study outcomes

-Course credits obtained on the basis of evaluation of tasks carried out in groups

Course description

-Basic concepts: origin of ergonomics as a scientific discipline, legal protection of man; the system of man ? work ? environment; corrective and creative ergonomics of adjustment of the work environment to man;
 -Methodology of ergonomic evaluation of technical projects; somatic and receptor relationships and hazards in the anthropotechnical system;
 -Physiology of physical effort in ergonomics; anthropometric and biomechanical investigations of man and their computer modelling;
 -Work environment and hazards in machine construction (including: lighting, noise and microclimate); basics of designing of work-stands, e.g. computer stations;
 -Requirements and criteria of ergonomics and labour safety; possibilities of ergonomic computer systems; reproduction of man?s collision; reaching out with limbs and limb ranges in an anthropotechnical system on the basis of selected examples in machine construction;
 -Ergonomic form shaping of technical objects (principles of designing tools, processing stations, furniture etc.);
 -Detailed principles of product ergonomic designing in machine construction.

Basic bibliography:

1. Ergonomia produktu. Ergonomiczne zasady projektowania produktów przemysłowych, praca zbiorowa pod redakcją J. Jabłońskiego, Wydawnictwo Politechniki Poznańskiej, Poznań 2006
2. Górka E.: Ergonomia, Wyd. Politechniki Warszawskiej, W-wa 2002
3. Pacholski, L.: Ergonomia, Wydawnictwo Politechniki Poznańskiej, Poznań 1986
4. Tytyk E.: Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Warszawa-Poznań 2001

Additional bibliography:

1. Słowikowski J.: Metodologiczne problemy projektowania ergonomicznego w budowie maszyn, Wydawnictwo Centralny Instytut Ochrony Pracy, Warszawa 2000
2. Hempel L.: Człowiek i maszyna model techniczny współdziałania, WKŁ, Warszawa 1984

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	6
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