

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ergonomics in transportation		Code 1010625321010622232
Field of study Transport	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty Ecology of Transport	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, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	basic knowledge from the field of technique; 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 ergonomy in the activities of engineers; designing technical objects in transport with special attention being paid to somatic and receptor relations in the system man - technical object;		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has a structured, theoretically founded knowledge in the field of traffic engineering, knows analytical models of traffic flows, - [K2A_W05]		
2. Has a detailed knowledge of the technical operation, reliability and safety of systems, including: safety of technical systems - structural, functional and time surplus, reliability and security of man/technical object/environment systems. - [K2A_W16]		
Skills:		
1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions. - [K2A_U01]		
2. Has the ability to self-educate using modern teaching tools such as remote lectures, webpages and databases, educational software, electronic editions. - [K2A_U06]		
3. Is able to communicate using a variety of techniques in a professional environment and other environments using the formal record of the design, technical drawings, concepts and definitions in the scope of the study area. - [K2A_U02]		
Social competencies:		

1. Understands the need and knows the possibilities of lifelong learning, knows the need for acquiring new knowledge for professional development. - [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 and responsibility for own decisions in short and long-term aspect - [K2A_K02]
3. Is able to act in a professional manner, comply with the rules of professional ethics and respect for cultural diversity. - [K2A_K03]
4. Is able to identify and resolve the dilemmas associated with the profession, among others. problems at the technology/environment level. - [K2A_K06]

Assessment methods of study outcomes		
course credits obtained on the basis of evaluation of tasks carried out in groups		
Course description		
<p>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;</p> <p>Methodology of ergonomic evaluation of technical projects; somatic and receptor relationships and hazards in the anthropotechnical system;</p> <p>Physiology of physical effort in ergonomics; anthropometric and biomechanical investigations of man and their computer modelling;</p> <p>Work environment and hazards in machine construction (including: lighting, noise and microclimate); basics of designing of work-stands, e.g. work-station for a driver, computer station;</p> <p>Requirements and criteria of ergonomics and labour safety; possibilities of ergonomic computer systems as exemplified by the system: a driver -personal car; reproduction of man?s collision; reaching out with limbs and limb ranges; investigation of the correctness of distribution of comfort zones in an anthropotechnical system;</p> <p>Ergonomic form shaping of technical objects on selected examples from the field of transport;</p> <p>Selected contemporary directions of development of ergonomics: e.g.: designing means of mobility for persons with motor disabilities; specific examples of the application of ergonomics in transport;</p> <p>Detailed principles of product ergonomic designing in transport</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Górska E.: Ergonomia, Wyd. Politechniki Warszawskiej, W-wa 2002 2. Ergonomia produktu. Ergonomiczne zasady projektowania produktów przemysłowych, praca zbiorowa pod redakcją J. Jabłońskiego, Wydawnictwo Politechniki Poznańskiej, Poznań 2006 3. Pacholski, L.: Ergonomia, Wydawnictwo Politechniki Poznańskiej, Poznań 1986 4. Tytyk E.: Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Warszawa-Poznań 2001 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Słowikowski J.: Metodologiczne problemy projektowania ergonomicznego w budowie maszyn, Wydawnictwo Centralny Instytut Ochrony Pracy, Warszawa 2000 2. Winkler T.: Komputerowo wspomaganie projektowanie systemów antropotechnicznych, WNT, Warszawa, 2005 3. 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	2	
2. Participation in the lecture	9	
3. Fixing the content of the lecture	2	
4. Participation in consultations	1	
5. Preparation for the sentence	8	
6. Participation in passing the lecture	3	
Student's workload		
Source of workload	hours	ECTS
Total workload	25	1
Contact hours	15	0
Practical activities	0	0