STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Ergonomics in transportation**		Code **1010615321010622232**
Field of study **Transport**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 2**
Elective path/specialty **Refrigerated 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) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **1 100%** **1 100%**

Responsible for subject / lecturer:

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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

Basic concepts: origin of ergonomy as a scientific discipline, legal protection of man; the system of man ? work ? environment; corrective and creative ergonomy 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 ergonomy; 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. work-station for a driver, computer station;

Requirements and criteria of ergonomy 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;

Ergonomic form shaping of technical objects on selected examples from the field of transport;

Selected contemporary directions of development of ergonomy: e.g.: designing means of mobility for persons with motor disabilities; specific examples of the application of ergonomy in transport;

Detailed principles of product ergonomic designing in transport

Basic bibliography:

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:

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	9	0
Practical activities	0	0