POZNAN UNIVERSITY OF TECHNOLOGY

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Ergonomics [S1AiR1>Erg]

Course

Field of study	Year/Semester
Automatic Control and Robotics	1/1
Area of study (specialization)	Profile of study
–	practical
Level of study	Course offered in
first-cycle	polish
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	0	0
Tutorials	Projects/seminars	
0	0	

Number of credit points

2,00

Coordinators	Lecturers
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Prerequisites

Student has consolidate knowledge from natural science, mathematics and physics, taught in secondary school

Course objective

Presenting basic issues concerning ergonomics in modern companies, as well as automation and robotics engineering and in everyday private life. Giving patterns for solving problems concerning the formation of conditions at work with use of, for example, diagnostics and reduction of occupational risk and designing ergonomic solutions. Giving the examples of ergonomic solutions designing: work stands by production machines and by computers. Presenting relations between technique, human well-being, ecology, economy and sociology.

Course-related learning outcomes

Knowledge:
Student knows and understand the influence of the automation and robotics engineering to natural environment.
Student has the ordered knowledge necessary for the understanding conditions exceeding beyond

technical aspects, knows and understands the principles of Occupational Safety and Health which refer to the automation and robotics engineering.

Skills:
Student is aware - by formulating and solving tasks concerned the automation and robotics engineering - take into account their beyond technical aspects, i.e. environmental, economy and law.

Social competences:
Student is aware of the importance and comprehends of non-technical aspects of the automation and robotics engineering and their consequences, including the influence to the natural environment, work environment and the responsibility for decisions he makes, cooperate in activities for social and natural environments.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:
Written multi-choice test after full cycle of lectures.
Attestation threshold: over 50% corrected answers.
Checking of attendance in lectures.

Programme content

The genesis of the ergonomics issue on science and technology development context. Component sciences and character of ergonomics. Systems human-to-technical object as an example of a work-station. The assessment of the physical workload and thermal managing in human body. Processes of perception and transformation of information and the assessment of the psychical workload. The principles of choose a signalling and controlling device. Anthropometric data in designing machines and workspaces. The examples of technical and organizational solutions improving the ergonomic quality of machines and work conditions. The principle of optimization of burdens. Apparatus measurements and assessment of material parameters of the work environment (wibrations, noise, lighting, thermal conditions, air pollutions, harmful radiation, etc.). Examples of ergonomic designing of work stations: working, assembling, dispatching, computerized. The new ergonomic problems arising by applying a new technologies. Contemporary trends in ergonomic researches. Ergonomics for disabled people.

Teaching methods

Lectures with multimedial presentations.
Initiation discussions on themes connected with lecture subject.

Bibliography

Basic
1. Tytyk E., Ergonomia - pojęcia podstawowe. Tom 1. Pakietu edukacyjnego dla uczelni wyższych pt. Nauka o pracy - bezpieczeństwo, higiena, ergonomia. Red. naukowa: prof. Danuta Koradecka, Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 1999
2. Tytyk E., Butlewski M., Ergonomia w technice; Wydawnictwo Politechniki Poznańskiej, Poznań, 2011
3. Tytyk E., Bezpieczeństwo i higiena pracy, ergonomia i ochrona własności intelektualnych. Wydawnictwo Politechniki Poznańskiej, Poznań, 2017
4. Tytyk E., Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Warszawa, 2001
5. Wejman M., Diagnozowanie środowiska pracy. Wydawnictwo Politechniki Poznańskiej, Poznań, 2012
Additional
1. Górska E., Tytyk E., Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne; Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 1998
2. Górska E., Diagnoza ergonomiczna stanowisk pracy. Oficyna Wydawnicza Politechniki Warszawskiej, 1998
3. Horst W., Ryzyko zawodowe na stanowisku pracy, Cz. I. Wyd. Politechniki Poznańskiej, Poznań, 2004
4. Nowak E., Atlas antropometryczny populacji polskiej; Wydawnictwo Instytutu Wzornictwa Przemysłowego, Warszawa, 2000
5. Koradecka D. (red.), Bezpieczeństwo pracy i ergonomia (2 tomy); Wydawnictwo Centralnego Instytutu Ochrony Pracy, Warszawa, 1999

Breakdown of average student's workload

	Hours	ECTS
Total workload	27	2,00
Classes requiring direct contact with the teacher	15	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	12	1,00