STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Ergonomics of automated systems	**1011105211011100242**

Field of study	Profile of study (general academic, practical)	Year /Semester
Engineering Management - Part-time studies -	**(brak)**	**1 / 1**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Quality Systems and Ergonomics	**Polish**	**elective**

Cycle of study:	Form of study (full-time,part-time)
Second-cycle studies	**part-time**

No. of hours	No. of credits
Lecture: **12** Classes: **-** Laboratory: **-** Project/seminars: **-**	**2**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knows chosen description of methods and tools, including data acquisition techniques and modeling social structures and processes occurring in them
2	**Skills**	Has the ability to suggest own solutions of for determined problems and Carry out procedures to implement these solutions,
3	**Social competencies**	Is able to complete his knowledge and skills independently, knows how to enhance own knowledge with interdisciplinary aspect

Assumptions and objectives of the course:

Transfer of knowledge of the essence of the theoretical and practical aspects of diagnosis and design of ergonomic factors in technical objects.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has an extended knowledge about the human role in shaping the organizational culture and ethics in management - [K2A_W06]

Skills:

1. Can properly analyze the causes and the course of social and cultural processes (cultural, political, legal, economic), formulate their own opinions on the subject, and make simple research hypotheses and verify them - [K2A_U03]

2. It can predict and model complex social processes including phenomena from different areas of social life (cultural, political, legal, economic) using advanced methods and tools in the field of economic sciences and disciplines of management sciences. - [K2A_U04]

3. Has the ability to use the acquired knowledge in various fields and forms, extended by critical analysis of the effectiveness and usefulness of applied knowledge - [K2A_U06]

Social competencies:

1. He can see causal relationships in the achievement of goals and rank the significance of alternative or competitive tasks - [K2A_K03]

Assessment methods of study outcomes

Forming assessment:

lectures: on the basis of the answers to questions concerning the material from previous lectures,

Final assessment:

lectures: exam In form of a test.

Course description

Basic operational problems of technical systems. Models of the facility. Property of the facility. Impacts between exploitation objects and the environment. Hierarchical structure of operational data. Diagnosis of facilities. Diagnosis of automated industrial processes. Alarm systems. Defects of alarm systems. Detection methods. Locations of faults. Monitoring the state of objects. Information on facilities and processes. Types of information about objects and processes of exploitation. Hierarchical structure of operational data. Methodology of computer-aided engineering. Humanocentric approach to the design of complex social engineering systems. Characteristics of a human system - technical object - environment. The ergonomic subsystem as a resource of operational information. Ergonomic factors in workplace safety management. Reengineering of ergonomic processes for the operation of automated process equipment. Practical application of knowledge about human reliability. Division of functions between man and machine. The role of man in ensuring the reliability of the technical and social system. A cyclic model of ergonomic design of automated systems.

Didactic methods:

lectures: lecture, description, case studies, lecture discussion, metaplan;

Basic bibliography:

1. Ergonomia systemów zautomatyzowanych (Ergonomics of Automated Systems), M. Sławińska, Wyd. Politechniki Poznańskiej, Poznań 2008

2. Diagnostyka procesów. Modele, metody sztucznej inteligencji, zastosowania (Process Diagnostics. Models, Artificial Intelligence Methods, Applications), Red. J. Korbicz, J. J. M. Kościelny, Z. Kowalczuk i inni, Wyd. Naukowo-Techniczne, warszawa 2002.

3. Ergonomia wobec wymagań nowych technik i technologii (Ergonomics to the Requirements of New Techniques and Technologies), Red. M. Złowadzki, T. Juliszewski, H. Ogińska i inni, Wyd. Politechniki Krakowskiej, Kraków 2016.

4. Projektowanie ergonomiczne (Ergonomic Design), E.Tytyk PWN, Warszawa 2001.

Additional bibliography:

1. Niezawodność człowieka w interakcji z procesem przemysłowym (Human Reliability in Interaction with the Industrial Process), M.Sławińska, Wyd. Politechniki Poznańskiej, Poznań 2012.

2. User-System Interaction Design in IT Projects, M. Sikorski, Wyd. Politechniki Gdańskiej, Gdańsk 2011.

3. Psychologia pracy i organizacji (Psychology of Work and Organization), Rred. N. Chmiel, Gdańskie Wydawnictwo Psychologiczne, Gdański 2003.

Result of average student's workload

Activity	Time (working hours)
1. Lectures	12
2. Consultations	10
3. Final test ? written form	3
4. Preparation for classes	10
5. Preparation for the final test	10

Student’s workload

Source of workload	hours	ECTS
Total workload	45	2
Contact hours	25	1
Practical activities	0	0