



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Human ecology

Course

Field of study

Safety Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

English

Requirements

elective

Number of hours

Lecture

15

Tutorials

15

Laboratory classes

Projects/seminars

15

Other (e.g. online)

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Anna Stasiuk-Piekarska

Responsible for the course/lecturer:

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Faculty of Engineering Management

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Prerequisites

When starting this subject, the student should know the basic concepts of natural sciences, especially human sciences and the functioning of the natural environment (at the secondary school level). The student is able to interpret the phenomena occurring in the natural and work environment and their



influence on the functioning of the human body. Uses the known methods of researching phenomena and relations, and applies logical thinking to associate and evaluate them.

Course objective

Acquiring knowledge in the field of ecological sciences and macroergonomics by the student. Prepare him to make decisions causing environmental effects and changes in working conditions. The acquired knowledge, skills and competences will allow him to solve problems in the field of adapting work to the proper functioning of the human body and the requirements related to shaping a good quality of life, depending on the natural environment.

Course-related learning outcomes

Knowledge

1. The student has advanced knowledge of ergonomics, human ecology and environmental protection. [K1_W05]

Skills

1. The student is able to properly select the sources and information derived from them, making the assessment, critical analysis and synthesis of this information. [K1_U01]

2. The student is able to see system and non-technical aspects in engineering tasks, as well as socio-technical, organizational and economic aspects. [K1_U03]

3. The student is able to take part in the debate, to present the problem within the scope of safety engineering using appropriately selected means. [K1_U09]

4. The student is able to plan, organize and implement individual and team work and carry out experiments, including measurements and computer simulations, interpret the obtained results and draw conclusions. [K1_U11]

5. The student is able to identify changes in the requirements, standards, regulations and technical progress and the reality of the labor market, and on their basis determine the need for supplementing knowledge.[K1_U12]

Social competences

1. The student is able to see the cause-and-effect relationships in the implementation of the set goals and use the ranks in relation to the significance of alternative or competitive tasks.[K1_K01]

2. The student is aware of the importance of knowledge in solving problems in the field of safety engineering and continuous improvement.[K1_K02]

3. The student is aware of the understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for the decisions made. [K1_K03]

4. The student is aware of the responsibility for their own work and readiness to submit to the rules of teamwork and responsibility for jointly performed tasks. [K1_K07]



Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified on the basis of a final test prepared in the form of a test (the answers include: choosing one correct one from among several, supplementing a sentence with an appropriate concept or definition, or completing the definition). Assessment criteria, which form the basis of the questions, are passed on to students during the last lecture.

The skills acquired during the exercises are checked on an ongoing basis through reports on individual exercises. The final grade is the arithmetic mean of the scores for all reports.

The assessment of the project classes results from the assessment of the current progress in the implementation of the project stages, and the final - is issued on the basis of the form and quality of the project and its presentation to the group.

Passing on the first and second attempt min. 50% of all points.

Programme content

Lectures

Basic concepts of human ecology and ecology; relations between man and the environment (natural, work); relationships between human ecology and macroergonomics; man's workload and his psychophysical abilities; environmental conditions and the condition and functioning of the human body; environmental policy instruments: - ecological conditions, - legal instruments, - economic instruments, marketing instruments; management systems: - labor protection, - environment, - integrated, in enterprises.

Exercises

Computer simulations of phenomena related to contemporary environmental threats - waterfootprint, - - modeling of chemical hazards depending on weather parameters).

The impact of changes to the product version on the value of the eco-indicator.

Common applications of ergonomics and ecology to improve the working and living environment.

If possible, fieldwork (e.g. landfill, waste incineration plant, water treatment plant)

Project

Assessment of the environmental performance of a product using elements of the product life cycle.

Teaching methods

1. Information lecture with elements of dialogue, illustrated with multimedia presentations
2. Tutorials - computer simulations, EXCEL program, case study
3. Project - conducted by the method of case studies.



Bibliography

Basic

1. Bezpieczeństwo pracy i ergonomia, vol.1 and 2, Koradecka D. (ed.), CIOP, Warszawa, 1999
2. Budniak E., Mateja B., Sławińska M., Specyfika kompleksowego ujęcia edukacji w zakresie ergonomii w bezpieczeństwie pracy, ZNPP Zeszyt 69 (2016), Wydawnictwo Politechniki Poznańskiej, Poznań, 2016
3. Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy, vol.1 to 4, Horst W.M. (ed.), Wydawnictwo Politechniki Poznańskiej, Poznań, 2011
4. Jabłoński J., Wybrane problemy zarządzania środowiskowego, Wydawnictwo Politechniki Poznańskiej, Poznań, 1999
5. Mateja B., Ekologia. Wybrane zagadnienia, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011
6. Tytyk E., Projektowanie ergonomiczne, Wydawnictwo Naukowe PWN, Poznań, 2001
7. Wolański N., Ekologia człowieka, vol.1, Wydawnictwo Naukowe PWN, Warszawa 2006

Additional

1. Act of 27 April 2001, Environmental Protection Law, Journal of Laws, No. 62, item 627
2. Legal norms and acts indicated during classes
3. Dahlke G., Drzewiecka M., Stasiuk-Piekarska A.K., Pozasłuchowy wpływ elektrowni wiatrowych na człowieka [w:] Logistyka 5/2014, s. 290-300.
4. Stasiuk-Piekarska A., Drzewiecka M., Dahlke G., Influence of macroergonomic factors on production systems organizing in automotive industry [w:] Vink P. [red.], Advances in Social and Organizational Factors, ISBN 978-1-4951-2102-9, str. 194-205.
5. Piaskowski M., Stasiuk A., Application of eco-balance in area of logistics - a case study, [w:] Golińska P., Fertsch M., Marx-Gómez J., Information Technologies in Environmental Engineering, Berlin 2011 (ISBN 978-3-642-19536-5).
6. Stasiuk-Piekarska A., Włodarczyk A., Innovation in the pursuit of sustainable manufacturing, Proceedings of the 36th International Business Information Management Association (IBIMA), ISBN: 978-0-9998551-5-7, 4-5 November 2020, Granada, Spain., s. 7363-7370



Breakdown of average student's workload

	Hours	ECTS
Total workload	105	4,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for tutorials, preparation for tests, project preparation) ¹	60	2,0

¹ delete or add other activities as appropriate