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
part-time

Year/Semester
2/3
Profile of study
general academic
Course offered in
Polish
Requirements
elective

Number of hours

Lecture
10
Laboratory classes

Other (e.g. online)

Tutorials
10
Projects/seminars
14

Number of credit points

5

Lecturers

Responsible for the course/lecturer:
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Responsible for the course/lecturer:

Prerequisites

The student starting this course should be familiar with the basic concepts of natural sciences, especially

human sciences and the functioning of the natural environment (at secondary school level). The student can interpret phenomena occurring in the natural and working environment and their impact on the functioning of the human body. The student applies the acquired methods of studying phenomena and relationships and uses logical thinking to associate and evaluate them.

Course objective

Providing the student with knowledge related to ecological sciences and macroergonomics. Preparing the student to make decisions that lead to environmental effects and cause changes in working conditions. The acquired knowledge, skills and competences will allow the student to solve problems in the area of adapting work to the proper functioning of the human body and the requirements related to the formation of a good quality of life depending on the natural environment.

Course-related learning outcomes

Knowledge

1. The student knows issues related to ergonomics, human ecology and environmental protection. [P6S_WG_05]

Skills

1. The student can properly select sources and information derived from them, make an assessment, critical analysis and synthesis of this information. [P6S_UW_01]

2. The student can recognize in engineering tasks systemic, non-technical, socio-technical, organizational and economic aspects.[P6S_UW_03]

3. The student can present by means of properly selected measures a problem that fits the framework of safety engineering.[P6S_UK_01]

4. The student can plan and carry out experiments, including computer measurements and simulations, interpret obtained data and draw conclusions. [P6S_UO_01]

5. The student can identify changes in requirements, standards, regulations, technical progress and reality of the labour market and on their basis determine the needs for improving knowledge. [P6S_UU_01]

Social competences

1. The student can perceive cause-and-effect relationships in achieving goals and rank the significance of alternative or competitive tasks. [P6S_KK_01]

2. The student is aware of the importance of knowledge in solving problems in the field of safety engineering and of continuous improvement. [P6S_KK_02]

3. The student is aware of non-technical aspects and effects of engineering activity, including its environmental impact and the resulting responsibility for decisions taken. [P6S_KK_03]

4. The student is aware of the responsibility for his/her own work and shows willingness to follow rules of teamwork and to take responsibility for jointly accomplished tasks. [P6S_KR_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired as part of lectures is verified on the basis of the final course assessment test (tasks include choosing the correct answer one out of several available ones, filling in a sentence with an appropriate concept or term or providing a definition). Assessment issues constituting the basis of tasks are forwarded to students during the last lecture.

Skills acquired during tutorials are checked on an ongoing basis, through reports on individual assignments. The final grade is the arithmetic mean of the scores for all reports.

The grade for project classes results from the assessment of the progress of particular project stages, while the final grade is given on the basis of the form and quality of the project and its presentation in front of the group.

Passing threshold: 50% of points.

Programme content

Lectures

Basic concepts of ecology and human ecology; relationships between humans and the environment (natural, work); links between human ecology and macroergonomics; human workload and psychophysical possibilities; ambient conditions and the state and functioning of the human body; instruments of environmental policy: - ecological conditions, - legal instruments, - economic instruments, marketing instruments; management systems: - in labour protection, - in environment, - integrated, in enterprises

Tutorials

Computer simulations of phenomena associated with contemporary environmental hazards

- carbon footprint calculator,

- water footprint,

- modeling of chemical hazards depending on weather parameters.

Impact of product version changes on the value of the eco-indicator.

Mutual applications of ergonomics and ecology to improve the work and life environment

Project

Product environmental performance assessment using elements of the product life cycle.

Teaching methods

1. Informative lecture with elements of dialogue, illustrated with multimedia presentations

2. Tutorials - computer simulations, EXCEL program, case study

3. Project - conducted using the case method (case study).

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 [in:] 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 [in:] 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, [in:] 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	125	5,0
Classes requiring direct contact with the teacher	35	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) [1]	90	3,5

[1] delete or add other activities as appropriate