

SYLLABUS

Name: Environmental management in production engineering (ZIPOZ>SI7EMIP19S)

Name in Polish: Zarządzanie środowiskowe w inżynierii produkcji

Name in English: Environmental management in production engineering

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Bachelor's degree/full-time studies
Term:	winter semester 2022/2023
Coordinator of course edition:	Dr inż. Agnieszka Janik

Default type of course examination report:

Credit

Language:

English

Course homepage:

<https://platforma.polsl.pl/roz/course/view.php?id=1095>

ECTS

5

Short description:

The aim of the course is transfer of structured knowledge and acquisition of skills and competences in the field of basic issues related to theoretical and practical aspects of environmental management, including economic, technical and organizational aspects as well as environmental management strategies, tools and systems.

Description:

Lectures:

- (1) Definitions and importance of Environmental Management
- (2) The concept of sustainable development
- (3) Environmental management instruments. Responsibility of the entrepreneur towards the environment
- (4) Methods and tools of identifying and assessing the company's impact on the environment.
- (5) Normalization in environmental management
- (6) Requirements and guidelines for the implementation of the environmental management system according to ISO 14001
- (7) Eco-management and audit scheme (EMAS) and selected environmental voluntary agreements systems operating in Poland.
- (8) Environmental reporting and evaluation of environmental performance
- (9) Sustainable production. Circular economy model.
- (10) Sustainable consumption. Ecolabelling
- (11) Environmental protection expenditure accounts.
- (12) The value of the natural environment and methods of its valuation.
- (13) The system of financing activities in the field of environmental protection.

Practical lessons:

- (1) Systematics of the basic definitions and conceptions of environmental protection discussed in Ecology classes.
- (2) Environmental management instruments. Responsibility of the entrepreneur towards the environment
- (3) Methods of identifying and assessing the company's impact on the environment.
- (4) Assessment of the environmental performance of the organization
- (5) Circular economy model.
- (6) Environmental protection expenditure accounts

Project:

- Part 1. Characteristics of the selected company and its production process. Determining the scope of the EMS. Identification of input and output parameters of the selected production process.
- Part 2. Determining environmental aspects for selected company. Evaluation of the environmental aspects for selected company. Creating the environmental objectives and plans to achieve them for the selected company.
- Part 3. Evaluation of the risks and opportunities achieving the intended outcomes of the EMS by the selected company.
- Part 4. Creating the selected EMS instruction for the selected company
- Part 5. Presentation of the project results.

Number of hours of classes with the direct participation of academic teachers or other persons teaching courses and students:

Contact hours

- Lecture: 30h
- Practical classes: 15h
- Project: 15h

Student's own work

- Preparation for the final test: 15h
- Preparation for practical classes: 15h
- Preparation for performance of particular project tasks: 15h
- Preparation of a PowerPoint presentation showing the results of project tasks: 15h
- Consultation of project works: 30h

Total workload: 150

Number of ECTS credits: 5, including:

Number of ECTS credits covered by the study program to be earned as part of the courses taught with the direct participation of academic teachers or other persons teaching courses and students: 3

Bibliography:

- (1) Belcham A. (2015) Manual of Enviromental Management. Routledge Taylor & Francis Group, New York
- (2) Heras-Saizarbitoria, I. (2018) ISO 9001, ISO 14001 and New Management Standards Measuring Operations Performance. Springer International Publishing AG.
- (3) ISO 14001:2015 Environmental management systems — Requirements with guidance for use.
- (4) Naeem S., Knhan A.H. (2019) ISO 14001 Step by Step. A practical guide. IT Governance Publishing Ltd.
- (5) OECD, Sustainable manufacturing toolkit. Seven steps to environmental excellence www.oecd.org/innovation/green/toolkit
- (6) Janik A., Szafraniec M. (2019) Circular economy performance of EMAS organizations in Poland based on an analysis of environmental statements (w:) Hąbek P. (ed.): Multidisciplinary aspects of production engineering. Monograph. Social sciences. t. 2. Sciendo, Warsaw, p. 151-162.
- (7) Janik A., Ryszko A. (2019) Circular economy in companies: an analysis of selected indicators from a managerial perspective (w:) Hąbek P. (ed.): Multidisciplinary aspects of production engineering. Monograph. Social sciences. t. 2. Sciendo, Warsaw, p. 138-150.

Learning outcomes:

Knowledge

Student knows and understands:

K1A_W14 - the basic processes occurring in the life cycle of products, processes and technical systems

K1A_W17 - the principles, concepts and methods of environmental protection and environmental management

Skills

Student is able to:

K1A_U09 - analyze the life cycle of an object and use tools to support and evaluate its course

K1A_U10 - take into account the aspects of environmental protection and environmental management in the industrial environment and in surroundings of production systems.

Social competences

Student is ready for:

K1A_K06 - cultivate and disseminate patterns of proper conduct in the work environment and beyond, to make independent decisions and to critically evaluate his own actions, the actions of the teams he manages and the organizations he participates in and take responsibility for the effects of these actions

Assessment methods and assessment criteria:

Lecture

- Passing the lecture is based on a positive grade achieved in the written test (single choice test and open questions).
- It is possible to get additional points for the activity during the lecture.
- The condition for positive evaluation is receiving more than 50% obtainable points.
- It is possible to improve the written test twice, however, it is done orally.

Practical classes

- All exercises performed in practical classes are assessed.
- Exercises are assessed in terms of formal and content-related aspects.
- Exercises prepared incorrectly can be corrected ones.
- To pass the practical classes, it is required to pass all exercises for at least 2.0 points.

Project classes

- All project parts performed in practical classes are assessed.
- Project parts are assessed in terms of formal and content-related aspects.
- Project parts prepared incorrectly can be corrected ones.
- To pass the project classes, it is required to obtain more than 50% of the possible points.

The final grade is the arithmetic mean value of the grades for the lecture, practical classes and project classes

Practical placement: