COURSE DESCRIPTION CARD - SYLLABUS

Course name
Optimization of enterprise costs in closed circle economy [S1TOZ1>OKPwGoOZ]

Course

Field of study
Circular System Technologies

Year/Semester
3/5

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

Student should basic knowledge of environmental protection and economy, as well as the goals, principles of operation and organizational structure of the closed circle economy.

Course objective

To familiarize students with principles of operation of company in closed circle economy with particular emphasis on costs analysis and methods of optimization.

Course-related learning outcomes

Knowledge:
1. student knows the principles and methodology of economic evaluation of engineering activities [k_w16]
2. student knows the general principles of creating and developing forms of individual entrepreneurship [k_w25]
3. student knows the economic aspects of the functioning of the closed circle economy with their interrelationships [k_w05]

Skills:
1. student can interact with other people as part of work on circular system technologies and on an interdisciplinary nature [k_u09]
2. student analyzes and verifies the existing technical solutions in the field of circular system technologies [k_u11]
3. student is able to take part in the discussion, presenting and assessing opinions on circular system technologies [k_u07]
4. student can estimate the production costs in installations based on circular system technologies [k_u23]

Social competences:
1. student thinks and acts in an entrepreneurial way [k_k06]
2. student supports the idea of harmonious, global civilization and economic development, promoting the principles of closed circle economy, sustainable development and rational management of natural environment resources on a local and global scale [k_k09]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Knowledge acquired during the lectures will be verified during the exam containing 10-15 questions. Exam will be held in a stationary or remote form on Ekursy platform. Passing threshold: 55% of points.

Programme content

1. Models of closed circle economy.
2. Analysis of the cost structure in the production company:
- operational costs of the company (including administrative costs),
- employment costs,
- costs of production,
- logistics and distribution costs,
- interest costs.
3. Environmental life cycle costing and its comparison with traditional life cycle assessment. Integration of environmental and economic aspects.
4. Optimization of production costs (increasing production efficiency and sustainable waste management) through recovery and recycling, extending the product life, using a closed-loop supply chain.
5. Optimization of energy and other utilities costs.
6. Optimization of logistics and distribution costs as a tool supporting the sustainable development of the company.
7. The role of EMAS in the closed circle economy on the example of a selected manufacturing company.
8. Implementation of the closed circle economy idea on the example of bioethanol production.

Teaching methods

1. Multimedia presentation. Discussion.

Bibliography

Basic
1. Robert S. Kaplan, Robin Cooper, Zarządzanie kosztami i efektywnością, Oficyna Ekonomiczna, Kraków 2002
2. Edward Nowak, Analiza kosztów w ocenie działalności przedsiębiorstwa, CeDeWu, Warszawa 2016
3. Piotr Tomasz Mitkowski, Jacek Różański, Analiza ekonomiczna procesów przemysłowych, Wydawnictwo Politechniki Poznańskiej, Poznań 2012.
Additional
1. Kazimierz Sawicki, Analiza kosztów firmy, Polskie Wydawnictwo Ekonomiczne, Warszawa 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	38	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	37	1,50