



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Life cycle costing [S2MiBP1E-PE>RKCŹ]

Course

Field of study

Mechanical and Automotive Engineering

Year/Semester

2/3

Area of study (specialization)

Product Engineering

Profile of study

general academic

Level of study

second-cycle

Course offered in

english

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Knowledge: Basic knowledge of economics, business in industrial companies, the banking system, property law and accounting. Skills: Ability to obtain information from literature, the Internet, databases and other sources. Social competences: Ability to create a system diagram, select its elements and perform basic calculations. Awareness and understanding of the importance and impact of non-technical aspects of engineering activities.

Course objective

A detailed explanation of the economic aspects of the life cycle of technical facilities and preparing students for detailed and direct calculations of the life cycle costs of a selected facility, taking into account the principles of eco-efficiency.

Course-related learning outcomes

Knowledge

Has extended knowledge of mathematics in the field of numerical methods used in optimization tasks, computer simulation, linear algebra, interpolation and approximation.

Has general knowledge of standardization, EU recommendations and directives, national, industry and

international standards systems, and industrial standards.

Has knowledge of the principles of safety and ergonomics in the design and operation of machines and the threats that machines pose to the natural environment.

Skills

He can estimate the potential threats to the environment and people from the designed working machine and vehicle from a selected group.

Can interact with other people as part of teamwork and take a leading role in teams.

He is able to independently plan and implement his own learning throughout life and direct others in this regard.

Social competences

It is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment. It is ready to initiate actions for the public interest.

Is ready to fulfill professional roles responsibly, taking into account changing social needs, including:

- developing the professional achievements,
- maintaining the ethos of the profession,
- observing and developing the rules of professional ethics and acting towards the observance of these rules.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: writing test

Laboratories: individual exercises

Programme content

Technical object as an asset. Total cost of ownership over the asset's useful life. Typology of expenditure areas. Methods for calculating financial costs (LCCA, TCA, CBA). Environmental and social costs over the life cycle of technical facilities. Project evaluation and asset management. Green accounting. The concept of eco-efficiency and case studies from selected industries.

Teaching methods

Lecture with mulimedial presentation and prepare laboratory reports

Bibliography

Basic

1. Riggs, James L., Engineering economics. McGraw-Hill, New York, 2nd edition, 1982.

Additional

1. McDonough, William; Michael Braungart (2002). Cradle to Cradle: Remaking the Way We Make Things. North Point Press
2. Rogall H.: Economy of sustainable development. The theory and the practice. 2008

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00