



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Ecological Evaluation Tools [S2MiBP1E-PE>NOE]

Course

Field of study

Mechanical and Automotive Engineering

Year/Semester

1/1

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

15

Projects/seminars

0

Number of credit points

2,00

Coordinators

dr inż. Jędrzej Kasprzak

jedrzej.kasprzak@put.poznan.pl

Lecturers

dr inż. Jędrzej Kasprzak

jedrzej.kasprzak@put.poznan.pl

Prerequisites

Knowledge: Student has a basic knowledge about the questions of environmental impacts of technical objects and technologies, and environmental protection Skills: Student is able to use MS Word, Excel and PowerPoint software (or other similar). He can collect and transform information acquired from Internet or other digital or traditional sources Social competencies: Student is aware of the importance of human activities in relationship with the environment, he understands their general aspects and consequences. He can work in the workgroup, and clearly distribute the tasks. He can do the verbal presentation of the results obtained.

Course objective

Commitment and broadening the knowledge about the environmental impacts of technical objects. History, applications and methodological assumptions of the ecobalancing methods, especially the life cycle assessment (LCA) method. Commitment of the practical skills in the field of ecobalancing analyses preparation and use of the specific environmental software

Course-related learning outcomes

empty

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures – pass on the base of the control work (written test), tutorials and laboratories – submission of written report (PDF) and presentation of the results of the individual or group work.

Programme content

Terminology concerning ecobalancing and environmental issues. General questions related with the term of environment (structure, resources, threats). The life cycle of technical objects. History of ecobalances. Methodology of the ecobalances. Application and tools of ecobalances. The examples of the ecobalancing analyses with the particular consideration of the specificity of the operations, potential problems, interpretation. Simplified ecobalances. LCA as the component of LCM. Self-preparation of the environmental analysis of the chosen technical object.

Teaching methods

Lecture: multimedial presentation, illustrated with examples on the board

Tutorials and laboratories: individual exercises supported by the dedicated software, done under the supervision of subject caretaker

Bibliography

- 1) Lectures - multimedial presentations
- 2) ISO 14040:2009 Environmental management - Life cycle assessment - Principles and framework
- 3) ISO 14044:2009 Environmental management - Life cycle assessment - Requirements and guidelines
- 4) Goedkoop, M.; Spriensma, R.S., The Eco-indicator 99, a Damage oriented method for LCIA, Ministry VROM, the Hague 1999
- 5) Baumann H., Tillman A.: The Hitch Hiker's Guide to LCA. An orientation in life cycle assessment methodology and application Sweden, 2004, ISBN ISBN 91-44-02364-2
- 6) "The International Journal of Life Cycle Assessment" - review of the annuals

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00