



41051 Product life and environmental issues

2023/2024

Course information

Danish title	Produktliv og miljøforhold
Language of instruction	English
Point(ECTS)	5
Course type	BSc
Schedule	Autumn E1A (Mon 8-12)
Location	Campus Lyngby
Scope and form	Lectures, exercises and project work
Duration of Course	13 weeks
Date of examination	Multiple-choice exam in course week 07. Poster presentation in course week 08. Final written report in course week 13.
Type of assessment	Oral examination and reports Poster presentation (in groups) and Multiple-choice examination (individual) during the semester. Final written report related to an ecodesign task by the end of the course (individual). Poster presentation and Multiple choice exam are prerequisites for hand-in of final report. Overall assessment.
Exam duration	3 hours
Aid	All Aid : Multiple-choice is closed-book.
Evaluation	7 step scale , internal examiner
Previous Course	41627/42051
Not applicable together with	41627/42051
Recommended prerequisites	41011 / 41603 / 41020 , Students are required to have synthesis competencies equivalent to 41011 (former 41010), 41603 and/or 41020
Responsible	Daniela Cristina Antelmi Pigosso , Lyngby Campus, Building 404, Ph. (+45) 4525 6278 , danpi@dtu.dk
Course co-responsible	Tim C. McAloone , Lyngby Campus, Building 404, Ph. (+45) 4525 6270 , tmca@dtu.dk
Department	41 Department of Civil and Mechanical Engineering
Home page	http://www.kurser.dtu.dk/41051.asp...menulanguage=da
Registration Sign up	At the Studyplanner
Green challenge participation	This course gives the student an opportunity to prepare a project that may participate in DTU's Study Conference on sustainability, climate technology, and the environment (GRØN DYST). More information http://www.groendyst.dtu.dk/english

General course objectives

This course has the following main goals:

- To give insight into tools for handling environmental problems in connection with the design of products and product life systems
- To introduce environmental issues into the activity of product life design
- To identify and analyse relevant environmental and resource-related opportunities within Ecodesign
- To analyse product life cycles, especially with respect to the involvement of relevant stakeholders
- To use methodical tools for product life oriented design (DFX) with a particular focus on ecodesign
- To generate scenarios and strategies for the realisation of improved environmental situations, in relation to products and usage situations

Learning objectives

A student who has met the objectives of the course will be able to:

- Apply life cycle thinking and product life thinking
- Identify product life cycles, stakeholders, resource- and environmental goals
- Evaluate the process of environmentally-oriented product development
- Recognise and understand environmental and resource opportunities within Ecodesign
- Demonstrate knowledge of environmental regulation and other drivers, understanding their effect on the incorporation of environmental aspects into design processes
- Select and apply methods for the analysis of product life systems, e.g. MECO
- Select and apply methods for the modelling of the product life cycle, considering environmental performance as one of numerous product requirements
- Operate at various levels with respect to environmentally-oriented redesign; emissions, materials, process, production, product, consumption, system, etc.
- Reflect on environmental thinking in respect to the product development process of a company

Content

The course introduces the student to two essential areas for design, namely environmental thinking and product life design. Environmental problems are introduced to the students from both a historical and a future oriented perspective and the student is supplied with techniques for the mapping and design of product life cycles.

The course is theoretically based and has the aim that the student both understands and has a critical opinion of the taught theory, and furthermore makes an effort to supplement the theoretical basis material with additional sources.

The key methods and theories explored in the course are: sustainable development, corporate sustainability, circular economy, product life thinking, reference model for ecodesign, MECO matrix, ecodesign strategies and guidelines, and Environmental Management Systems.

Three tasks guide the students through the teaching syllabus and ensure that the students demonstrate their abilities to both understand and to further communicate the material.

- The first task is a multiple-choice examination, which tests the students' knowledge and understanding of the course syllabus.
- The second task requires the students to develop and present a poster with the environmental evaluation of a given product, with the goal of identifying the key requirements for the product redesign. This task is carried out as a group task.
- The third task is based around an evaluation of an ecodesign task. Each student receives a task description, which shall be evaluated within 3 hours. The students are evaluated according to their ability to submerge themselves in the theory, to evaluate the environmental contents and to give a critical evaluation of the task. This task is carried out as a single-person task.

CourseLiterature

Literature list delivered at course start

Last updated

