

SYLLABUS

Product, production and business development for circular flows 1.5 credits I7002A

Produkt-, produktions- och affärsutveckling för cirkulära flöden

Course syllabus admitted: Spring 2024 Sp 3 - Present

**DECISION DATE
2023-06-15**

Product, production and business development for circular flows 1.5 credits I7002A

Produkt-, produktions- och affärsutveckling för cirkulära flöden

Second cycle, I7002A

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	U G#	Produktinnovation	Mechanical Engineering

Entry requirements

Completed courses of at least 120 credits, of which at least 90 credits in a technical subject area, with at least the grade Pass, or equivalent knowledge. Good knowledge in English, equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

The aim of the course is to give the student a deeper understanding of product, production and business development for circular flows.

Upon completing the course, the student is expected to be able to:

Knowledge and understanding

- account for principles for circular economy in the manufacturing industry,
- report on the role of technology, innovation, creativity, and policy in facilitating circular economy for companies and organisations in the manufacturing industry,
- explain how product, production and business development for circular flows can be applied in practice in the manufacturing industry to obtain sustainability and resilience,

Competence and skills

- analyse circular flows in the manufacturing industry for maximum value with resource optimization and waste reduction,
- analyse how sustainable product design, closed-loop production systems, and circular economy-centric business models can contribute to companies' sustainable and resilient production,
- search, analyse and present information about the manufacturing company's challenges and opportunities of transitioning to a circular economy,
- apply methods that enhance innovation and creativity in organizations to provide conditions for circular economy in the manufacturing industry,
- individually and in groups present, motivate and discuss the relationship between product, production and business development for circular flows with focus on industrial resilience and sustainability, and

Judgement and approach

- evaluate and critically reflect on how product, production and business development can contribute to circular flows in the manufacturing industry in order to achieve resilience and sustainability.

Contents

In this course, the students will learn about the principles and practices of circular economy and how they apply to product, production, and business development. The overall aim of the course is an in-depth understanding of the application of various processes for development work of various kinds. The students will explore the concept of circular flows, where resources are kept in use for as long as possible, extracting the maximum value while minimizing waste and pollution.

The course will cover topics such as sustainable products, closed-loop production systems, and business models that promote circularity. The students will also learn about the role of technology, innovation, creativity, policy and legal aspect in creating prerequisites for a circular economy.

Throughout the course, the students will examine case studies of businesses and organizations that have implemented circular economy principles and consider the challenges and opportunities of transitioning to a circular economy. The students can also develop their own ideas for sustainable circular products and businesses.

By the end of the course, the students will have a solid understanding of circular economy and how it can be applied to product, production, and business development. The students will be equipped with the knowledge and skills to contribute to developing a more sustainable and circular economy.

The goal is that the students increase their ability to understand and apply development processes and increase their insight into how the processes relate to organizations' innovation and business strategies to obtain circular flows, resilience and sustainability in the manufacturing industry.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The course applies a combination of web-based lectures, seminars (webinars) and exercises that require active participation. The lectures provide initial exploration into the core subjects of the course, introducing participants to the concept of circular economy and its practical applications in product, production, and business development. Through the webinars and exercises, the students will develop skills in conducting and assessing implementation of circular economy principles, and engaging in discussions on opportunities and challenges related to product, production and business development for circular flows with focus on industrial resilience and sustainability.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. The examination consists active participation in seminars, submission of an individual written report, and oral presentation at the final seminar.

All included examination parts must be completed for the final grade on the course.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

Students must register for the courses themselves, or contact ETKS educational administration eduetks@ltu.se, no later than three days after the quarter commences. Failure to do so can result in the place being lost. This rule also applies to students with a guaranteed place.

Course offered by

Department of Social Sciences, Technology and Arts

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Seminars	U G#	1	Mandatory	S24	
0002	Written report	U G#	0.5	Mandatory	S24	

Syllabus established

by Director of Undergraduate Studies Daniel Örtqvist, Department of Social Sciences, Technology and Arts 2023-06-15