



## KURSPLAN

# Cirkulär Ekonomi, 7,5 högskolepoäng

*Circular Economy, 7.5 credits*

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<b>Kurskod:</b>	TCEN14	<b>Utbildningsnivå:</b>	Grundnivå
<b>Fastställd av:</b>	VD 2024-03-01	<b>Utbildningsområde:</b>	Tekniska området
<b>Reviderad av:</b>	2024-10-15	<b>Ämnesgrupp:</b>	IE1
<b>Gäller fr.o.m.:</b>	2025-08-01	<b>Fördjupning:</b>	G2F
<b>Version:</b>	2	<b>Huvudområde:</b>	Produktionssystem

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### Lärandemål

After a successful course, the student shall;

#### Kunskap och förståelse

- display knowledge of key principles and concepts of circular economy and sustainable supply chain and operations management.
- demonstrate comprehension of circular economy and sustainable supply chain and operations management approaches.
- demonstrate understanding of the application of circular economy and sustainable supply chain and operations management concepts in various industries.

#### Färdighet och förmåga

- demonstrate skills of identification and application of circular economy and sustainability principles and concepts in operations and supply chains.
- demonstrate the ability in speech and writing to clearly report and discuss circular economy and sustainability concepts in supply chains.
- demonstrate the ability to develop persuasive arguments for the adoption of circular economy and sustainable supply chain and operations management principles in industries.

#### Värderingsförmåga och förhållningssätt

- demonstrate the ability to assess and analyze real-world examples of circular economy and sustainable supply chain and operations management initiatives in various industries.
- demonstrate the ability to critically analyze the economic, environmental, and social impacts of adopting circular economy and sustainable supply chain operations practices and tools.
- demonstrate the ability to critically evaluate emerging technologies and their potential impact on circular economy and sustainable supply chain operations practices.

### Innehåll

The course covers the topics below in relation to principles and concepts of circular economy and sustainability in the context of supply chain and operations management.

The course includes the following elements:

- Introduction to circular economy and sustainable supply chain and operations management
- Circular economy and sustainable supply chain and operations management in industries and applications
- Policy and regulations (global and local, challenges and opportunities)
- Circular economy and sustainability (SDG's, social, economic, environmental impacts)
- Circular economy tools – life cycle approach and product life cycle management
- Circular economy and sustainability metrics and indicators
- Circular economy and Industry 4.0 (automation, digitalization, digitization)

### Undervisningsformer

Active learning and participation of students are encouraged; therefore, the course is designed to include seminars and assignments in connection with industry examples. Students are required to work in groups on case studies. The teaching consists of lectures, where concepts and frameworks are presented; seminars for discussion of journal articles and cases; exercises for opportunities to apply the tools and methodologies; and regular supervision to support the assignments.

Undervisningen bedrivs på engelska.

### Förkunskapskrav

Passed courses of at least 90 credits within the major subject Industrial Engineering and Management, Mechanical Engineering, Civil Engineering, Computer Engineering (or the equivalent), and 15 credits in mathematics.

Optional: Passed the one-week module of Summer School titled International Operations Management and Sustainability at Università Degli Studi Di Udine in Udine, Italy.

### Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The course is examined through group and individual assignments, and a written exam. In order to pass the course, the students need to be approved in all three parts: group and individual assignments, and written examination.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Tentamen <sup>I</sup>	3 hp	5/4/3/U
Inlämningsuppgift	4,5 hp	U/G

<sup>I</sup> Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

### Övrigt

All course information and communication throughout the course are managed through the education platform Canvas. Each student must register to participate in the Inespera examination.

### **Kurslitteratur**

The literature list for the course will be provided 8 weeks before the course starts.

Course book: Circular Economy in Engineering Design and Production – Concepts, Methods and Applications, Samira Keivanpour, Springer, 2024.

<https://link.springer.com/book/10.1007/978-3-031-44652-8>

A list of articles will be supplied at the course introduction.