JÖNKÖPING UNIVERSITY
School of Engineering

COURSE SYLLABUS

Circular Economy and Production, 7.5 credits

Cirkulär ekonomi och produktion, 7.5 högskolepoäng

Course Code:	TCES26	Education Cycle:	Second-cycle level
Confirmed:	Feb 01, 2025	Disciplinary domain:	Technology
Valid From:	Jan 19, 2026	Subject group:	Mechanical Engineering
		Specialised in:	A1F Second cycle, has second-cycle course/s as entry requirements
		Main field of study:	Production Systems

Intended Learning Outcomes (ILO)

On completion of the course the student shall:

Knowledge and understanding

- display knowledge of how sustainability aspects and circular economy concepts can be integrated into production development and product realization
- display knowledge of methods and tools for assessing and measuring sustainability and circularity in production.
- display knowledge of technologies that can support sustainability and circularity in production

Skills and abilities

- demonstrate skills to analyze different approaches for assessing sustainability and circularity in production, considering various production contexts
- demonstrate skills to describe and compare different models, methods, and tools and select the most appropriate one(s) for measuring sustainability and circularity in production
- demonstrate skills to describe different strategies for achieving sustainability and circularity in production and explain how these relate to a company's operations

Judgment and approach

- demonstrate the ability to explain circularity and sustainability in relation to production and their relevance to the long-term competitiveness of companies
- demonstrate the ability to reflect on the challenges and opportunities of sustainable development and circular economy and how these concepts impact production.

Content

The course provides in-depth insights and a comprehensive understanding of sustainability and circularity in production. It covers key concepts, aspects, and principles related to these topics. Participants will learn how to develop and assess production processes to minimize environmental impact, optimize resource efficiency, and contribute to long-term sustainability goals.

The course aims to equip students with the knowledge and skills needed to analyze, evaluate, and improve production processes using sustainability and circular economy principles. Additionally, it provides students with the tools and methods necessary to assess, measure, and implement sustainability and circularity practices in industrial production. The course also emphasizes the importance of technology and strategic decision-making in driving the transition toward achieving sustainability and circularity in production.

The course includes the following elements:

- Introduction to Sustainable Development and Circular Economy concepts and aspects

- Resilience, sustainability, and circularity in production
- Models, methods, and tools for measuring and assessing sustainability and circularity in production
- Strategies for achieving sustainability and circularity in production
- Technologies for supporting sustainability and circularity in production

Type of instruction

Lectures and seminars.

Language of instruction is in English.

Entry requirements

Passed courses at least 90 credits within the major subject in Mechanical Engineering, Industrial Engineering and Management or Civil Engineering, and 15 credits Mathematics, and taken course Sustainable Production Development, 7,5 credits (or the equivalent). Proof of English proficiency is required.

Examination and grades

The course is graded 5, 4, 3 or U.

Registration of examination:

Name of the Test	Value	Grading
Examination [1]	3.5 credits	5/4/3/U
Seminar	4 credits	G/U

[1]Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.