JÖNKÖPING UNIVERSITY
School of Engineering

COURSE SYLLABUS

Circular Production Systems, 7.5 credits

Cirkulära Produktionssystem, 7.5 högskolepoäng

Course Code:	T2CPPZ	Education Cycle:	Second-cycle level
Confirmed:	Sep 01, 2025	Disciplinary domain:	Technology
Valid From:	Jan 18, 2027	Subject group:	Mechanical Engineering
		Specialised in:	A1N Second cycle, has only first-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

- demonstrate comprehension of how sustainability and circularity principles can be integrated into production development.
- demonstrate comprehension of how circularity in production systems can be realized throughout the whole life cycle
- display knowledge of technologies that can support achieving sustainability and circularity in production.

Skills and abilities

- demonstrate skills of explaining and differentiating different models, methods, and tools for enhancing circularity in production.
- demonstrate skills of developing production systems by applying appropriate circularity strategies

Judgement and approach

- demonstrate the ability to evaluate circularity in production systems, considering various production contexts.

Content

The course provides in-depth insights and a comprehensive understanding of circular production systems. It covers key concepts, aspects, and principles related to prolonging the lifetime of products and production systems. Participants will learn how to develop and assess production systems 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 systems using circularity 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 circular production systems.

The course includes the following elements:

- Fundamentals of sustainable and circular production
- Models, methods, and tools for measuring, analyzing and improving circular production systems
- Evaluation of circularity in production system development
- Strategies for achieving circular production systems and its realization
- Technologies supporting sustainable and circular production

Type of instruction

Lectures and seminars.

Language of instruction is English.

Entry requirements

Passed courses of at least 150 credits in the program Industrial Product Realisation, or a bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Mechanical Engineering, Product Development, Materials Engineering, Manufacturing Engineering, Production Engineering, Industrial Engineering, Civil or Construction Engineering, Industrial Organization and Economics or equivalent. The bachelor's degree should comprise a minimum of 15 credits in Mathematics. Proof of English proficiency is required.

Examination and grades

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

The course's final grade consists of two components: written examination and seminars.

Registration of examination:

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