![Jönköping University — School of Engineering logo]

COURSE SYLLABUS

Production System Development, 7.5 credits

Utveckling av produktionssystem, 7.5 högskolepoäng

Course Code:	T2UAPD	Education Cycle:	Second-cycle level
Confirmed:	Sep 01, 2025	Disciplinary domain:	Technology
Valid From:	Aug 31, 2026	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 content and structure of a production system and its development
- display knowledge of operation and manufacturing strategies
- demonstrate comprehension of how production systems are realized and deployed through the whole life cycle
- demonstrate comprehension of key concepts related to equal conditions, gender equality, and diversity within the context of production system development

Skills and abilities

- demonstrate skills of describing, defining, and comparing production systems based on changeability concepts
- demonstrate skills of developing production systems by selecting and applying appropriate automation strategies

Judgement and approach

- demonstrate the ability to explain, evaluate and compare production system designs and their suitability for different production situations
- demonstrate the ability to evaluate sustainability principles in production development

Content

This course introduces key concepts and principles in production system development. A central theme is the design of production systems that can respond quickly to changes in product requirements and market demand while minimizing waste and resource use.

The course addresses strategies for production development, including the use of automation, and emphasizes their role in driving sustainable practices and long-term competitiveness for companies. Students will explore methods and frameworks for developing production systems that balance efficiency, flexibility, and sustainability.

Lean production principles are integrated, highlighting continuous improvement and the reduction of environmental impact. Circularity principles in production development and strategies for creating closed-loop systems are key components, ensuring that production processes contribute to a more sustainable future.

The course includes the following elements:

- Production system content and structure
- Production system development and realization
- Operation and manufacturing strategies
- Introduction to automation and automation strategies
- Lean production
- Changeable and reconfigurable production systems
- Sustainability and circularity in production systems
- Various technological choices' impact on the production system
- Equal conditions, gender equality, and diversity within production system development

Type of instruction

Lectures, seminars and exercises.

Language of instruction is English.

Entry requirements

The applicant must hold the minimum of 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.

Registration of examination:

Name of the Test	Value	Grading
Examination [1]	4 credits	5/4/3/U
Seminar	1.5 credits	G/U
Assignment	2 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.

Title: Introduction to Manufacturing, An industrial engineering management perspective
Authors: M. Baudin and T Netland
ISBN-13: 9780815363194