

COURSE SYLLABUS
Automation and Production Technology, 7.5 credits
Automation och produktionsteknik, 7.5 högskolepoäng

Course Code:	T2AOPC	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 automation systems and their components in production environments
- display knowledge of different types of automation solutions and advanced production technologies
- demonstrate comprehension of computer-integrated manufacturing principles and architectures

Skills and abilities

- demonstrate skills of analyzing operations in production systems and assessing them for automation potential
- demonstrate skills of designing conceptual automation solutions by combining production technologies and methodologies
- demonstrate the ability to evaluate automation-based solutions, including material handling systems, and technologies for assembly and manufacturing applications

Judgement and approach

- demonstrate the ability to evaluate production systems and suggest where automation can contribute to overall quality, productivity, and safety
- demonstrate an understanding of technical feasibility and implementation challenges in automation systems
- demonstrate the ability to assess the appropriateness of different automation technologies for specific production requirements

Content

This course covers the fundamental principles and applications of automation and production technology in modern manufacturing. It provides comprehensive theoretical foundation in automation systems, manufacturing processes, and computer-integrated production. Students develop understanding of automation technologies, system architectures, and their strategic implementation in industrial environments.

The course includes the following elements:

- Production systems and automation fundamentals
- Automation and control system architectures
- Material handling and identification technologies
- Quality control and inspection technologies

- Manufacturing support systems and computer-integrated manufacturing
- Emerging production technologies and digital manufacturing

Type of instruction

The course combines lectures, seminars, and project work. Lectures cover the theoretical foundations of automation within production and manufacturing systems. Students analyze real-world automation implementations through project work. Project work involves designing and analyzing automated production systems, including process flow design, component selection, economic justification, and risk assessment for comprehensive automation solutions. Seminars provide platforms for presenting analysis and discussing automation strategies and technologies.

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.

The final grade for the course is based upon a balanced set of assessments. The final grade will only be issued after satisfactory completion of all assessments.

Registration of examination:

Name of the Test	Value	Grading
Examination	2.5 credits	5/4/3/U
Project	2.5 credits	5/4/3/U
Seminar	2.5 credits	G/U

Other information

Exemption from entry requirement allowed according to the selection groups of the program, where the course is included.

Course literature

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