![Jönköping University — School of Engineering logo]

COURSE SYLLABUS

Automation and Production Technology, 7.5 credits

Automation och produktionsteknik, 7.5 högskolepoäng

Course Code:	TAPS22	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

- demonstrate comprehension of automation systems and their components in production
- demonstrate comprehension of identify production challenges and potential areas for applying automation in production systems
- display knowledge of how production development, automation solutions, and advanced technologies interact with one another in an efficient production system
- display knowledge of different types of automation solutions including advanced production technologies

Skills and abilities

- demonstrate skills of analysing operations in productions and assess them for automation implementation
- demonstrate skills of designing conceptual automation solutions by combining production technologies and via using different tools e.g., simulation
- demonstrate the ability to implement automation-based solutions and technologies within assembly and manufacturing

Judgment and approach

- demonstrate the ability to evaluate production systems and suggest where automation can contribute to the overall quality, productivity, and safety of productions.

Content

This course covers the principles and applications of automation and production technology in modern manufacturing. It includes the study of various automation solutions, automation hardware, industrial control systems, robotics, material handling, and automated production systems. The course also addresses the integration of automation with advanced production technologies and the analysis and design of automated production systems.

The course includes the following elements:

- Production systems and automation
- Automation and control technologies
- Material handling and identification
- Automation in assembly and quality control systems
- Manufacturing support systems and computer-integrated manufacturing

- Simulation of assembly stations utilizing robotic automation and other advanced technologies

Type of instruction

The course will be based on a combination of lectures, project work, and seminar. Lectures will cover the theoretical foundations of automation and production technologies. The students will practice programming and simulation of automation concepts for their project work in the laboratory. The seminar will be used as a platform for students to present and discuss their works on the project.

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, Computer Engineering or Civil Engineering and 15 credits Mathematics, and taken courses in Sustainable Production Development 7,5 credits and Applied Simulations in Productions 7,5 credits (or the equivalent). 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	3.5 credits	5/4/3/U
Project	2 credits	5/4/3/U
Seminar	2 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.

Title: Automation, Production Systems, and Computer-Integrated Manufacturing, Last Edition:
Author: Mikell P.
Publisher: International Edition by Groover
ISBN: 9780132070737 / 0132070731

Robot Programming and Simulation Software

Other resources: Course website with lecture notes, lab guides, and codes