



## COURSE SYLLABUS

# Automation and Production Technology, 7.5 credits

*Automation och produktionsteknik, 7,5 högskolepoäng*

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<b>Course Code:</b> TAPS22	<b>Education Cycle:</b> Second-cycle level
<b>Confirmed by:</b> Dean Mar 1, 2022	<b>Disciplinary domain:</b> Technology
<b>Valid From:</b> Aug 1, 2022	<b>Subject group:</b> MT1
<b>Version:</b> 1	<b>Specialised in:</b> A1F
	<b>Main field of study:</b> Production Systems

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### Intended Learning Outcomes (ILO)

After a successful course, the student shall

Knowledge and understanding

- demonstrate comprehension of common characteristics and challenges of automation in production
- display knowledge of different types of automation solutions including emerging production technologies
- display knowledge of how production development, automation solutions and production technologies interact for an efficient production system

Skills and abilities

- demonstrate the ability to analyze production tasks applicable for automation
- demonstrate the ability to design conceptual automation solutions by combining production technologies

Judgement and approach

- demonstrate the ability to reflect upon challenges and opportunities with implementation of automation solutions and production technologies in production systems.

### Contents

Within the area of increasing automation solutions and emerging production technologies in production systems there are several challenges as well as opportunities in order to manage to select technologies and develop an efficient, flexible and supportive production solution. In the course different types of automation strategies and emerging production technologies are explored and related to flexibility, cost efficiency and safety risk assessments.

The course includes the following elements:

- Introduction to different automation solutions, e.g dedicated versus flexible, robot or single axis movements, definition, grippers

- Selection of tasks possible to automate
- Technologies within automation, e.g. sensors, gripping technologies
- Production technologies
- Conceptual design of production cells utilizing automation and/or emerging production technologies.

### **Type of instruction**

Lectures, seminars and exercises.

The teaching is conducted in English.

### **Prerequisites**

Passed courses at least 90 credits within the major subject in Mechanical Engineering, Industrial Engineering and Management, Computer Engineering and Civil Engineering and 15 credits Mathematics, and completed course in Integrated Product Realization 7,5 credits and Production Development I - Strategy and System, 7,5 credits (or the equivalent). Proof of English proficiency is required.

### **Examination and grades**

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

Registration of examination:

Name of the Test	Value	Grading
Examination <sup>1</sup>	4 credits	5/4/3/U
Seminar	1.5 credits	U/G
Exercises	2 credits	U/G

<sup>1</sup> Determines the final grade of the course, which is issued only when all course units have been passed.

### **Other information**

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

### **Course literature**

The literature list for the course will be provided 8 weeks before the course starts.

Title: Automation, Production Systems, and Computer-Integrated Manufacturing, Last Edition:

Author: Mikell P.

Publisher: International Edition by Groover

ISBN: 9780132070737 / 0132070731