



## COURSE SYLLABUS

# Automation - Possibilities and Challenges, 5 credits

*Automation - möjligheter och utmaningar, 5 högskolepoäng*

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<b>Course Code:</b> TAUR21	<b>Education Cycle:</b> Second-cycle level
<b>Confirmed by:</b> Dean Mar 1, 2021	<b>Disciplinary domain:</b> Technology
<b>Revised by:</b> Director of Education Feb 16, 2021	<b>Subject group:</b> MT1
<b>Valid From:</b> Aug 1, 2021	<b>Specialised in:</b> A1N
<b>Version:</b> 1	<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 technologies
- display knowledge of how production development and automation solutions 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

Judgement and approach

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

### Contents

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

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, ...
- Conceptual design of automation task
- Benchmarking automation technologies

**Type of instruction**

Lectures, seminars, and exercises.

The teaching is conducted in English.

**Prerequisites**

The applicant must have 40 credits in the main field of study, Technology, and at least 2 years of relevant work experience in the industry (or the equivalent).

**Examination and grades**

The course is graded Fail (U) or Pass (G).

The final grade will only be issued after satisfactory completion of all assessments.

Registration of examination:

Name of the Test	Value	Grading
Exercise	2 credits	U/G
Seminar	3 credits	U/G

**Course literature**

The literature list for the course will be provided one month before the course starts.

Title: Automation, Production Systems, and Computer-Integrated Manufacturing (3rd Edition)

Author: Mikell P.Groover

Publisher: Pearson Education - Prentice Hall International

ISBN-13: 978-0-13-207073-7

ISBN-10: 0-13-207073-1

Other course material will be provided during the course.