



COURSE SYLLABUS

Automation - Possibilities and Challenges, 5 credits

Automation - möjligheter och utmaningar, 5 högskolepoäng

Course Code: TAUR20	Education Cycle: Second-cycle level
Confirmed by: Dean Mar 1, 2020	Disciplinary domain: Technology
Revised by: Apr 2, 2020	Subject group: MT1
Valid From: Aug 1, 2020	Specialised in: A1N
Version: 2	Main field of study: Production Systems

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 hold the minimum of a bachelor's degree (ie. the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Mechanical Engineering, Industrial Engineering and Management or Civil Engineering or equivalent, and 15 credits Mathematics. English Language requirements corresponding to English 6 in the Swedish upper secondary school (or the equivalent). The applicant must also have 1 year of qualified work experience. It is possible to apply for exemption from a bachelor's degree and 15 credits Mathematics if the applicant has at least 5 years of qualified work experience.

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.