

MICRO-418 **Robotics & the future of manufacturing I**

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Cursus	Sem.	Type
Managmt, dur et tech	MA1	Obl.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
Hours	2 weekly
Courses	2 weekly
Number of positions	

Summary

This course is an ideal learning platform to address the topics of robotics and manufacturing. The theoretical basics of robotics are introduced. Systems, specifications and performances are discussed to understand well the technology and the related applications of robotics and manufacturing

Content

- Introduction to robotics and manufacturing: classification, applications and impact
- Kinematics and dynamics
- Components: sensing and actuation
- Automation and robotics.
- Industry 4.0 for robotics and manufacturing

Keywords

Robotics, manufacturing, industrial applications, sensors, actuators

Learning Prerequisites**Required courses**

Basics of physics and dynamics

Learning Outcomes

By the end of the course, the student must be able to:

- Classify industrial robotics and manufacturing solutions
- Define industrial robotics and manufacturing solutions
- Analyze the requirements of a robotic platform
- Quantify the requirements of a robotic platform
- Specify the architecture of a robotic solution
- Construct the architecture of a robotic solution

Transversal skills

- Manage priorities.

- Take feedback (critique) and respond in an appropriate manner.
- Use both general and domain specific IT resources and tools

Teaching methods

courses and exercises

Assessment methods

Midterm 20%, final written exam 80%

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

Resources

Notes/Handbook

lecture notes on moodle

Moodle Link

- <https://moodle.epfl.ch/course/view.php?id=16645>