

MICRO-632

**Advanced micro-/nano- manufacturing**

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Cursus	Sem.	Type
Advanced Manufacturing		Opt.
Electrical Engineering		Opt.
Microsystems and Microelectronics		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Written
Workload	60h
<b>Hours</b>	<b>32</b>
Courses	20
Exercises	12
<b>Number of positions</b>	<b>30</b>

**Frequency**

Every year

**Summary**

This course contains lectures covering the latest research and development done in the field of micro-/nano-manufacturing methods and processes. It consists on an intensive 5 days training and is done in the framework of a collaboration between FEMTO-ST in France and EPFL.

**Content**

Each topic is covered in tandem by a professor from EPFL and FEMTO-ST.

The course location is in EPFL antenna in Neuchâtel.

The topics covered are:

- Laser micro/nano-manufacturing (François Courvoisier/Yves Bellouard)
- Micromachining Sensor & Actuators (Ausrine Bartasyte/Herb Shea)
- Micro/Nano-assembly (Salman Sakar/Cédric Clévy)
- Manufacturing of nano-optics (Olivier Martin/Yasin Ekinci from PSI)
- 3D Printing for materials and meta materials (Christophe Moser/Muamar Kadic)

Each lecture lasts 2x45min and is given by a specialist of the field.

Two networking events are planned, at the beginning and end of the week, respectively.

Examination is given in the form of short QCM after lecture day.

**Note**

The next course will take place from 16th to 20th June 2025.

**Keywords**

Micromanufacturing, 3D printing, laser manufacturing, micro-assembly, sensors and actuators

**Learning Outcomes**

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

- Discuss a comprehensive overview on the latest research work done in the field of micro-/nano- manufacturing
- understand what are the specifics related to making things at the smaller scale.

**Assessment methods**

Written examination

## Resources

### Moodle Link

- <https://go.epfl.ch/MICRO-632>