MICRO-632 **Advanced micro-/nano- manufacturing**

Various lecturers

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

| | |
|---|---|
| Language of teaching | English |
| Credits | 2 |
| Session | |
| Exam | Written |
| Workload | 60h |
| **Hours** | **30** |
| Courses | 20 |
| Exercises | 10 |
| **Number of positions** | **30** |

### Frequency

Every year

### Remark

June 19-23, 2023

### 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.

### Keywords

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

### Learning Prerequisites

#### Required courses

Some general knowledge related to micro-technologies

### 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