

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

Various lecturers

Cursus	Sem.	Type
Advanced Manufacturing		Opt.
Electrical Engineering		Obl.

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 13th - 17h 2022

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.