

MICRO-631

Selected topics in advanced manufacturing

Various lecturers (see below)

Cursus	Sem.	Type
Advanced Manufacturing		Opt.

Language of teaching	English
Credits	4
Session	
Exam	Written & Oral
Workload	120h
Hours	63
Lecture	30
Exercises	8
Practical work	25
Number of positions	25

Frequency

Every year

Summary

The course aims at providing a comprehensive overview of ongoing advanced manufacturing research topics and an opportunity for students to investigate current research trends in one particular topic of their choice.

Content

The core lectures will reflect the diversity of ongoing advanced manufacturing research at EPFL and will include selected topics in composites, metals, fibers, printing techniques, nano-scale fabrication, lasers-processing and stretchable electronics and interfaces. Lecturers will mainly be from the EPFL's program on advanced manufacturing.

The course will start on Monday 5th February and end on 12th February 2024, not included self-study and preparation time. The course format will be a lecture in the morning given by an expert in the field, followed by an afternoon session, where a team of students will present a topic they have selected for investigation and discussion in the class. Finally, an invited speaker will be invited to give a special lecture to end the course.

Students will then explore the current research trends related to this topic, up to a point where they are able write an review report about it.

This report shall give a comprehensive and critical overview about the subject. It will be presented during a two-hour session, where the participants of the class will discuss it and suggest improvements or amendments.

Once finalized, and so that this report becomes useful to a broader audience (beyond this class), the report will be added to an online Wikipedia-style repository about advanced manufacturing processes that will be gradually built as the course runs.

The presentation of the reports will be peer-reviewed by the students themselves (in addition to the evaluation by the professors) and the reports evaluated by the professors.

The lecturers are different every year.

Here is the list of lecturers contributions to the course in 2024:

- Roland Logé

- Fabien Sorin

- Daryl Yee

- Christophe Moser

- Véronique Michaud

- Jürgen Brugger
- Vivek Subramanian
- Jorge Madridwolff

Organizer/Coordinator: Prof. Yves Bellouard

Note

The course is open to maximum 20 students. It is advised to take this course during the 1st year of the PhD enrolment as the intent is to help the students performing a survey on a given research topic.

Keywords

Advanced manufacturing

Learning Prerequisites

Required courses

There are no prerequisite.

Learning Outcomes

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

- Explain the current research status in advanced manufacturing
- Present the current status of a research topic that he has identified of interest for the field of advanced manufacturing

Assessment methods

Written and oral examination

Resources

Moodle Link

- <https://go.epfl.ch/MICRO-631>