MSE-238

Structure of materials

Liebi Marianne, Sorin Fabien

Cursus	Sem.	Type
Materials Science and Engineering	BA4	Obl.

Language of teaching	English
Credits	3
Session	Summer
Semester	Spring
Exam	Written
Workload	90h
Weeks	14
Hours	**3 weekly**
Lecture	2 weekly
Exercises	1 weekly
Number of positions	

Summary

Introduction to materials structure including crystallography, the structure of amorphous materials such as glasses, polymers and biomaterials as well as the basics of characterization techniques.

Content

This course gives an introduction to materials structure with a first part on crystallography, followed by the study of the structure of amorphous materials such as glasses, polymers and biomaterials. We will also discuss the basics of characterization techniques for crystalline and amorphous structures, in particular diffraction and scattering techniques.

- Crystallography
- Glasses and liquid crystal
- Polymers
- Polymer composites
- Biomaterials
- Structural characterization of materials, including scattering and diffraction

Keywords

Material structure, crystallography, amorphous materials, polymers, structure characterization, diffraction, scattering

Learning Prerequisites

Required courses

Introduction to Materials Science
Analysis 1, 2 and 3
Linear Algebra 1General Chemistry

Teaching methods

Lectures (2h) and Exercises (1h)
The nature of the exercises will vary, depending on the topic at hand.

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

Resources

Moodle Link

- https://go.epfl.ch/MSE-238