

MSE-637(a)

**Transmission electron microscopy and diffraction (a)**

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<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Materials Science and Engineering		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Written
Workload	30h
<b>Hours</b>	<b>15</b>
Courses	12
Exercises	1
TP	2
<b>Number of positions</b>	<b>26</b>

**Frequency**

Every year

**Summary**

This intensive course is intended for researchers who envisage using transmission electron microscopy to study materials samples or to help them interpret TEM data in publications. It presents basics of TEM instrumentation, imaging, electron diffraction, specimen preparation and high-resolution TEM.

**Content**

This intensive course is intended for researchers who are potential new users of transmission electron microscopes for study of materials (i.e. all non-biological) samples. It will provide them with a basic understanding of the instruments, sample requirements, optics of TEM, electron diffraction, the imaging modes, high-resolution TEM, and related theories of image formation.

Demonstrations will be given on the microscopes.

2x Year Spring (b) and autumn (a)

**Keywords**

TEM, electron diffraction, high-resolution TEM

**Learning Prerequisites****Recommended courses**

Basic knowledge of crystallography and diffraction is advised

**Assessment methods**

Written

**Resources****Websites**

- <http://cime.epfl.ch/MSE-637>

**Moodle Link**

- [https://go.epfl.ch/MSE-637\\_a](https://go.epfl.ch/MSE-637_a)