Studies Plan

EDMX - Materials science and Engineering 2024-25

Core courses

Courses Language	Code	Section	Teacher	Exam	Credit
21Intro Scanning electron microscopy techniques *(Next time: November 26-29, 2024)*					
E	*MSE-609*	*EDMX*	*Maeder* *Michler*	*Written*	*1*
3D Electron Microscopy and FIB-Nanotomography					
E	*MSE-704*	*EDMX*	*Cantoni* *Navratilova*	*Project report*	*1*
Additive Manufacturing of Metals and Alloys *(It is technically possible to give the course online for external Doctoral Candidates, but not recommended. Discussions in class are preferable. Next time : Winter 2025)*					
E	*MSE-666*	*EDMX*	*Leinenbach* *Logé*	*Oral presentation*	*2*
CCMX Advanced Course - Advanced X-ray Diffraction Methods for Coatings: strain, defects and deformation analysis of thin films *(Next time: 2025)*					
E	*MSE-628*	*EDMX*	*Dommann* *Neels*	*Written*	*1*
CCMX Advanced Course - Instrumented Nanoindentation *(12-14 February, 2025)*					
E	*MSE-656*	*EDMX*	*Bourban* *Bushby* *Randall*	*Written*	*1*
CCMX - ScopeM Advanced Course - Advanced Characterization of Materials at the Micro, Nano and Atomic Scales *(November 4-7, 2024)*					
E	*MSE-655*	*EDMX*	*Alexander* *Seitz* *Various lecturers*	*Written*	*2*
CCMX Summer School - Characterisation of Materials *(September 3-6, 2024)*					
E	*MSE-805*	*EDMX*	*Igual Muñoz* *Michaud* *Oveisi* *Schouwink* *Various lecturers*	*Written*	*1*
CCMX Tribology and Surfaces Interactions *(Next time : 2025)*					
E	*MSE-667*	*EDMX*	*Igual Muñoz* *Mischler* *Molinari* *Various lecturers*	*Project report*	*2*
Computation, Modeling and Visualization *(Postponed until further notice)*					
E	*MSE-671*	*EDMX*	*Carter*	*Oral*	*1*
Crystal growth by epitaxy					
E	*MSE-649*	*EDMX*	*Fontcuberta i Morral*	*Multiple*	*2*
Crystallography of structural phase transformations *(Next time : 2025-26)*					
E	*MSE-651*	*EDMX*	*Cayron*	*Written*	*1*

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Effects of radiation on materials *(Next time: 2025)*					
E	*MSE-600*	*EDMX*	*Bertsch* *Dai* *Kuri* *Pouchon* *Schäublin* *Seifert* *Spaetig*	*Oral*	*2*
Electrochemistry in Corrosion Research *(Next time November 13-15, 2024 Registration on Metrohm website and by sending an email to stefano.mischler@epfl.ch)*					
E	*MSE-658*	*EDMX*	*Mischler* *Various lecturers*	*Project report*	*1*
Fundamentals of STEM Imaging and Spectroscopy					
E	*MSE-715*	*EDMX*	*Alexander* *Boureau* *Cantoni* *Invited lecturers* *Oveisi*	*Oral*	*2*
Laser Materials Processing					
E	*MSE-662*	*EDMX*	*Hoffmann* *Leinenbach*	*Oral*	*2*
Limestone-Calcined Clay - Cement : Characterisation methods (SPRING) *(Next time: February 10 to 13, 2025)*					
E	*MSE-660(b)*	*EDMX*	*Scrivener* *Various lecturers* *Zunino*	*Written*	*2*
Limestone-Calcined Clay - Cement : Characterisation methods *(Next time: September 2-5, 2024)*					
E	*MSE-660(a)*	*EDMX*	*Scrivener* *Various lecturers* *Zunino*	*Written*	*2*
LNM Workshop 2023 *(Next time : 2026-27)*					
E	*MSE-672*	*EDMX*	*Cozzo* *Dai* *Malgorzata* *Grazyna* *Pouchon*	*Oral presentation*	*1*
Multidisciplinary approach to NPs characterization					
E	*MSE-674*	*EDMX*	*Casati* *Lütz* *Bueno* *Mueller* *Testino*	*Written*	*1*
Nanofabrication with focused electron and ion beams *(Next time: November 13, 14, 18 and 20, 2024)*					
E	*MSE-619*	*EDMX*	*Hoffmann* *Utke*	*Oral presentation*	*2*
Nanoparticles: from fundamentals to applications					
E	*MSE-673*	*EDMX*	*Amstad* *Invited lecturers* *Leemans* *Stellacci*	*Oral presentation*	*2*
Non-destructive methods for industry and research *(Next time: November 4, 5, 7 and 8, 2024)*					
E	*MSE-668*	*EDMX*	*Hardy* *Parrilli*	*Oral presentation*	*2*
Optical Materials: Fundamental concepts and recent developments					
E	*MSE-643*	*EDMX*	*Sorin*	*Oral*	*1*
Powder Characterisation and Dispersion *(Postponed until further notice)*					
E	*MSE-709*	*EDMX*	*Sereda*	*Written*	*1*

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Powder Diffraction School - Modern Syncrotron Methods *(Next time: 2025)*					
E	*MSE-663*	*EDMX*	*Casati Testino Van Petegem Various lecturers*	*Oral*	*2*
Scanning and Analytical Transmission Electron Microscopy					
E	*MSE-735*	*EDMX*	*Boureau Cantoni Oveisi Reyes*	*Oral presentation*	*1*
Scanning electron microscopy techniques (a) *(Next time: October 7-9, 2024)*					
E	*MSE-636(a)*	*EDMX*	*Cantoni Navratilova Oveisi*	*Written*	*1*
Scanning electron microscopy techniques (b)					
E	*MSE-636(b)*	*EDMX*	*Cantoni Navratilova Oveisi*	*Written*	*1*
Science and technology of UV-induced polymerization					
E	*MSE-703*	*EDMX*	*Dalle Vacche Leterrier Nouzille Sangermano*	*Term paper*	*1*
Statistical methods in atomistic computer simulations *(Next time: Spring 2025 Online attendance is discouraged, but exceptions can be discussed on a case by case basis for external Doctoral Candidates)*					
E	*MSE-639*	*EDMX*	*Ceriotti*	*Project report*	*2*
Thin film and small scale mechanics *(Next time: November 12-15, 2024)*					
E	*MSE-669*	*EDMX*	*Michler Schwiedrzik*	*Written*	*2*
Transmission electron microscopy and diffraction (a) *(Next time: October 28-30, 2024)*					
E	*MSE-637(a)*	*EDMX*	*Boureau Cantoni Oveisi*	*Written*	*1*
Transmission electron microscopy and diffraction (b)					
E	*MSE-637(b)*	*EDMX*	*Boureau Cantoni Oveisi*	*Written*	*1*
X-Ray Analysis for thin films *(Next time: October 1-4, 2024)*					
E	*MSE-627*	*EDMX*	*Dommann Maeder*	*Written*	*2*

Other doctoral courses (EDOC)

Courses *Language*	*Code*	*Section*	*Teacher*	***Exam***	***Credit***
Lecture series on scientific machine learning *(Next time: Fall 2024)*					
E	*PHYS-754*	*EDPY*	*Bitbol Carleo Ceriotti Harvey Mathis Schwaller Zdeborová*	*Oral presentation*	*2*

Master courses

Courses *Language*	*Code*	*Section*	*Teacher*	***Exam***	***Credit***
Advanced ceramic technologies					
E	*MSE-495*	*MX*	*Stuer Testino*	*Oral*	*3*

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Charge transport in energy conversion and storage					
E	*MSE-496*	*MX*	*Battaglia*	*Written*	*4*
Error control in scientific modelling					
E	*MATH-500*	*MA*	*Herbst*	*Oral*	*5*
Material science at large scale facilities					
E	*MSE-435*	*MX*	*Liebi Van Petegem*	*Oral*	*3*
Quantum materials: fundamentals and applications					
E	*MSE-494*	*MX*	*Jotzu*	*Oral*	*4*
Seminar series on advances in materials (autumn) *(You are most welcome to follow the seminar series each semester. However, you can only obtain ECTS credit points during one single semester.)*					
E	*MSE-470(a)*	*MX*	*Abitbol Jotzu*	*Written*	*2*
Seminar series on advances in materials (spring) *(You are most welcome to follow the seminar series each semester. However, you can only obtain ECTS credit points during one single semester.)*					
E	*MSE-470(b)*	*MX*	*Jotzu Vacat*	*Written*	*2*

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