

## Studies Plan

### EDCE - Civil and Environmental Engineering 2023-24

#### Core courses

<b>Courses</b>				<b>Exam</b>	<b>Credit</b>
<i>Language Code</i>	<i>Section</i>	<i>Teacher</i>			
<b>Ecological economics</b> (Next time: Spring 2025, Min. 5 participants)					
E	ENV-610	EDCE	Thalmann Vielle Vöhringer	Written	2
<b>Frontiers of Deep Learning for Engineers</b> (Doing a PhD in deep learning is a pre-requisite. Next time Fall 2023, max 15 part. Priority to EDCE and EDRS students. Registration link available below under "Notes".)					
E	CIVIL-611	EDCE	Alahi Fink Tuia	Oral presentation	4
<b>Hands-on bioinformatics for microbial meta-omics</b> (You will need to install software on your laptop to be able to participate in this course. The second half of the course will take place Jan 29th - Feb 2nd 2024. )					
E	ENV-621	EDCE	Altshuler Bell Bernier-Latmani Carratala Ripolles	Oral presentation	3
<b>Inference for large-scale time series with application to sensor fusion</b> (Next time: Spring 2025, block course)					
E	CIVIL-606	EDCE	Guerrier Skaloud	Oral presentation	2
<b>Models for applied environmental economics</b> (Next time: Spring 2025, Min. 5 persons )					
E	ENV-723	EDCE	Vöhringer	Oral presentation	1
<b>Optimization and simulation</b> (Next time: Spring 2024)					
E	MATH-600	EDCE	Bierlaire	Multiple	4
<b>Performance-based earthquake engineering</b> (Cancelled 2023-2024, next time : TBD)					
E	CIVIL-714	EDCE	Lignos	Project report	3
<b>Scientific programming for Engineers</b> (Next time: Fall 2023)					
E	MATH-611	EDCE	Anciaux	Project report	4
<b>Selected Topics on Advanced Composites in Engineering Structures</b> (Next time: Fall 2024, Min. 7 persons )					
E	CIVIL-705	EDCE	Vassilopoulos	Multiple	2
<b>UHPFRC for structures - Fundamentals &amp; Properties</b> (Next time : Fall 2024 )					
E	CIVIL-708	EDCE	Denarié	Oral	4
<b>Other doctoral courses (EDOC)</b>					
<b>Courses</b>				<b>Exam</b>	<b>Credit</b>
<i>Language Code</i>	<i>Section</i>	<i>Teacher</i>			
<b>Design of experiments (a) - Fall semester</b> (Next time : Fall 2024)					
E	ENG-606(a)	EDRS	Fuerbringer	Project report	4
<b>Machine Learning for Engineers</b> (Next time: Fall 2025)					
E	EE-613	EDEE	Calinon Canévet Odobez Villamizar	Multiple	4

#### External courses

<b>Courses</b>			<b>Exam</b>	<b>Credit</b>	
Language Code	Section	Teacher			
<b>Ecohydrology: From field data to process modeling</b>					
<i>(Registration via <a href="https://hyd.ifu.ethz.ch/education/Ecohydrology-Summer-School.html">https://hyd.ifu.ethz.ch/education/Ecohydrology-Summer-School.html</a>)</i>					
E	ENV-800	EDCE	Bonetti	Oral	1
<b>Snow Science Winter School (WSL)</b>					
<i>(Next time: Feb. 2024. For registration, see website )</i>					
E	ENV-617	EDCE	Löwe Various lecturers	Project report	3
<b>Summer School: Forests in the Anthropocene</b>					
<i>(Next time: 18 - 25th August 2024 in Davos Hotel Shima, Max 10 part. Registration : <a href="https://swissforestlab.wsl.ch/en/events-and-outreach/summer-school/2024/">https://swissforestlab.wsl.ch/en/events-and-outreach/summer-school/2024/</a>)</i>					
E	ENV-619	EDCE	Grossiord Invited lecturers	Oral	3
<b>Winter School on Optimization and Operations Research (I)</b>					
<i>(January 14-19, 2024 in Zinal, Information and registration via website below)</i>					
E	MATH-801(1)	EDCE	Bierlaire Various lecturers	Oral	1
<b>Winter School on Optimization and Operations Research (II)</b>					
<i>(January 14-19, 2024 in Zinal, Information and registration via website below)</i>					
E	MATH-801(2)	EDCE	Bierlaire Various lecturers	Project report	2

#### Master courses

<b>Courses</b>			<b>Exam</b>	<b>Credit</b>	
Language Code	Section	Teacher			
<b>Advanced composites in engineering structures</b>					
E	CIVIL-443	AR	Vassilopoulos	Oral	3
<b>Air pollution</b>					
E	ENV-409	SIE	Reimann Bhend Takahama	Written	5
<b>Applied data analysis</b>					
E	CS-401	SC	West	Written	8
<b>Applied machine learning</b>					
E	MICRO-455	MT	Billard	Written	4
<b>Biostatistics</b>					
E	MATH-449	MA	Stensrud	Written	5
<b>Composites design and innovation</b>					
E	CIVIL-464	GC	Molinari Vassilopoulos	Oral	3
<b>Deep learning</b>					
E	EE-559	EL	Cavallaro	During the semester	4
<b>Distributed information systems</b>					
E	CS-423	SC	Aberer	Written	6
<b>Engineering of existing structures</b>					
E	CIVIL-511	GC	Denarié Nussbaumer	Oral	4
<b>Fate and behaviour of environmental contaminants</b>					
E	ENV-507	SIE	Aeppli	During the semester	4
<b>Image analysis and pattern recognition</b>					
E	EE-451	EL	Bozorgtabar Thiran	During the semester	4
<b>Image processing for Earth observation</b>					
E	ENV-540	SIE	Tuia	During the semester	4
<b>Machine learning</b>					
E	CS-433	IN	Flammarion Jaggi	Written	8

<b>Mathematical modelling of behavior</b>					
E	MATH-463	MA	Bierlaire	Written	5
<b>Multivariate statistics in R</b>					
E	ENV-513	SIE	Peter	Written	4
<b>Science of climate change</b>					
E	ENV-410	MTE	Schmale	Written	4
<b>Selected topics in mechanics of solids and structures</b> (Pas donné en 2023-24 - Cours biennal donné une année sur deux)					
E	CIVIL-527	GC		Oral	3
<b>Sensing and spatial modeling for earth observation</b>					
E	ENV-408	SIE	Berne Skaloud Tuia	Written	5
<b>Structural stability</b>					
E	CIVIL-369	GC	Heredia Rosa Lignos Sousa	Written	4
<b>Systems for data management and data science</b>					
E	CS-460	IN	Ailamaki Kerमारrec	Written	8
<b>Understanding statistics and experimental design</b>					
E	BIO-449	SV	Herzog	Written	4
<b>Visual intelligence : machines and minds</b>					
E	CS-503	IN	Zamir	During the semester	6
<b>Water and wastewater treatment</b>					
E	ENV-405	SIE	Gu Holliger von Gunten	Written	5