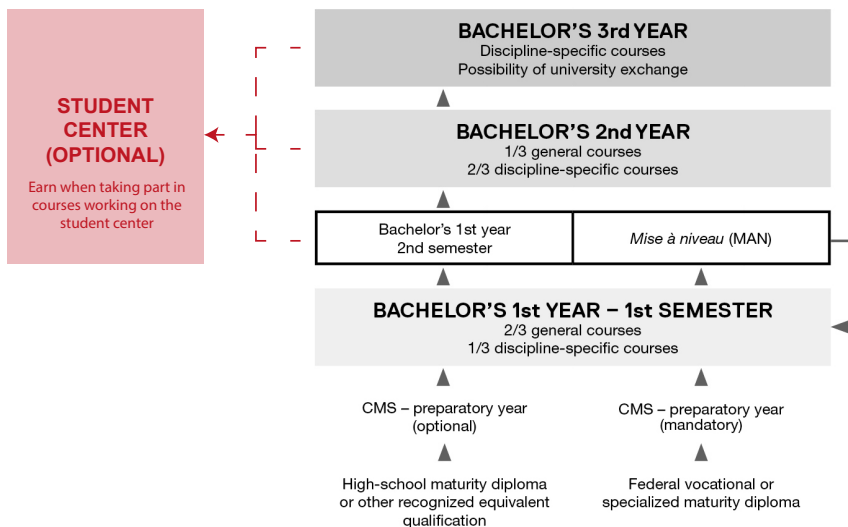


Research booklet Curriculum
Revolutionize curriculum
Erin, Lean & Clémence

The idea of this booklet is to show the current curriculum of every faculty and section present at EPFL. With this analysis we propose to revolutionise the current curriculum by incorporating new classes and highlighting potential classes that could take part in this laboratory for one semester to explore, share and experiment their knowledge and innovations.



STUDENT CENTER (OPTIONAL)

Earn when taking part in courses working
on the student center | 4 ECTS each

ELECTIVE COURSES

Orientations and specializations
are possible | 90 ECTS

INTERNSHIP

In a company or a laboratory

MASTER
120 ECTS

INCL. OPTIONAL*
MINOR | 30 ECTS

MASTER'S THESIS

At EPFL, in a company
or at another university | 30 ECTS

*Except for the MSc in Management, Technology
and Entrepreneurship

Degree: Master

Faculty: ENAC

Section: Civil engineering

Studies Plan

Génie civil 2025-26

Block 1

Courses				Master 1				Master 2				Exam Session	Exam	Credit		
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
E	Computational systems thinking for sustainable eng.															
	CIVIL-534	GC	Sonta							2h	1h		1h	Sum	During the semester	4
F	Construction contracts and liability															
	ENG-300	SIE	Di Cicco Perritaz							3h				Sum	Written	3
F	Construction contracts and liability															
	CIVIL-400	GC	Dubey		2h									Win	Written	2
F	Environmental impact assesment															
	ENG-474	GC	Chopard Devanthery Schmidt		2h	1h								Win	Oral	3
E	Innovation for construction and the environment															
	CIVIL-424	GC	Terzis		2h	1h								Win	During the semester	3
E	Intercultural presentation skills															
	MGT-469	MTE	Everett		1h	1h								Win	During the semester	2
E	Programming concepts in scientific computing															
	MATH-458	MA	Anciaux		2h	2h								Win	During the semester	4
F	Project management and risk analysis															
	MGT-427	MTE	Wieser		2h		1h							Win	During the semester	4
E	Research skills for engineers															
	CIVIL-465	GC			1h	1h								Win	During the semester	2
F	Risk analysis and management															
	CIVIL-438	GC	Defert		2h									Win	Oral	2

Block 2

Courses			Master 1					Master 2					Exam Session	Exam	Credit	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	
E	CE project 1 CIVIL-481	GC	Profs divers							5h			5h	Sum Win	During the semester	8
E	CE project 2 CIVIL-482	GC	Profs divers							5h			5h	Sum Win	During the semester	8
F	ENAC project PENS-490	GC	Profs divers							4h			4h	Sum Win	During the semester	4
	Summer workshop PENS-491	GC	Profs divers							40h			Win		During the semester	4
F	UE génie civil: Advanced Drawing structures CIVIL-475	GC	Baur Fernandez-Ordoñez Guita		2h	2h							Win		During the semester	4
	HSS : Introduction to project SHS												Win		3	

HSS : Project		<i>SHS</i>	<i>Sum</i>	<i>3</i>
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Group "Optional courses"

Courses				Master 1			Master 2			Exam Session	Exam	Credit		
Lang.	Code	Sect.	Teacher	Specialization	L	T	P	I	C	E	L	T	P	I
	Advanced composites in engineering structures													
E	CIVIL-443	GC	Vassilopoulos		2h	1h					Win	Oral		3
E	Bridge design		GC						2h	1h	Sum	During the semester		3
	CIVIL-478													
F	AR-458	AR	Drevon Kaufmann						2h		Sum	Written		3
	Composites design and innovation													
E	CIVIL-464	GC	Vassilopoulos						2h	1h	Sum	Oral		3
	Computational geomechanics													
E	CIVIL-423	GC			2h	2h					Win	During the semester		4
	Continuum mechanics and applications													
E	CIVIL-425	GC							3h	2h	Sum	Oral		6
E	Dam engineering		GC		3h						Win	Oral		3
	CIVIL-411		De Cesare Manso											
	Decision-aid methodologies in transportation													
E	CIVIL-557	GC	Bierlaire Klibi						2h	2h	Sum	During the semester		4
	Deep learning for autonomous vehicles													
E	CIVIL-459	GC	Alahi						2h	4h	Sum	During the semester		6
	Design and construction of roadways													
F	CIVIL-463	GC	Tille		2h	1h					Win	Written		3
	Design of precast concrete structures													
E	CIVIL-414	GC	Fernandez-Ordoñez						1h	2h	Sum	During the semester		3
	Dynamics of structures													
E	CIVIL-468	GC	Lignos Vanin		3h	1h					Win	Written		4
	Energy and comfort in buildings													
E	CIVIL-407	GC	Favero Khovalyng Licina Sonta		2h	1h	2h				Win	During the semester		5
	Energy conversion and renewable energy													
E	ME-409	GM	Maréchal Nguyen		2h	1h	1h				Win	Written		4
	Energy geostructures													
E	CIVIL-444	GC							2h	1h	1h	Sum	Written	4
	Engineering of existing structures													
E	CIVIL-511	GC	Denarié Nussbaumer		3h	1h					Win	Oral		4
	Flood and dam break waves													
F	CIVIL-515	GC	Ancy						2h	1h	Sum	Oral		3
	Fluvial hydraulics and river training works													
F	CIVIL-410	GC	André Arborino De Cesare		2h	1h					Win	Oral		3

E	Fracture of materials MSE-424	MX	Drezet Molinari		2h 2h		Sum	Written	4
E	Fundamentals of traffic operations and control CIVIL-457	GC	Geroliminis	2h 1h	1h		Win	During the semester	4
E	Geomechanics CIVIL-402	GC	Ferrari Laloui	3h 2h			Win	Written	5
E	Geothermal resource development CIVIL-470	GC	Kushnir	2h 1h			Win	During the semester	3
F	Hydrological risks and structures ENV-524	SIE	Ancey	1h 2h			Win	During the semester	3
E	Hydropower schemes and pumped-storage CIVIL-469	GC	De Cesare Manso		2h 2h		Sum	Written	4
E	Indoor air quality and ventilation CIVIL-460	GC	Licina		2h 2h		Sum	During the semester	4
E	Irrigation and drainage engineering ENV-549	SIE	Perona	2h 1h	1h		Win	Oral	4
E	Life cycle assessment in energy systems ENV-510	EL	Margni	2h 1h			Win	Written	3
E	Machine learning for predictive maintenance applications CIVIL-426	GC	Fink	2h 2h	2h		Win	During the semester	6
E	Materials and structures CIVIL-532	GC	Denarié	2h 1h			Win	Oral	3
E	Mathematical modelling of behavior MATH-463	MA	Bierlaire	2h 2h			Win	Written	5
F	Mobility engineering CIVIL-451	GC	Tufo	2h 1h			Win	During the semester	3
E	Modelling and optimization of energy systems ME-454	GM	Maréchal	2h 2h			Win	Written	4
E	Multiscale modelling in mechanics CIVIL-408	GC	Karapiperis	2h 2h			Win	During the semester	4
E	Nonlinear analysis of structures CIVIL-449	GC	Lignos Saloustros	3h 2h			Win	Written	6
E	Optional interdisciplinary project CIVIL-493	GC	Profs divers		4h		4h Sum Win	During the semester	4
E	Quantitative imaging for engineers MICRO-518	MT	Andò		2h 1h		Sum	During the semester	3
E	Railway systems and their transition URB-406	SIE	Kummer	2h 1h			Win	Oral	3
E	Reinforced concrete structures - advanced topics CIVIL-512	GC	Ruggiero		3h 1h		Sum	Written	4

River eco-morphodynamics and bioengineering									
E	ENV-418	GC	De Cesare Gostner Perona	2h	2h			Win	During the 4 semester
Rock mass characterization for engineering design									
E	CIVIL-496	GC	Orellana Violay	2h	1h	1h		Sum	During the 4 semester
Seismic engineering									
E	CIVIL-522	GC	Lignos Saloustros Tomic	4h	2h			Sum	Written 6
Shaping future railway systems									
E	URB-408	SIE	Kummer	2h	1h			Sum	Oral 3
Slope stability									
E	CIVIL-530	GC	Ferrari	2h	1h			Sum	Written 3
Stability of structures									
E	CIVIL-409	GC	Lignos Sousa	3h	1h			Sum	Written 4
Steel structures, selected topics									
E	CIVIL-526	GC	Nussbaumer	2h	1h			Win	Written 3
Thermodynamics of comfort in buildings									
E	CIVIL-450	GC	Khovalygy	1h	1h	1h		Sum	During the 3 semester
Timber construction									
E	CIVIL-433	GC	Natterer	2h	1h			Sum	Oral 3
Transportation economics									
E	CIVIL-455	GC	Geroliminis Yang de Palma	2h	1h			Sum	During the 3 semester
Transportation network modeling & analysis									
E	CIVIL-477	GC	Zhang	2h	1h			Sum	Oral 3
Underground construction									
E	CIVIL-404	GC	Sandrone	2h	1h			Sum	During the 3 semester
Urban hydraulic systems									
E	CIVIL-413	GC	Prister	2h	1h			Sum	Oral 3
Urban hydrology									
F	ENV-417	SIE	Rossi	2h	2h			Sum	During the 4 semester
Water resources engineering and management									
E	CIVIL-466	GC	Bieri Perona Zeimetz	3h	1h	1h		Sum	Written 5

Master project

Courses				Master 1				Master 2				MP Autumn				MP Spring				Exam Session	Exam	Credits		
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	C	E	L	T				P	I
E	Engineering internship credited with Master Project (master in Civil engineering)																							
	CIVIL-597	GC	Profs divers							320h					320h					320h		320h	Sum Win	Term paper
	Master project in Civil Engineering																							
	CIVIL-599	GC	Profs divers																	900h		900h	Sum Win	Oral

Student center (optional)

Courses			Exam Session	Exam	Credit
Lang.	Code	Sect. Teacher			
F	SC: Master	SHS	Win		4
F	SC : Master	SHS	Sum		4
F	SC : Summer workshop	ENAC	Sum		4
F	SC : Association rotation	SC	Win		4
F	SC : Association rotation	SC	Sum		4
F	SC : ENAC Course	ENAC	Win		4
F	SC : ENAC Course	ENAC	Sum		4

Degree: Master

Faculty: STI

Section: Material Science and engineering

Studies Plan

Science et génie des matériaux 2025-26

Block "Projects & SHS"

Courses			Master 1					Master 2					Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I
E	Innovation & entrepreneurship in engineering MGT-555	MTE	Michaud Weber		2h		8h						Win	During the semester	10
E	Research project in materials I MSE-490	MX	Profs divers						10h				10h Sum Win	During the semester	10
E	Research project in materials II MSE-491	MX	Profs divers						10h				10h Sum Win	During the semester	10
	HSS : Introduction to project SHS												Win		3
	HSS : Project SHS												Sum		3

Block 1

Courses			Master 1					Master 2					Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I
E	Advanced metallurgy MSE-422	MX	Leinenbach		3h	1h							Win	Written	4
E	Fracture of materials MSE-424	MX	Drezet Molinari							2h	2h		Sum	Written	4
E	Fundamentals of solid-state materials MSE-423	MX	Marzari		3h	1h							Win	Written	4
E	Soft matter MSE-425	MX	Amstad Klok		3h	1h							Win	Written	4
E	Statistical mechanics MSE-421	MX	Cerioti							2h	1h	1h	Sum	Oral	4

Group "options"

Courses			Master 1					Master 2					Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I
E	Advanced ceramic technologies MSE-495	MX	Stuer Testino							2h	1h		Sum	Oral	3
E	Advanced phase transformations MSE-483	MX	Raju Natarajan		2h	1h							Win	Oral	3
E	Assembly techniques MSE-464	MX								2h			Sum	During the semester	2
E	Atomistic and quantum simulations of materials MSE-468	MX	Pizzi							3h		1h	Sum	During the semester	4
E	Biomaterials (pour MX) MSE-471	MX			2h	1h	2h						Win	Written	5
E	Cementitious materials (advanced) MSE-420	MX	Scrivener		2h								Win	During the semester	2

Charge transport in energy conversion and storage							
E	MSE-496	MX	Battaglia Senocrate	2h 2h		Win	Written 4
Composites technology							
E	MSE-440	MX	Bourban Michaud Wakeman	2h 1h		Win	During the semester 3
Electrochemistry for materials technology							
E	MSE-441	MX	Frantz Van Herle	2h 1h		Win	Written 3
Electron microscopy: advanced methods							
E	MSE-450	MX	Alexander	2h 2h		Sum	Oral 4
Engineered living materials							
E	MSE-493	MX	Abitbol	2h 1h		Win	During the semester 3
Error control in scientific modelling							
E	MATH-500	MA	Herbst	2h 2h		Win	Oral 5
Immunoengineering							
E	BIOENG-399	SV	Tang	2h 2h		Sum	Written 4
IMX Colloquium (autumn)							
E	MSE-470(a)	MX	Amstad Jotzu Sorin	1h 1h		Win	Written 2
IMX Colloquium (spring)							
E	MSE-470(b)	MX	Amstad Jotzu Sorin	1h 1h		Sum	Written 2
Introduction to food science and technology							
E	MSE-497	MX	Hartmann	2h 2h		Win	Oral 4
Introduction to magnetic materials in modern technologies							
E	MSE-432	MX	Grundler	2h 2h		Sum	During the semester 4
Light, liquids and interfaces							
E	MICRO-390	MT		2h 2h		Sum	Written 4
Material science at large scale facilities							
E	MSE-435	MX	Liebi Van Petegem	2h 1h		Win	Oral 3
Materials selection							
E	MSE-474	MX	Michler Vaucher	2h		Sum	Written 2
Mathematical methods for materials science							
E	MSE-487	MX	Sorin	2h 2h		Win	Written 4
Nanomaterials							
E	MSE-477	MX		2h 1h		Win	During the semester 3
Optical properties of materials							
E	MSE-482	MX	Marchioro Nuesch	2h 1h		Sum	Written 3
Organic electronic materials							
E	MSE-486	MX	Frauenrath	3h 1h		Sum	Written 4
Physical chemistry of polymeric materials							
E	MSE-431	MX	Klok-Lermann	3h 1h		Sum	During the semester 4
Polymer chemistry and macromolecular engineering							
E	MSE-437	MX	Klok	2h 1h		Win	During the semester 3
Properties of semiconductors and related nanostructures							
E	MSE-484	MX		3h 2h		Sum	During the semester 5
Quantum materials:							

	fundamentals and applications									
E	MSE-494	MX	Jotzu			2h	2h	Sum	Oral	4
	Research project in materials III									
E	MSE-492	MX	Profs divers			10h		10hSum Win	During the semester	10
	Surface analysis									
E	MSE-351	MX	Igual Muñoz Stolichnov			2h	1h	Win	Written	3
	Thin film fabrication technologies									
E	MSE-465	MX	Michler			2h		Sum	Oral	2
	Towards sustainable materials									
E	MSE-433	MX	Leterrier Wakeman			3h	1h	Sum	During the semester	4
	Tribology									
E	MSE-485	MX	Igual Muñoz			2h		Win	During the semester	2
	Wood structures, properties and uses									
E	MSE-466	MX	Pichelin			2h		Sum	Written	2

Master project

Courses				Master 1					Master 2					MP Autumn					MP Spring					Exam Session	Exam	Credits	
Lang.	Code	Sect.	Teacher	Specialization	En	L	T	P	I	C	E	L	T	P	I	C	E	L	T	P	I	C	E	L	T	P	I
Engineering internship credited with master project (master in Materials science and engineering)																											
F	MSE-597	MX	Profs divers							320h					320h					320h				320h	Sum Win	During the semester	0
Master project in Materials Science and Engineering																											
E	MSE-599	MX	Profs divers																	900h				900h	Sum Win	Oral	30

Student center (optional)

Courses			Exam Session	Exam	Credit
Lang.	Code	Sect.	Teacher		
SC: Master					
F		SHS		Win	4
F		SHS		Sum	4
SC : Association of the student center					
F		SC		Win	4
F		SC		Sum	4

