Master en génie mécanique @ EPFL

Agenda

A. Master degree @EPFL
B. Orientations/specializations
C. Where to find SGM information ?
D. Specific information : specializations, minor, Project et SHS
E. Professors and laboratories

Contact :

Directeur de section

Pr. Guillermo Villanueva

Adjoint de section

Dr Alain Prenleloup

Admin. assistant

Mme Tamara Pelège

Internship representative

Dr Sébastien Soubielle

Contact :

- Reception hours:

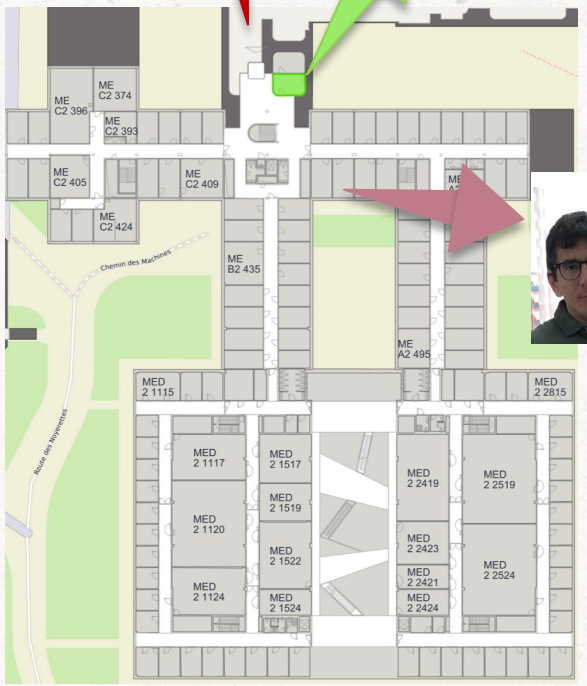
  8h30 – 11h30 Monday to Thursday

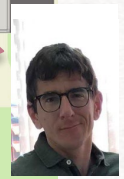
- By appointment or by email :

  sgm@epfl.ch

Main entrance SGM

Assistante admin.
ME B2 374



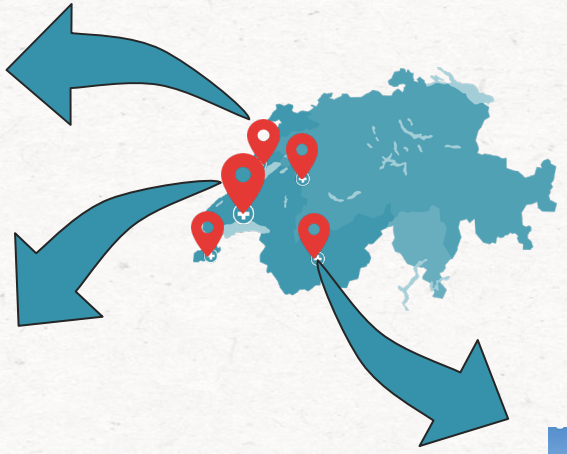


Deputy SGM

Director SGM
MED 3 1226

A. Master degree @EPFL

Neuchâtel



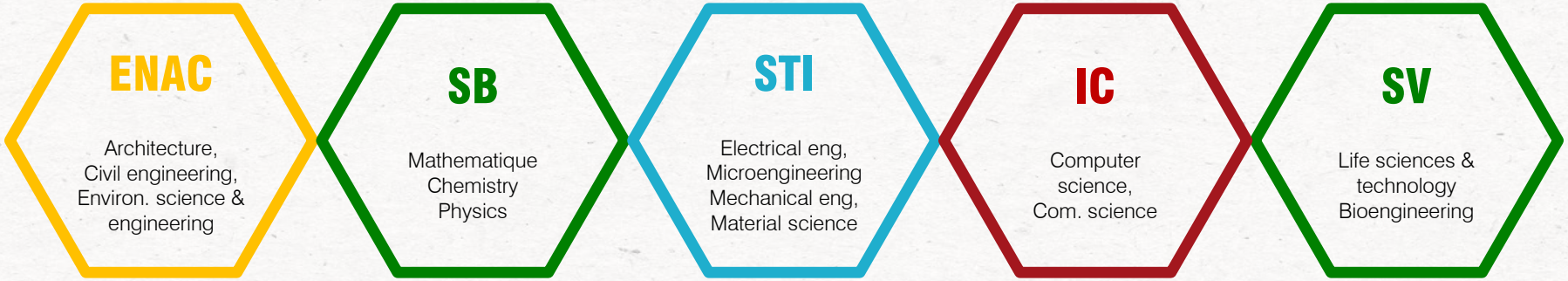
EPFL worldwide

Lausanne

Sion

A. Master degree @EPFL

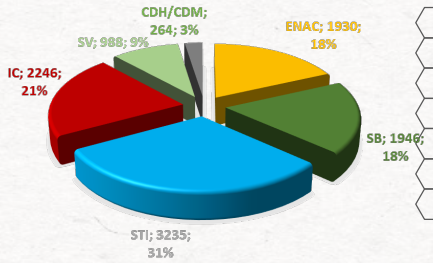
5 Schools
18 Sections



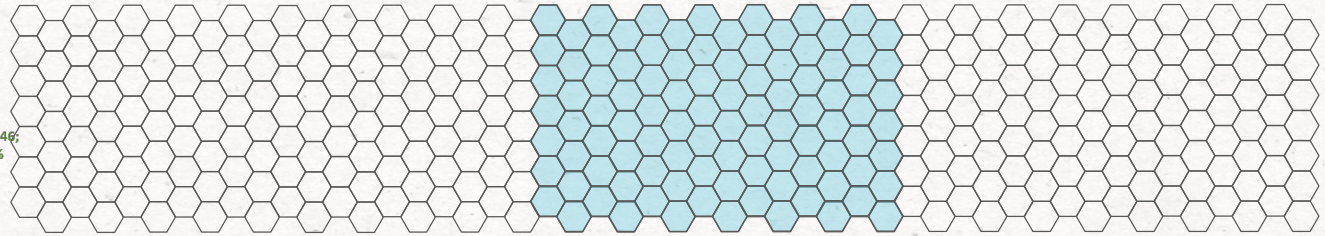
2 Colleges

19 Centers

16 Institutes
>350 Labs



Students



STI-Labs

The EPFL should be a model university in terms of :

- Its culture of respect, tolerance and integrity
- The rich variety of para-academic activites

The EPFL should be a model university in terms of :

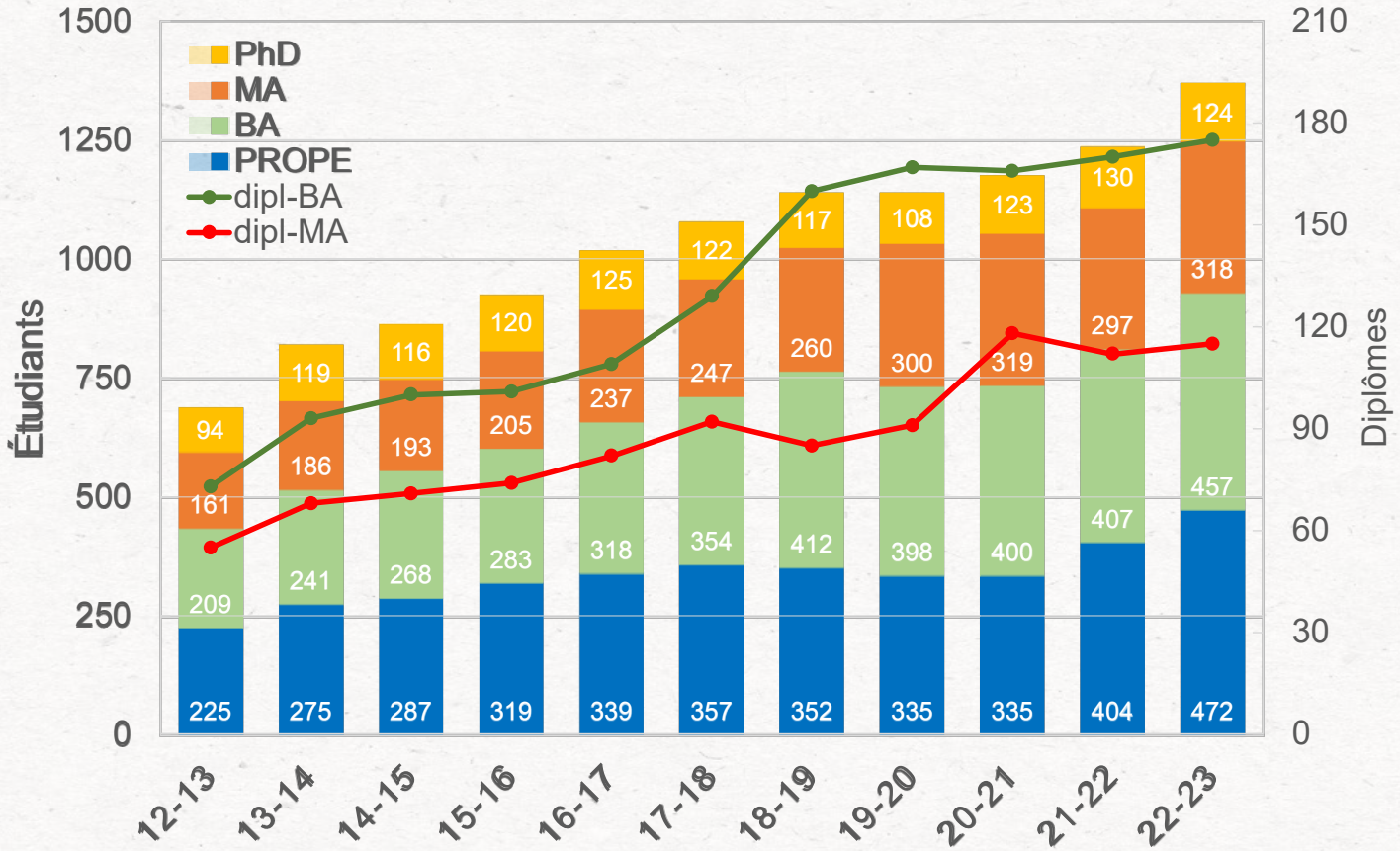
- Harassment, violence and discrimination are not tolerated here
- Provide and seek support
- Talk about it, bring up the problems

> go.epfl.ch/tsn (Trust and Support Network)
> Take the online training on Moodle: « Promoting Respect »

Evolution des effectifs

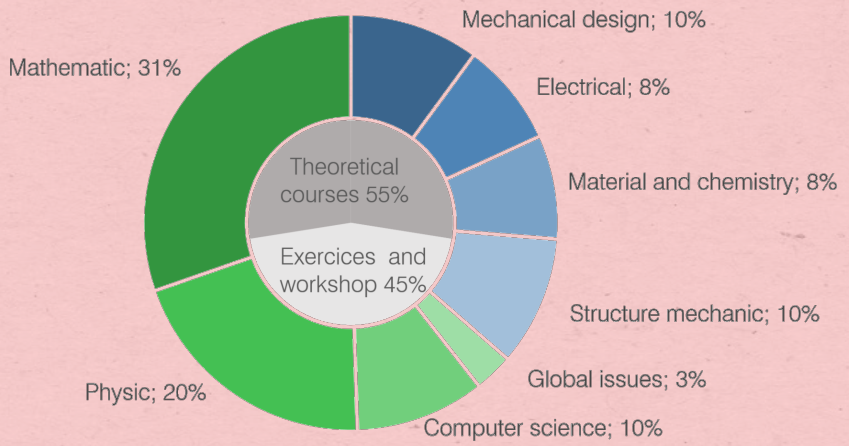
Students statistic in GM

- BA1 $_{2024}$ 670
- BA $_{total}$ 1323
- Master $_{total}$ 354
- PhD 125
- Professors 22
- Lecturers ~30

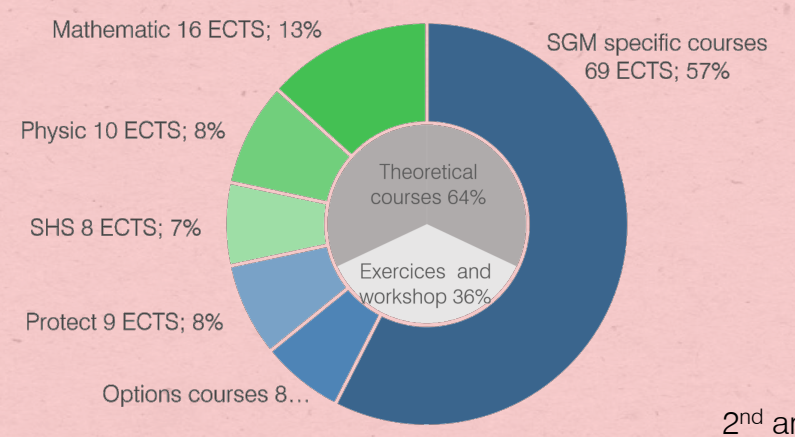


A. Master degree @EPFL

Bachelor: 180 ECTS

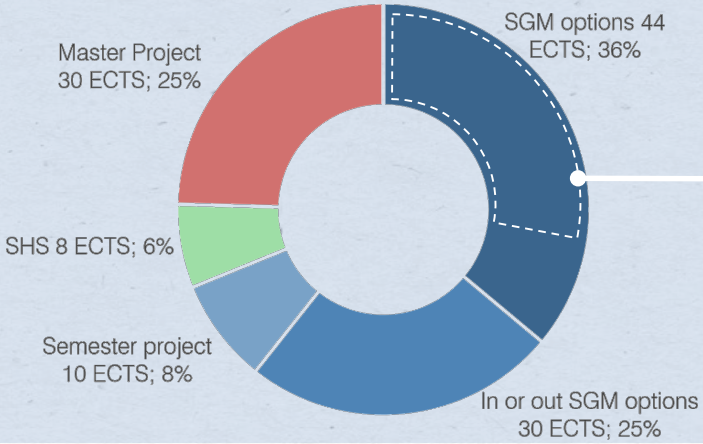


1st year



2nd and 3rd years

Master : 120 ECTS



Specialization (elective); 30 ECTS, 25%

- A Fluid mechanics
- B Automatic and systems
- C Design and Production
- D Thermal sciences
- E Mechanics of Solids and Structures
- F Biomechanics

\+

Indutrial internship

4th et 5th years

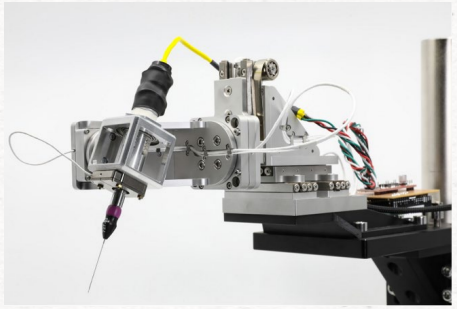
European Credit Transfer and Accumulation System : 1 ECTS = 30 work hours
(60 ECTS per year x 30 work hours / 45 work weeks = 40 hours by weeks)

MSc curriculum (120 ECTS)

« GROUPE »	**Electives in Mechanical Engineering** Specialization : ≥ 30 ECTS (Excel form on sgm.epfl.ch)	≥44 ECTS
« GROUPE »	**Other electives / Minor**	≥30 ECTS
« BLOC »	1 Semester Project in Mechanical Engineering	10 ECTS
« BLOC »	SHS Course + Project	6 ECTS
	Internship and Master Project in Mechanical Engineering	30 ECTS

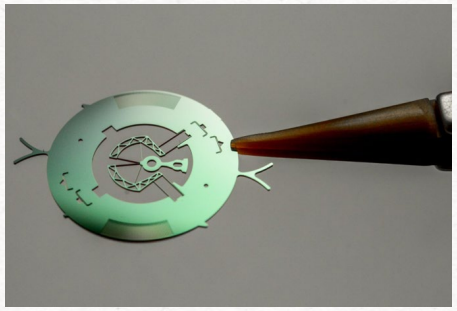
B. Orientations/specializations

BIOMECHANICS



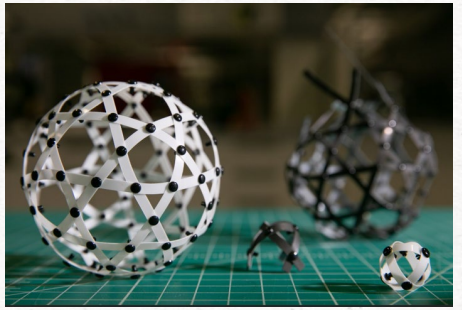
CONTROL, ROBOTICS, AND SYSTEMS

DESIGN AND MANUFACTURING



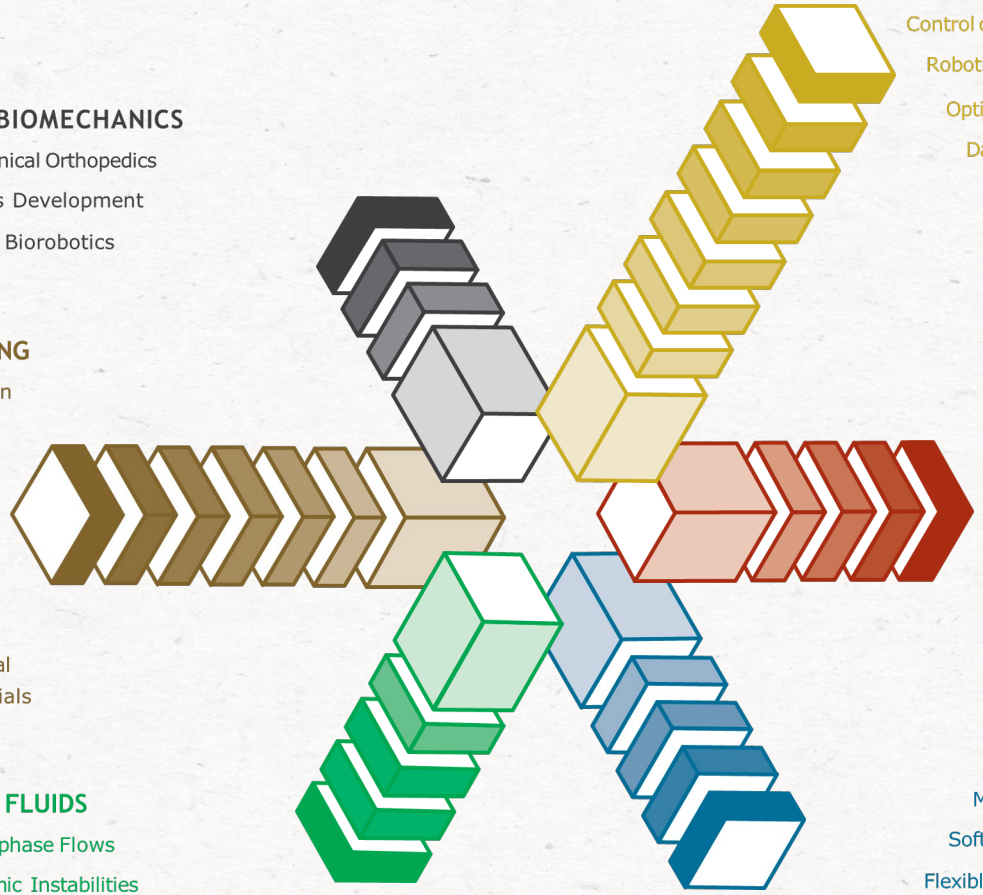
THERMAL SCIENCES AND ENERGY

MECHANICS OF SOLIDS AND STRUCTURES



MECHANICS OF FLUIDS

B. Orientations/specializations



CONTROL, ROBOTICS, AND SYSTEMS

- Control of Complex Adaptive Systems
- Robotics and Artificial Intelligence
- Optimization and Control of Intelligent Systems
- Data-Driven Modelling and Control
- Modelling and Control of Unique Interactive Robotics Systems
- Humanoid Control
- Multi-agents learning and control

BIOMECHANICS

- Biomechanical Orthopedics
- MicroBioRobotics Systems Development
- Locomotion Control and Biorobotics

DESIGN AND MANUFACTURING

- Computational Robot Design and Fabrication
- Micromechanical and Horological Design
- Information and Communications Technology for Sustainable Manufacturing
- Development of Environmentally Conscious Microfabrication Processes and Microsystems
- Applied Mechanical Design
- Development of Multi-Functional Stretchable Materials

THERMAL SCIENCES AND ENERGY

- Conversion of Renewable Energies
- Analysis and Synthesis of Sustainable Process and Energy Systems
- Nanophotonic Engineering of Light-Energy Harnessing, Conversion and Storage Systems
- Fuel Cells and Electrolysis

MECHANICS OF FLUIDS

- Cavitation and Multiphase Flows
- Hydrodynamic Instabilities and Free Interface Phenomena
- Unsteady Flow Diagnostics
- Emergent Complexity in Physical Systems

MECHANICS OF SOLIDS AND STRUCTURES

- Multiscale Mechanics Modeling
- Soft Materials
- Flexible Structures
- Nano-Electro-Mechanical Systems

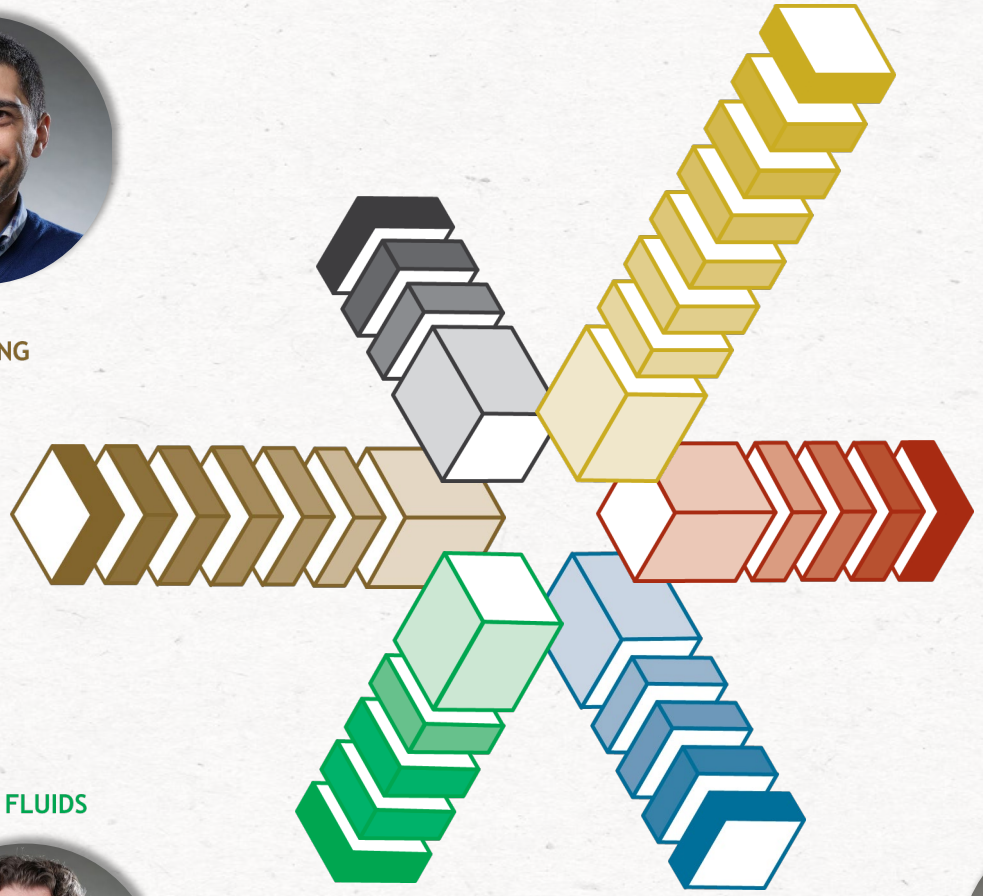
B. Orientations/specializations

Pr. Selman Sakar

BIOMECHANICS

CONTROL, ROBOTICS, AND SYSTEMS

Dr. Christophe Salzmann



DESIGN AND MANUFACTURING

Pr. Jürg Schiffmann

THERMAL SCIENCES AND ENERGY

Pr. Giulia Tagliabue

MECHANICS OF FLUIDS

Pr. Tobias Schneider

MECHANICS OF SOLIDS AND STRUCTURES

Pr. Pedro Reis

C. Where to find SGM information?

SGM main web page: https://sti.epfl.ch/fr/sgm/

- Useful documents
- Overview
- Master Cycle course list
- Admission criteria and application
- Semester projects
- Master projects
- Engineering Internship
- Specializations
- Minor in Mechanical Engineering
- Minor in Energy

C. Where to find SGM information?

GM orientations : https://sti.epfl.ch/fr/sgm/specialisations/

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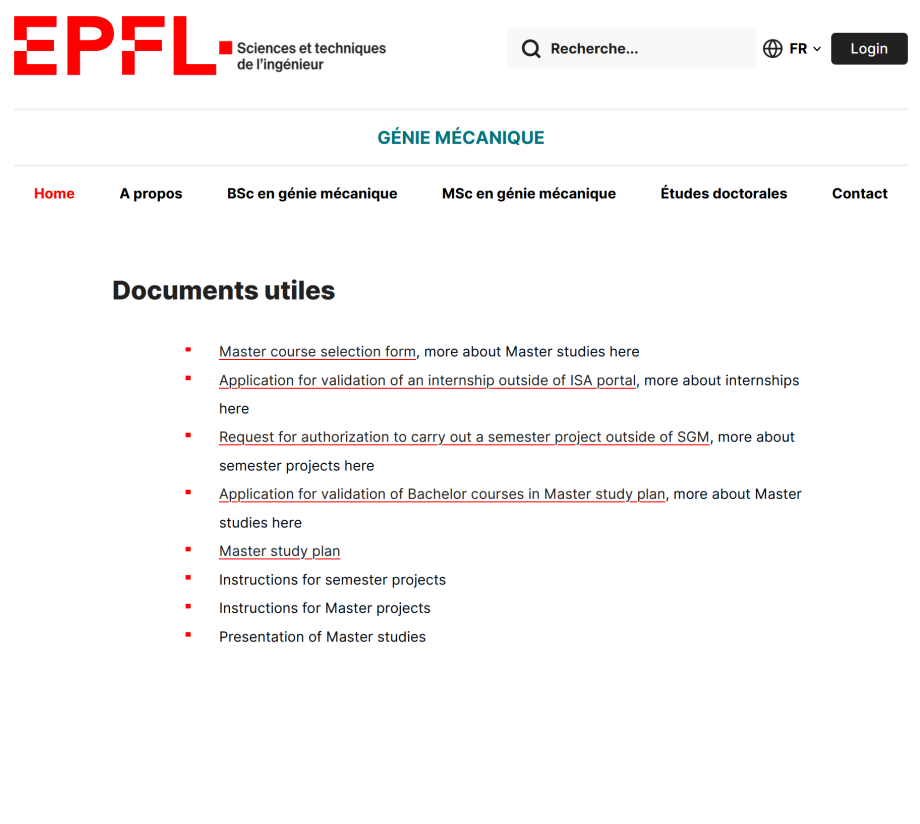
C. Where to find SGM information?

Useful documents: https://sti.epfl.ch/fr/sgm/documents-utiles/



- Useful documents
- Overview
- Master Cycle course list
- Admission criteria and application
- Semester projects
- Master projects
- Engineering Internship
- Specializations
- Minor in Mechanical Engineering
- Minor in Energy

Plan Individuel d'études Master

SGM
Section de Génie mécanique

Etudiant:	Prénom et nom de l'étudiant
Date:	jj.mm.aaaa
Filière:	aucune
Conseiller:	aucun
Mineur:	aucun
Visa conseiller de filière:	

	Cours	Code	ECTS	Semestre d'enseignement	Semestre dans le plan	Filière
Cours SGM	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
	Cours	#N/A	0	#N/A	à définir	aucune
Cours BA					à définir	
					à définir	
Bloc Projets	Projet Génie Mécanique I	ME-401	10	Aut./Prin.	à définir	
	SHS: Introduction au projet		3	Aut.	à définir	
	SHS: Projet		3	Prin.	à définir	
Cours hors SGM					à définir	
					à définir	
					à définir	
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					à définir	
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					à définir	
					à définir	

Respect du reglement

Nombre total d'ECTS (≥ 90)	16
Nombre d'ECTS en SGM (≥ 44)	0
Nombre d'ECTS de filière (≥ 18)	0
Nombre d'ECTS du Mineur (≥ 30)	0

Charge de travail par semestre

Nombre d'ECTS 1er semestre (≥ 25 et ≤35)	0
Nombre d'ECTS 2ème semestre (≥ 25 et ≤35)	0
Nombre d'ECTS 3ème semestre (≥ 25 et ≤35)	0

Approbation du Directeur de Section pour cours BA requise.

al/mg, 16.12.2015

Signature:

Concentration: not mandatory!

Concentration advisor's signature: needed only if you do a concentration

44+ ECTS
From the list on the 2nd sheet + 2 Bachelor courses (to be approved by Section Director)

16 ECTS
Semester project + SHS

30+ ECTS
Minor or any courses including those from the list on the 2nd sheet

Becomes green if your plan complies with the rules

Suggested workload 25-35 ECTS / semester

					Filière									
					Aéro-Hydrodynamique	Automatique et Mécatronique	Conception et Production	Énergie	Mécanique des solides et des structures	Biomécanique				
	Cours	Fiche	Code	Enseignant	A	B	C	D	E	F	ECTS	Sem.	Exam.
Cours gérés par la SGM	Advanced control systems	link	ME-524	Karimi		B	C	D		F	3	Prin.	sans retrait/no withdrawal
	Advanced energetics	link	ME-451	Maréchal				D			5	Aut.	
	Advanced heat transfer	link	ME-465	Haussener				D			3	Prin.	
	Aerodynamics	link	ME-445	Mulleners	A			D	E		3	Aut.	
	Aéroélasticité et interaction fluide-structure	link	ME-435	Farhat	A			D	E		3	Aut.	
	Applied mechanical design	link	ME-403	Schiffmann			C				4	Aut.	sans retrait/no withdrawal
	Bases de la robotique	link	MICRO-450	Bleuler/Bouri		B	C				3	Aut.	
	Biomechanics of the cardiovascular system	link	ME-481	Stergiopulos	A				E	F	3	Prin.	
	Biomechanics of the musculoskeletal system	link	ME-482	Pioletti					E	F	5	Aut.	
	Cavitation et phénomènes d'interface	link	ME-462	Farhat	A			D			3	Aut.	
	Commande non linéaire	link	ME-523	Mullhaupt		B	C			F	3	Aut.	
	Composites polymères + TP	link	MSE-340	Bourban/Michaud					E	F	4	Aut.	
	Computer-aided engineering	link	ME-417	Stroud			C				5	Prin.	
	Conception mécanique intégrée	link	ME-418	Schorderet			C		E	F	3	Prin.	
	Dynamique numérique des solides et des structures	link	ME-473	Gmür	A		C		E	F	5	Prin.	
	Engines and fuel cells	link	ME-551	van Herle	A			D			4	Aut.	
	Fabrication assistée par ordinateur	link	ME-416	Kyritsis			C				5	Aut.	
	Flow of dispersed media	link	ME-463	vacat	A				E		3	Aut.	
	Fracture mechanics	link	ME-432	Botsis/Cugnoni			C		E	F	4	Prin.	
	Hydraulic turbomachines	link	ME-453	Avellan	A			D			4	Aut.	
	Hydrodynamics	link	ME-444	Gallaire	A			D	E	F	5	Prin.	
	Hydrodynamique acoustique	link	ME-443	Nicolet	A			D		F	3	Prin.	
	Instability	link	ME-466	Gallaire	A						3	Aut.	
	Introduction to nuclear engineering	link	ME-464	Pautz/Hursin				D			2	Prin.	
	Lifecycle performance of product systems	link	ME-516	Kyritsis			C	D			3	Prin.	
	Mechanical product design and development	link	ME-410	Paik			C				4	Aut.	sans retrait/no withdrawal
	Mechanics of composites	link	ME-430	Curtin			C		E	F	5	Aut.	
	Methods for rapid production and development	link	ME-415	Boillat E.			C				3	Aut.	
	Model predictive control	link	ME-425	Jones		B					3	Prin.	
	Modelling and optimization of energy systems	link	ME-454	Maréchal				D			4	Prin.	
	Multi-body simulation	link	ME-475	Sakar				D			3	Prin.	
	Numerical flow simulation	link	ME-474	Sawley	A			D		F	5	Aut.	
	Numerical methods in biomechanics	link	ME-484	Terrier						F	3	Prin.	
	Numerical methods in heat transfer	link	ME-571	Magnini	A			D			3	Prin.	sans retrait/no withdrawal
	Particle-based methods	link	ME-476	Sawley	A				E	F	4	Prin.	sans retrait/no withdrawal
	Production management	link	ME-419	Yoo			C				5	Aut.	
	Projet Génie mécanique II	link	ME-402	Divers enseignants							10	Aut./Prin.	sans retrait/no withdrawal
	Renewable energy (for ME)	link	ME-460	Haussener/Van Herle	A			D			4	Prin.	
	Robotique industrielle et appliquée	link	MICRO-451	Bleuler/Bouri		B	C				2	Prin.	
	Simulation and optimisation of industrial applications	link	ME-499	Yoo			C				4	Prin.	sans retrait/no withdrawal
	System identification	link	ME-421	Karimi		B	C	D	E	F	3	Aut.	sans retrait/no withdrawal
	Systèmes mécatroniques	link	ME-424	Agbeviade		B	C				5	Prin.	
	Thermal power cycles and heat pump systems	link	ME-459	Kane				D			2	Prin.	
	Turbomachines thermiques	link	ME-455	Ott	A			D			5	Aut.	
	Turbulence	link	ME-467	Schneider	A						3	Aut.	
	Two-phase flows and heat transfer	link	ME-446	Thome/Saenen/Marcinichen	A			D			5	Aut.	sans retrait/no withdrawal
Cours choisis gérés par une autre Section	Advanced satellite positioning	link	ENV-542	Botteron/Skaloud		B					4	Prin.	
	Applied machine learning	link	MICRO-455	Billard		B					4	Aut.	
	Assembly techniques	link	MSE-464	Plummer/Weber					E		2	Prin.	
	Biophysics I	link	PHYS-301	Manley						F	3	Prin.	
	Biophysics II	link	PHYS-302	Verkhovskiy						F	4	Aut.	
	Capteurs	link	MICRO-330	Renaud/Boero		B					4	Prin.	
	Commande d'actionneurs à l'aide d'un microprocesseur + TP	link	MICRO-510	Koechli+Koechli/Hodder/Perriard		B					2	Prin.	
	Composites technology	link	MSE-440	Bourban/Michaud					E		3	Aut.	
	Computational motor control	link	CS-432	Gerstner		B					4	Prin.	
	Computer simulation of physical systems I	link	PHYS-403	Pasquarello	A						4	Aut.	
	Convex optimization and applications	link	CS-454	Lebret		B					4	Prin.	
	Corrosion et protection des métaux + TP	link	MSE-311	Mischler			C				3	Prin.	
	Déformations des matériaux	link	MSE-310	Logé					E		4	Aut.	
	Distributed intelligent systems	link	ENG-466	Martinoli		B					5	Aut.	
	Dynamical system theory for engineers	link	COM-502	Thiran		B					4	Aut.	
	Environmental transport phenomena	link	ENG-420	Porté Agel+Crouzy	A						5	Aut.	
	Evolutionary robotics	link	MICRO-515	Floreano						F	4	Prin.	
	Haptic human robot interfaces	link	MICRO-553	Bleuler/Bouri		B					3	Prin.	
	Image optics	link	MICRO-421	Herzig/Scharf							3	Prin.	
	Industrial automation	link	CS-487	Pignolet-Oswald/Tournier		B					3	Prin.	
	Integrated transducers and drives	link	EE-461	Kachli		B					3	Aut.	
	Laser microprocessing	link	MICRO-520	Hoffmann			C				2	Prin.	
	Life cycle engineering of polymers	link	MSE-430	Leterrier					E		2	Aut.	
	Materials selection	link	MSE-474	Vaucher/Michler/Siegmann					E		2	Prin.	
	Numerical approximation of PDE's I	link	MATH-451	Nobile	A						5	Aut.	
	Numerical methods for conservation laws	link	MATH-459	Hesthaven	A						5	Aut.	
	Physiologie par systèmes II	link	BIO-377	Roy						F	4	Prin.	
	Propagation of acoustic waves	link	EE-549	Martin					E		3	Aut.	
	Recycling of materials	link	MSE-463	Leterrier			C				2	Prin.	
	Robotics practicals	link	MICRO-453	Billard/Floreano/Mondada		B					2	Prin.	sans retrait/no withdrawal
	Space mission design and operations	link	EE-585	Nicollier			C				2	Prin.	
	Statique II	link	CIVIL-224	Lestuzzi/Vurpillot					E		4	Prin.	
	Supply chain management	link	MGT-526	Seifert			C				4	Prin.	
	Surface analysis	link	MSE-351	Muralt/Stolichnov/Mischler			C				3	Aut.	
	Systèmes embarqués microprogrammés	link	EE-310	Atienza		B					4	Aut.	
	Techniques d'assemblage	link	MICRO-440	Chautems			C				3	Prin.	
	Technologie et mise en oeuvre des polymères +TP	link	MSE-360	Månson/Plummer+Plummer					E		4	Aut.	
	Tribology	link	MSE-485	Mischler					E		2	Aut.	

SGM

Reconnu pour GM

What are the learning prerequisites ?

FICHES DE COURS

Propédeutique | Cycle Bachelor | Cycle Master | Mineur | Ecole doctorale

PDF

Advanced control systems

ME-524

Enseignant(s) :
Karimi Alireza

Langue:
English

Withdrawal
It is not allowed to withdraw from this subject after the registration deadline.

Summary
This course covers some theoretical and practical aspects of robust and adaptive control. Robust controller design with H-infinity performance, digital controller design with pole placement technique, direct, indirect and switching adaptive control are studied and implemented in a hands-on lab.

Content

Stability, performance and robustness of closed-loop control systems. Robust controller design by loop shaping. Robust H-infinity controller design in the frequency domain. Multivariable decoupling controller design. Gain-scheduled controller design.

Two-degree of freedom RST digital polynomial controller. Pole placement technique and its relation to Internal Model Control (IMC), Model Reference Control (MRC) and Minimum Variance Control (MVC). Robust pole placement with Q parameterization. Parameter adaptation algorithms. Direct and Indirect adaptive control. Switching adaptive control.

Keywords

Adaptive control, robust control, digital RST controller.

Learning Prerequisites

Required courses

Control systems + Lab

Recommended courses

1. Control Systems
2. System Identification
3. Multivariable systems

Important concepts to start the course

- Analyze a linear dynamical system (both time and frequency responses)
- Represent a linear system by a transfer function
- Identify a dynamic system using experimental data
- Design a PID controller
- Design a simple controller for a dynamic system

Learning Outcomes
By the end of the course, the student must be able to:

- Design an advanced controller for a dynamic system, A11
- Assess / Evaluate the stability, performance and robustness of a closed-loop system, A12
- Define (specifications) the adequate control performance for dynamic systems, A13
- Propose several control solutions, formulate the trade-offs, choose the options, A14

DANS LES PLANS D'ÉTUDES

Génie mécanique, 2018-2019, Master semestre 2

Semestre
Printemps
Forme de l'examen
Pendant le semestre
Crédits
3
Matière examinée
Advanced control systems
Cours
2 Heure(s) hebdo x 14 semaines
Projet
1 Heure(s) hebdo x 14 semaines

Génie mécanique, 2018-2019, Master semestre 4

Gestion de l'énergie et durabilité, 2018-2019, Master semestre 2

Gestion de l'énergie et durabilité, 2018-2019, Master semestre 4

Microtechnique, 2018-2019, Master semestre 2

Microtechnique, 2018-2019, Master semestre 4

Robotique, 2018-2019, Master semestre 2

Mineur en Systems Engineering, 2018-2019, Semestre printemps

SEMAINE DE RÉFÉRENCE

	Lu	Ma	Me	Je	Ve
8-9			MEB331		
9-10			MEB331		
10-11					
11-12					
12-13					
13-14					
14-15					
15-16					
16-17					
17-18					
18-19					
19-20					
20-21					
21-22					

Cours | Exercice, TP | Projet, autre

LÉGENDE

Learning Prerequisites

Required courses

Control systems + Lab

Recommended courses

1. Control Systems
2. System Identification
3. Multivariable systems

Important concepts to start the course

- Analyze a linear dynamical system (both time and frequency responses)
- Represent a linear system by a transfer function
- Identify a dynamic system using experimental data
- Design a PID controller
- Design a simple controller for a dynamic system

How to choose and register for courses ?

1. Create your study plan for the 3 semesters (Excel form)
2. If you do a specialization : submit it for approval to the concentration advisor and then to SGM secretariat
3. A course can count once either in a Minor on in Groupe « options »
4. Register for courses in IS-Academia (mandatory) before September 20th
5. Announce all major modification (ex : minor surrender) of your study plan to our secretariat (update and submit your form)
6. Exam withdraw until the 10th week's semester, except for semester courses (November 15)
7. 2 Bachelor courses may eventually be accepted with the section's Director prior agreement

How to choose and register for courses ?

General exam withdrawal deadline for 2024-25 Winter Session: 15 November 2024

It is not possible to withdraw after 20th September from the semester courses listed here:

- ME-403 Applied mechanical design
- ME-414 Computational multi-scale modeling of solids
- ME-498 Continuous improvement of manufacturing systems
- ME-428 Data-driven design & fabrication methods
- ME-412 Experimental methods in engineering mechanics
- ME-516 Lifecycle performance of product systems
- ME-410 Mechanical product design and development
- ME-480 Mechanobiology: how mechanics regulate life
- ME-469 Nano-scale heat transfer
- ME-474 Numerical flow simulation
- ME-419 Production management
- ME-467 Turbulence

How to choose and register for courses ?

General exam withdrawal deadline for 2024-25 Winter Session: 15 November 2024

It is not possible to withdraw after 20th September from the semester courses listed here:

- MICRO-413 Advanced additive manufacturing technologies
- ENV-542 Advanced satellite positioning
- MICRO-421 Imaging optics
- MGT-555 Innovation & entrepreneurship in engineering
- MICRO-401 Machine learning programming
- MSE-351 Surface analysis

How to choose and register for courses ?

Art. 12 al. 5 (english)

It is the student's responsibility to have a study plan that complies with the section rules

Minors : subscription before the end of the first semester

Recommended Minors (any other EPFL Minor is accepted)

- Energy
- Management of technology and entrepreneurship
- Computational science and engineering
- Materials science and engineering
- Biomedical technologies
- Spatial technologies
- Engineering for Sustainability

Procedure

- Select the minor in IS-Academia
- Contact the Minor advisor
- Fill-in the registration form (copy to SGM)
- Register for courses in IS-Academia
- Withdrawal from a Minor: contact SGM to convert part of the Minor's ECTS to electives

Specializations are elective

- Domain consolidation
- 30 ECTS with variable fundamental base courses

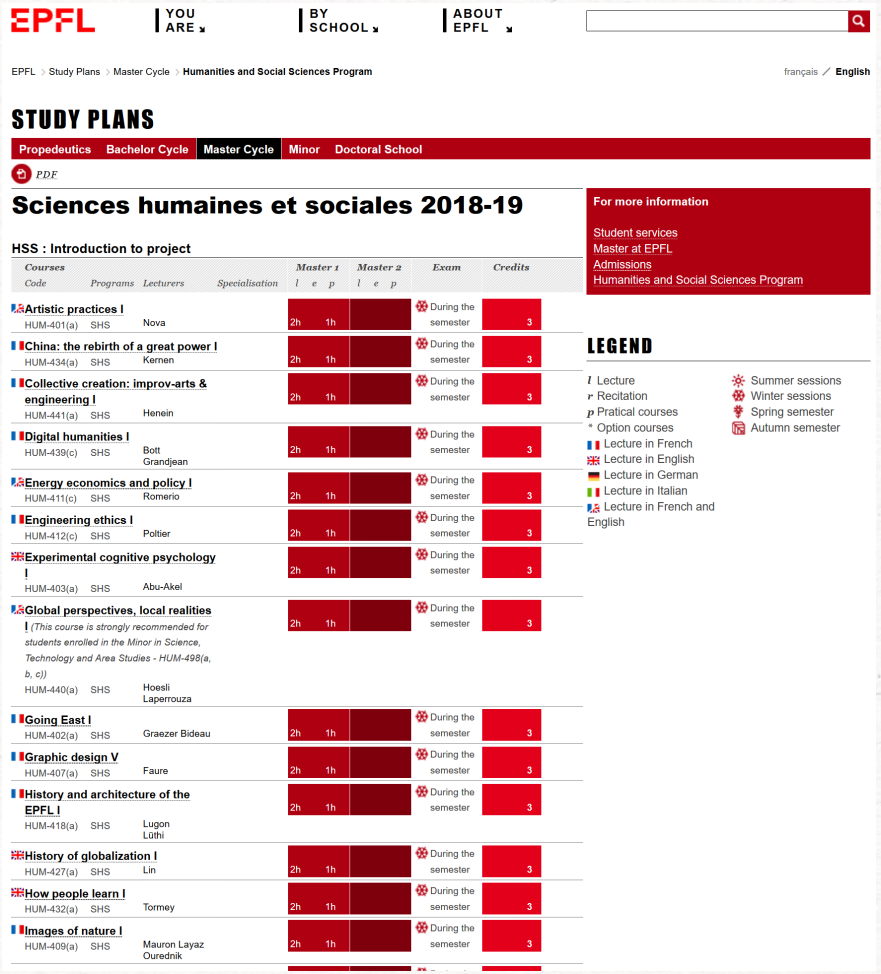
30 credits fundamental base courses :

- A Fluid mechanics: 12
- B Automatic and systems: 9
- C Design and Production: 17
- D Thermal sciences : 12
- E Mechanics of Solids and Structures : 8
- F Biomechanics : 8

Semestre project

- Semester projects in Mechanical Engineering
  - Projet I : mandatory; 10 ECTS (10 x 30 h /14 weeks ≈ 21.5 hours per week)
  - Projet II : elective; 10 ECTS
- Visit the web pages of the various laboratories, and make sure that the teacher responsible for the project is affiliated with the Institute of Mechanical Engineering. If this is not the case, you must submit the project to the Section Director for approval.
- Registration procedure :
  1. Find a project
  2. Contact the project manager
  3. Request authorization to carry out a project outside GM
  4. Register the project in IS-A (student portal, course selection)
  5. Have the form signed by the professor (or research professor) responsible for supervision
  6. Forward the form to the secretary's office

SHS (social and Human sciences)



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EPFL › Study Plans › Master Cycle › Humanities and Social Sciences Program — français / English

STUDY PLANS

Propedeutics | Bachelor Cycle | Master Cycle | Minor | Doctoral School

PDF

Sciences humaines et sociales 2018-19

HSS : Introduction to project

Courses Code	Programs	Lecturers	Specialisation	Master 1 l e p	Master 2 l e p	Exam	Credits
Artistic practices I HUM-401(a)	SHS	Nova		2h 1h		During the semester	3
China: the rebirth of a great power I HUM-434(a)	SHS	Kernen		2h 1h		During the semester	3
Collective creation: improv-arts & engineering I HUM-441(a)	SHS	Henein		2h 1h		During the semester	3
Digital humanities I HUM-439(c)	SHS	Bott Grandjean		2h 1h		During the semester	3
Energy economics and policy I HUM-411(c)	SHS	Romerio		2h 1h		During the semester	3
Engineering ethics I HUM-412(c)	SHS	Poltier		2h 1h		During the semester	3
Experimental cognitive psychology I HUM-403(a)	SHS	Abu-Akel		2h 1h		During the semester	3
Global perspectives, local realities I *(This course is strongly recommended for students enrolled in the Minor in Science, Technology and Area Studies - HUM-498(a, b, c))* HUM-440(a)	SHS	Hoesli Laperrouza		2h 1h		During the semester	3
Going East I HUM-402(a)	SHS	Graezer Bideau		2h 1h		During the semester	3
Graphic design V HUM-407(a)	SHS	Faure		2h 1h		During the semester	3
History and architecture of the EPFL I HUM-418(a)	SHS	Lugon Lüthi		2h 1h		During the semester	3
History of globalization I HUM-427(a)	SHS	Lin		2h 1h		During the semester	3
How people learn I HUM-432(a)	SHS	Tormey		2h 1h		During the semester	3
Images of nature I HUM-409(a)	SHS	Mauron Layaz Ouredniк		2h 1h		During the semester	3

For more information

Student services
Master at EPFL
Admissions
Humanities and Social Sciences Program

LEGEND

l Lecture
r Recitation
p Pratical courses
* Option courses
Lecture in French
Lecture in English
Lecture in German
Lecture in Italian
Lecture in French and English

Summer sessions
Winter sessions
Spring semester
Autumn semester

The SHS program is over two semesters (Fall-Spring)

REGISTER NOW!

Master project

- 2 alternatives
  - At EPFL under the (co)supervision of an SGM teacher
  - Outside EPFL (University or company, combined or not with the internship) under the (co)supervision of an SGM teacher

- Duration (+1 week for vacation)
  - at EPFL: 17 weeks
  - outside EPFL: 25 weeks

- Conditional PDM: minimum of 82 ECTS
- Informative course sheet ME-599
- Expected work: Written report, oral presentation and poster
- Evaluation method : Oral defense of the written report

Projet de Master

- Visit the web pages of the various laboratories and make sure that the teacher in charge of the project is affiliated with the Mechanical Engineering Section. If not, you'll need to find a co-supervisor from the Mechanical Engineering Institute.
- Project registration :
  1. The subject must be defined by, or in conjunction with, the GM Section Professor.
  2. The dates and conditions (e.g. location, contact person) of the PDM must be defined.
  3. In the case of in-company projects, it is generally necessary to sign a contract between the company and the student (private contract, covering, among other things, working conditions).
  4. For projects abroad (university or company), check entry requirements (visa)
  5. Register the project in IS-Academia
  6. Print out the form (ISA) and have it signed by the professor (or research professor) responsible for supervision
  7. Send the form to the secretariat

Industrial internship

- When to do an internship
  - Between bachelor's and master's degrees
  - Between semesters (during the summer)
  - During a semester off
  - In parallel with a semester (not necessarily full-time)
  - With the Master's project
- How to find an internship
  - Internship portal
  - Personal search and validation request to the internship representative
- Other
  - Minimum duration 8 weeks and maximum 6 months (average ~5 months)
  - Outside universities
  - Requirements corresponding to the skills of a mechanical engineer
  - Agreements imposed by companies are generally refused by the school

Industrial internship

- Three-way contract between the student, the company (usually the internship supervisor or HR) and the academic supervisor(sebastien.soubielle@epfl.ch)
- If you have any questions, please contact the STI faculty internship coordinator (hind.klinke@epfl.ch)
- Full presentation will take place in October, 12:00 – 13:00

Sébastien Soubielle

Hind Klinke

D. Specific information

Be aware that !

- You need to pass each exam
- The 44 ECTS in Mechanical Engineering can only come from the list in the Excel sheet
- You need 30 ECTS for a specialization
- If you do a Minor you are not allowed to take any additional ECTS outside Mechanical Engineering
- Begin your SHS this Fall
- To begin you Master Project you must have passed at least 82 ECTS
- Dedicated presentation with Q&A : Monday 25 September

E. Professeurs et laboratoires

E. Professeurs et laboratoires

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AMAC


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Thanks for your attention

sgm@epfl.ch