Minor Engineering for Sustainability

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École polytechnique fédérale de Lausanne

Why does this minor exist?

"We should prepare students for the work of the world not only for the world of work" *(Jonathon Porritt)*

At GLOBAL level

- In 2015: **Sustainable Development Goals** (SDGs) adopted by the **United Nations:** an urgent and universal call to action to end poverty, protect our ecosystem and preserves natural resources for future generations.
- **Global Risks Report WEF**: 7 out of the 10 most severe risks we may face over the next decade, are linked to the environment and societal topics (migration and polarization);
- **Change in the current job market**: «sustainability specialist» is among the top list of fast-growing jobs.

At EPFL level

- **Archimedean Oath**: reminding graduated students of their responsibility to society; building a socially and environmentally sustainable society is intrinsically linked to the work of engineers and scientists.
- **Survey Alumni** (2014 - 2018) about **environmental responsibility**:
  "*sustainability is missing in the EPFL curriculum*": 30%
  "*my environmental and sustainability skills are weak*": 60%
- Since 2020: **sustainability education** is a priority; EPFL proposes sustainability-oriented educational programs: https://www.epfl.ch/about/sustainability/sustainability-in-education/
- Student Association SIC: the **Sustainable Innovation Challenge**: https://epfl-sic.ch/

SUSTAINABLE DEVELOPMENT GOALS

WORLD ECONOMIC FORUM

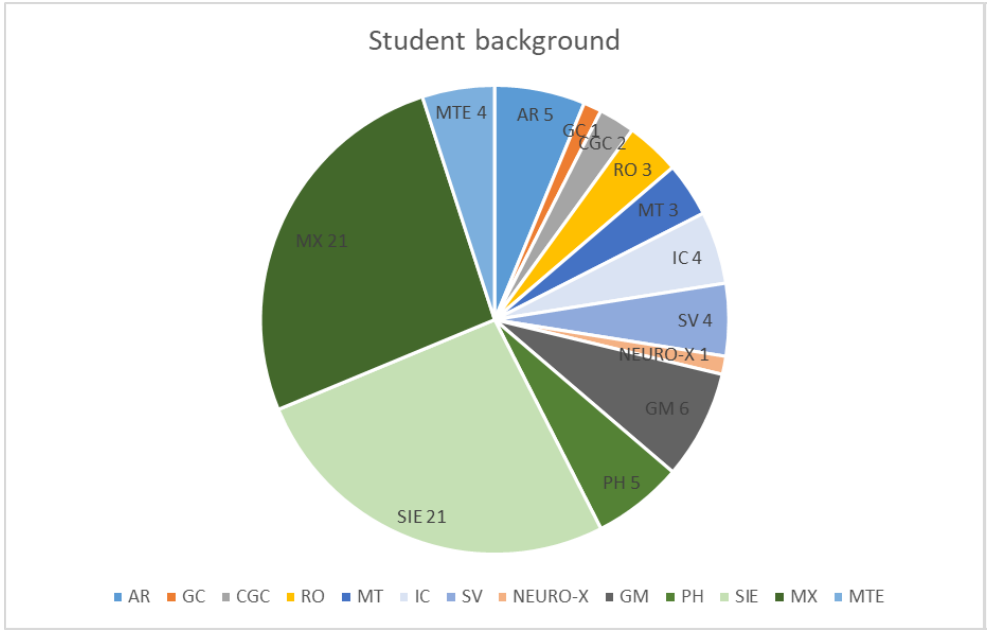
jobs.ch Find a job

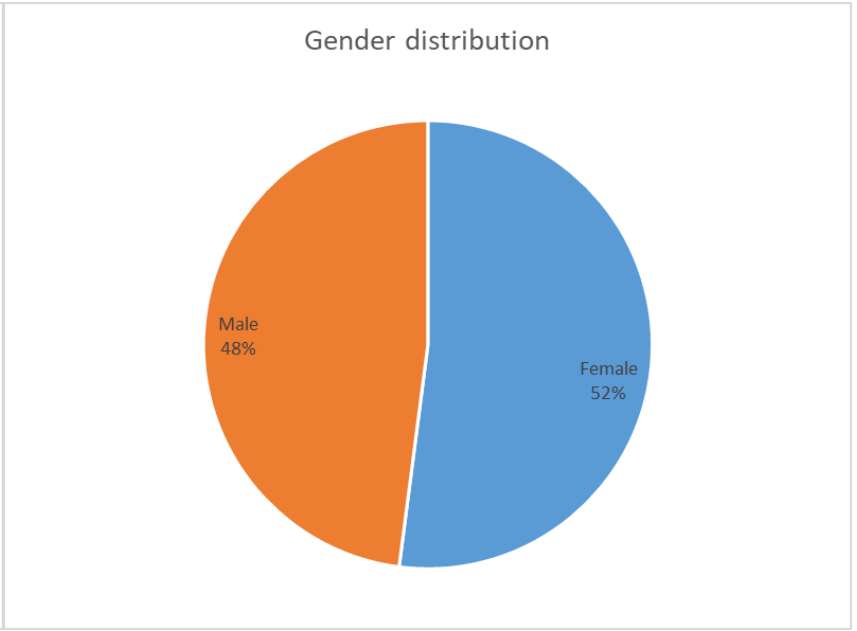
Why choose this minor?

- Contribute to **sustainability in your future profession** and add a sustainability focus to your diploma
- Develop new competences to tackle **complex sustainability challenges**: take attractive courses from outside your section; discover new disciplines, tools and approaches
- Carry out an **interdisciplinary research project** in your field of interest

Student registrations

Since 2021: 81 students from diverse background and gender enrolled in minor





status August 2025

Study plan 2025 - 2026

- **Wide variety of courses (select 20 ECTS):**
  - **Foundations, Tools & Methodologies**
  - **Environmental & Human Systems**
  - **Materials, Processes & Infrastructures**
- **10 ECTS** mandatory **interdisciplinary research project** in your field of interest and linked to a sustainability theme
- Master student takes a **total of 30 credits ECTS**
- **This Minor is open and accessible to architecture master students**

Foundations, Tools and Methodologies

	Credits
Design in innovation: creation for adoption	4
Development engineering	4
Energy supply, economics and transition	2
Environmental economics	4
Introduction to ethics and critical thinking	3
Material flow analysis and resource management	4
Science of climate change	4
Systems thinking	4
Technology, sustainability and public policy	4

Environmental and Human Systems

	Credits
Air pollution	5
Behind/beyond future cities	3
Building design in the circular economy	3
Energy conversion and renewable energy	4
Exploratory data analysis in environmental health	4
Planetary health	4
Sustainability assessment of urban systems	3
Ville et mobilité	3
Water and sanitation for development	3

Materials, Processes and Infrastructures

	Credits
Catalysis for energy storage	3
Computational systems thinking for sustainable engineering	4
Lifecycle assessment in energy systems	3
Towards sustainable materials	4

Mandatory project

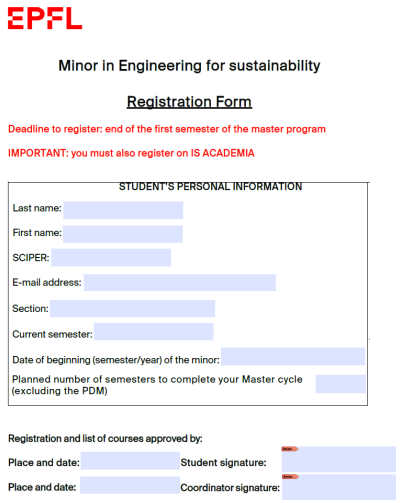
	Credits
Interdisciplinary project in sustainability	10

Registration and contact

- See our **webpage**: https://www.epfl.ch/schools/enac/education/interdisciplinary-teaching/interdisciplinary-minors/minor-in-engineering-for-sustainability/

- Fill in the **registration form** (with your selection of 30 credits) and send it by email to **charlotte.vandenberghe@epfl.ch** and the secretariat of your section in cc

- Once the registration form has been validated, register on **IS-Academia** for the minor and corresponding classes.



Minor in Engineering for sustainability

Registration Form

Deadline to register: end of the first semester of the master program

IMPORTANT: you must also register on IS ACADEMIA

STUDENT'S PERSONAL INFORMATION

Last name:

First name:

SCIPER:

E-mail address:

Section:

Current semester:

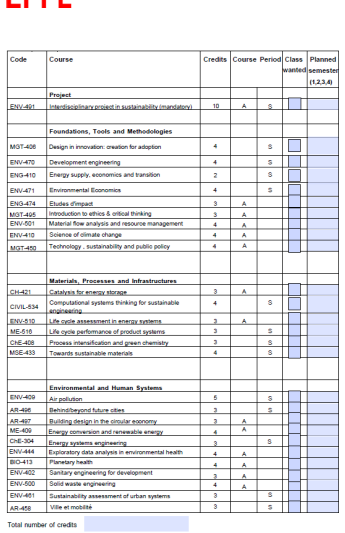
Date of beginning (semester/year) of the minor:

Planned number of semesters to complete your Master cycle (excluding the PDM)

Registration and list of courses approved by:

Place and date: Student signature:

Place and date: Coordinator signature:



Code	Course	Credits	Course Period		Class wanted	Planned semester (1,2,3,4)
	Project					
ENV-491	Interdisciplinary project in sustainability (mandatory)	10	A	S		
	Foundations, Tools and Methodologies					
MGT-406	Design in innovation: creation for adoption	4		S		
ENV-470	Development engineering	4		S		
ENG-410	Energy supply, economics and transition	2		S		
ENV-471	Environmental Economics	4		S		
ENG-474	Etudes d'impact	3	A			
MGT-405	Introduction to ethics & critical thinking	3	A			
ENV-501	Material flow analysis and resource management	4	A			
ENV-410	Science of climate change	4	A			
MGT-450	Technology , sustainability and public policy	4	A			
	Materials, Processes and Infrastructures					
CH-421	Catalysis for energy storage	3	A			
CIVIL-534	Computational systems thinking for sustainable engineering	4		S		
ENV-510	Life cycle assessment in energy systems	3	A			
ME-516	Life cycle performance of product systems	3		S		
CHE-408	Process intensification and green chemistry	3		S		
MSE-433	Towards sustainable materials	4		S		
	Environmental and Human Systems					
ENV-409	Air pollution	6		S		
AR-466	Behind/beyond future cities	3		S		
AR-467	Building design in the circular economy	3	A			
ME-409	Energy conversion and renewable energy	4	A			
CHE-304	Energy systems engineering	3		S		
ENV-444	Exploratory data analysis in environmental health	4	A			
BIO-413	Planetary health	4	A			
ENV-402	Sanitary engineering for development	3	A			
ENV-500	Solid waste engineering	4	A			
ENV-461	Sustainability assessment of urban systems	3		S		
AR-456	Ville et mobilité	3		S		

Total number of credits

Global temperature change (1850-2022)