

# I D E A S

## INTERDISCIPLINARY MINOR IN INTEGRATED DESIGN, ARCHITECTURE AND SUSTAINABILITY

Laboratory of Architecture and Sustainable Technologies (LAST)

Laboratory of Integrated Performance in Design (LIPID)

Structural Xploration Lab (SXL)

Building2050 Group

[ideas.epfl.ch](http://ideas.epfl.ch)

# ISSUES AND OBJECTIVES

- Integration of energy transition and climate change issues in MA cycle
  - focus on use of natural resources, carbon neutrality, climate adaptation and energy consumption (integrated design)
  - need for skills to contribute to urban transitions
- ENAC synergies
  - interdisciplinarity
  - broad spectrum of ENAC classes (MA level) at the interface between design, technology and society
- Targeted orientation for students
  - resource- and energy efficiency, occupant comfort, climate-responsive strategies to deal with complexity
  - valorize your competences in sustainable architecture and integrated design in the practice
  - research by design

# PRINCIPLES AND COURSE OFFERING

- Course offering
  - list of 22 courses totaling 81 ECTS, mostly within ENAC
  - class offerings in the fall, spring and summer
  - courses outside EPFL (max 5 ECTS, validated by IDEAS committee)
- Diversified selection
  - balanced selection from SAR, SGC, SSIE (and one class from STI)
  - combination of theory classes on comfort, energy, environment and infrastructure, and of project-based courses

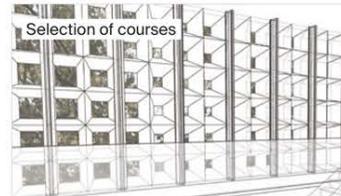
# IDEAS MINOR REQUIREMENTS

- Minimum 30 ECTS (to be validated by SAC)
- Equal balance of ECTS from two groups:
  - **Core courses** : Minimum 14 ECTS  
Basics on energy (GC), comfort (AR), ecological footprint (SIE) and hands-on (semester projects/UE)
  - **Theory courses** : Minimum 14 ECTS  
3 topics: energy (fundamentals), environment (strategies), systems (infrastructures)
- At least 10 ECTS chosen outside of own section
- Validation by IDEAS Minor Committee
- Interactive validation form available on the IDEAS website  
> [ideas.epfl.ch](https://ideas.epfl.ch)

- Selection of courses
- Validation
- TEACHING UNIT UE K
- PHD SEMINAR
- EVENTS
- NEWS

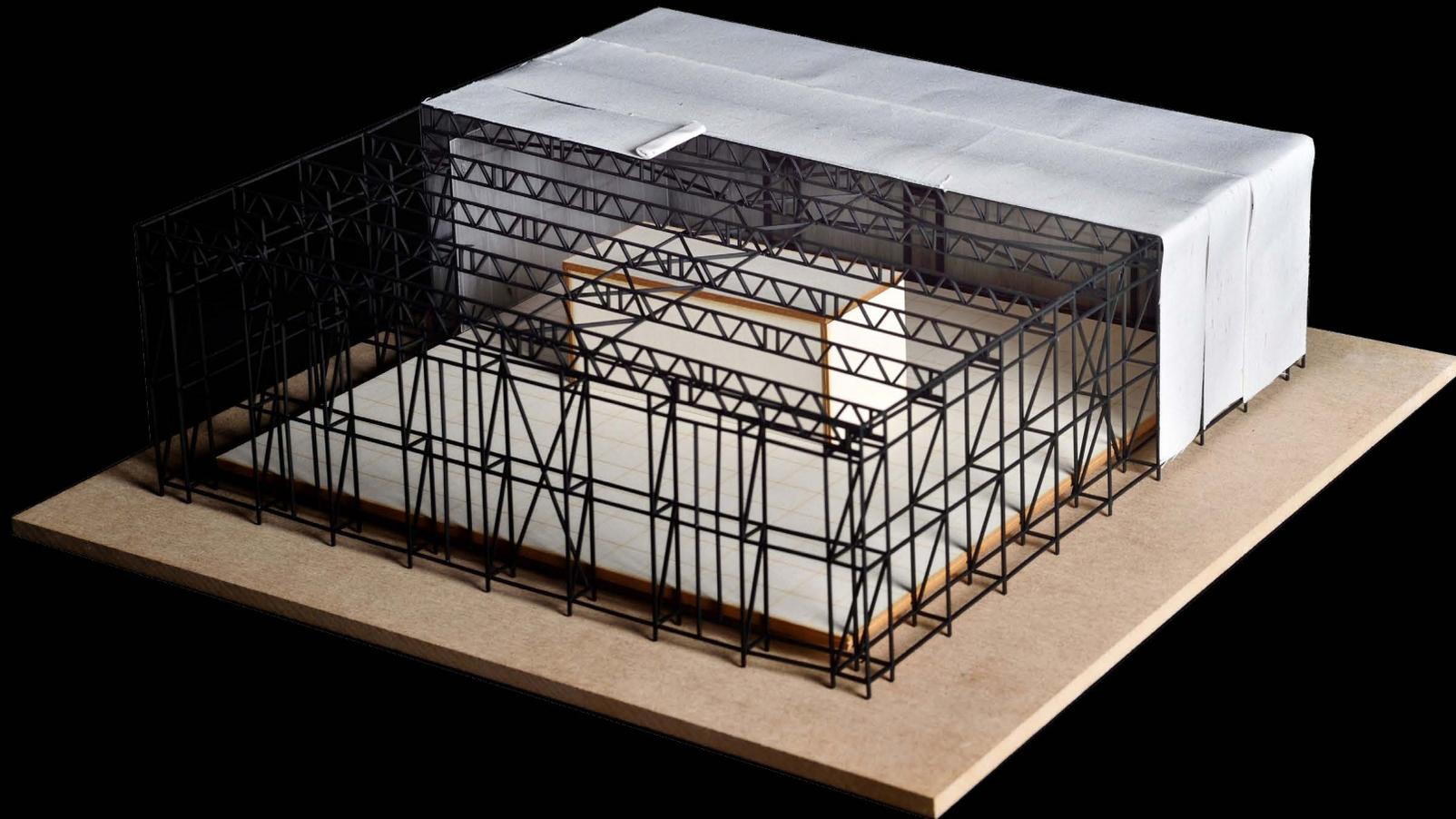
## IDEAS MINOR

The interdisciplinary Minor in Integrated design, Architecture and Sustainability (IDEAS) responds to a need to further reinforce the integration of sustainable architecture questions within the Master Cycle in Architecture, Civil and Environmental Engineering. It focuses on issues of energy consumption and the use of natural resources within the global framework of integrated design.



# CORE COURSES (Min. 14 ECTS / Total 34 ECTS)

Fundamental classes		Lecturer(s)		ECTS
AR-442	Comfort and architecture: sustainable strategies	Pastore/Wienold + Pastore/Wienold	AR	3
CIVIL-407	Energy and comfort in buildings	Khovalyg/Licina/Sonta/Favero	GC	5
AR-406	Restaurer, transformer et créer - Pratiques	Devaux	AR	3
ENV-461	Sustainability assessment of urban systems	Binder	SIE	3
Project-oriented classes				
CIVIL-493	Optional interdisciplinary project *	Profs divers	GC	4
PENS-494	Projet ENAC pour mineur IDEAS *	Divers enseignants	AR/GC/SIE	4
PENS-491	Summer workshop **	Divers enseignants	AR/GC/SIE	4
AR-440	UE K : Architecture et durabilité : études de performances	Andersen/Fivet/Fumeaux/Pastore/Rey	AR	4
AR-435	UE R : Introduction au BIM	Hautecoeur	AR	4



# THEORY COURSES (Min. 14 ECTS / Total 47 ECTS)

Energy classes		Lecturer(s)		ECTS
AR-449	Architecture et énergie solaire	Munari Probst	AR	4
ME-454	Modelling and optimization of energy systems	Maréchal	GM	4
Environment classes				
ENV-409	Air pollution	Takahama/Reimann	SIE	5
ENV-526	Climate and water sensitive design	Manoli	SIE	4
ENG-474	Etudes d'impact sur l'environnement	Devanthéry/Chopard M./Schmidt F	GC	3
CIVIL-460	Indoor air quality and ventilation	Licina	GC	4
CIVIL-450	Thermodynamics of comfort in buildings	Khovalyg	GC	3
Systems classes				
AR-496	Behind/Beyond future cities	Coccolo/Mauree	AR	3
AR-497	Building design in the circular economy	Fivet/Küpfer	AR	3
ENV-470	Development engineering	Schönenberger/Makohliso	SIE	4
AR-483	Interactive conceptual design of structural forms	Fivet	AR	3
AR-484	Introduction au BIM (Building Information Modeling)	Hautecoeur	AR	3
ENV-501	Material flow analysis and resource management	Binder/Del Campo	SIE	4
	Course outside EPFL (upon request, in agreement with IDEAS committee)	Various prof.		5 max.



Group work on the IDEAS Minor. S. Planchamp, L. Fumeaux, L. Ferrari, S. Léveillé, C. Jianoux and S. Yun © A.Goy

# IDEAS MINOR STUDENTS

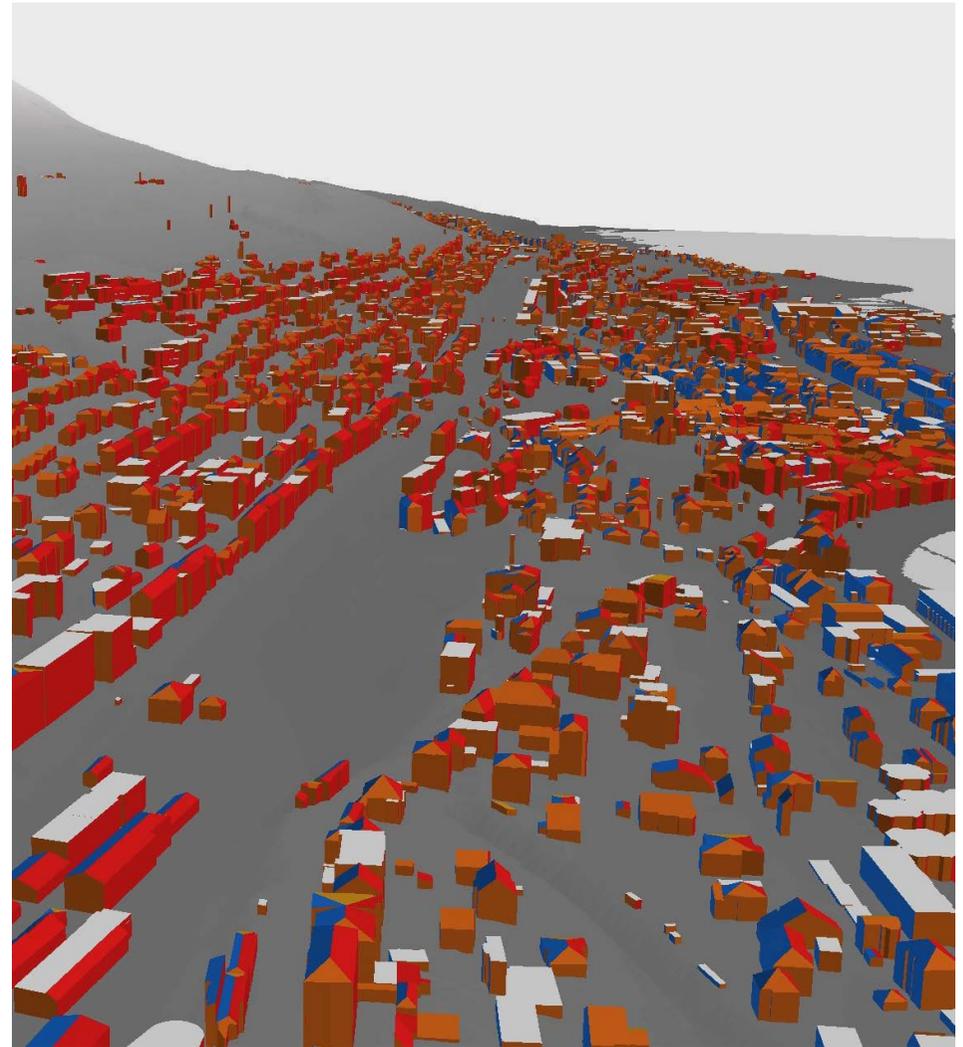
- 108 students in total (August 2025)
  - 90 IDEAS Minors achieved  
(45 Architecture, 28 Civil Eng., 16 Environmental Eng., 1 Materials Sc. and Eng.)
  - 18 IDEAS Minors in progress  
(12 Architecture, 3 Environmental Eng., 1 Materials Sc. and Eng., 1 Mechanical Eng., 1 Life Sciences Eng.)
- Valorization opportunities for IDEAS Minor Alumni in the fields of professional practice, innovative start-ups and research
- Increased demand for skills in integrated design, architecture, sustainability and climate adaptation

# IDEAS

Integrated Design  
Architecture  
and Sustainability

EPFL





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