# Studies Plan

**Mineur : Design 2020-21**

**Minor : Integrated design, Architecture and Sustainability**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Exam Session</th>
<th>Exam</th>
<th>Credit</th>
</tr>
</thead>
</table>
| **Air pollution and climate change**  
E  
ENV-400  
SIE  
Reimann  
Bhend  
Schmale  
Takahama | Sum  
Win | Written  
During the semester | 5 |
| **Architecture and Solar energy**  
F  
AR-449  
AR  
Munari  
Probst | Sum  
Win | Oral  
During the semester | 3 |
| **Behind/Beyond future cities**  
E  
AR-496  
AR  
Coccolo  
Mauree  
Scartezzini | Sum  
Win | Oral  
During the semester | 3 |
| **Building design in the circular economy**  
E  
AR-497  
AR | Win  
Sum | Written  
During the semester | 3 |
| **Building energetics**  
E  
ENG-445  
GC  
Khovalyg  
Licina | Win  
Sum | During the semester  
During the semester | 3 |
| **City and mobility**  
F  
AR-458  
AR  
Drevon  
Kaufmann  
Ravalet | Sum  
Win | Written  
During the semester | 3 |
| **Civil engineering teaching unit: Sustainable construction**  
F  
CIVIL-474  
GC  
Gnansounou  
Nussbaumer  
Wienold | Win  
Sum | During the semester  
During the semester | 4 |
| **Comfort and architecture: sustainable strategies**  
E  
AR-442  
AR  
Andersen  
Karmann  
Wienold | Win  
Sum | Oral  
During the semester | 3 |
| **Development engineering**  
E  
ENV-470  
SIE  
Hostettler  
Schönenberger | Sum  
Win | During the semester  
During the semester | 4 |
| **ENAC project for minor IDEAS**  
F  
PENS-494  
GC  
Profs divers | Sum  
Win | During the semester  
During the semester | 4 |
| **Impact studies**  
F  
ENG-474  
GC  
Devanthéry  
Heller  
Schmidt | Win  
Sum | Oral  
During the semester | 3 |
| **Indoor air quality and ventilation**  
E  
CIVIL-460  
GC  
Licina | Sum  
Win | During the semester  
During the semester | 4 |
| **Integrated planning of energy infrastructures**  
F  
CIVIL-442  
GC  
Gnansounou | Sum  
Win | Oral  
During the semester | 3 |
| **Interactive conceptual design of structural forms**  
E  
AR-483  
AR  
Fivet | Win  
Sum | Oral  
During the semester | 3 |
| **Introduction to BIM (Building Information Modeling)**  
F  
AR-484  
AR  
Hautecoeur | Win  
Sum | During the semester  
During the semester | 3 |
| **Material and energy flow analysis**  
E  
ENV-501  
SIE  
Binder  
Signer  
Moreau | Win  
Sum | During the semester  
During the semester | 4 |
| **Modelling and optimization of energy systems**  
E  
ME-454  
GM  
Maréchal | Sum  
Win | Oral  
During the semester | 4 |
| **Modelling of energy systems**  
F  
CIVIL-447  
GC  
Gnansounou | Win  
Sum | Oral  
During the semester | 3 |

* : option courses / F : French courses, D : Deutsch courses, E : English Courses / Sum : Summer, Win : Winter
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Code</th>
<th>Type</th>
<th>Profs</th>
<th>Prjs</th>
<th>Instr.</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Optional transdisciplinary project</td>
<td>CIVIL-493</td>
<td>GC</td>
<td>Divers</td>
<td></td>
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<td>During</td>
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<tr>
<td>Recycling of materials</td>
<td>MSE-463</td>
<td>MX</td>
<td>Letelier</td>
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<td>During</td>
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<tr>
<td>Summer workshop</td>
<td>PENS-491</td>
<td>GC</td>
<td>Divers</td>
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<td>During</td>
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<tr>
<td>Sustainability assessment of urban systems</td>
<td>ENV-461</td>
<td>SIE</td>
<td>Binder, Signer, Merino</td>
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<td>During</td>
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<tr>
<td>Systems of environmental management</td>
<td>ENV-469</td>
<td>SIE</td>
<td>Baracchini</td>
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<td>During</td>
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<tr>
<td>The preservation project: theories and techniques</td>
<td>AR-434</td>
<td>AR</td>
<td>Graf, Marino</td>
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<td>Oral</td>
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<td>Thermodynamics of comfort in buildings</td>
<td>CIVIL-450</td>
<td>GC</td>
<td>Khovalyga</td>
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<td>During</td>
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<td>Transformation, from theory to practice of change</td>
<td>AR-514</td>
<td>AR</td>
<td>Declerck</td>
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<td>Oral</td>
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<tr>
<td>UE F : Architecture and rehabilitation: performance studies</td>
<td>AR-439</td>
<td>AR</td>
<td>Arlaud, Brühlwiler, Wall, Gago, Zurbrügg</td>
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<td>During</td>
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<tr>
<td>UE K : Architecture and Sustainability: performance studies</td>
<td>AR-440</td>
<td>AR</td>
<td>Andersen, Fivet, Fumeaux, Karmann, Rey</td>
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<td>During</td>
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<tr>
<td>UE R: Introduction to BIM (Building Information Modeling)</td>
<td>AR-435</td>
<td>AR</td>
<td>Cache, Hautecoeur</td>
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<td>During</td>
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<tr>
<td>Urban habitat and development</td>
<td>AR-465</td>
<td>AR</td>
<td>Carlevaro, Pedrazzini</td>
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<td>Oral</td>
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<tr>
<td>Urban hydrology</td>
<td>ENV-417</td>
<td>SIE</td>
<td>Rossi</td>
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<td>During</td>
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<td>Water resources management</td>
<td>CIVIL-441</td>
<td>GC</td>
<td>Droz, Gamito de Saldanha, Calado, Matos</td>
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