

Studies Plan

Génie civil 2023-24

Block 1

| Courses | | | | Master 1 | Master 2 | Exam Session | Exam | Credit | |
|----------|--|---------|-----------------------|----------------|----------|--------------|------|---------------------|---|
| Language | Code | Section | Teacher | Specialization | on p | I e p | | | |
| E | Dynamics of structures CIVIL-468 | GC | Beyer Lignos | 3h | 1h | | Win | Written | 4 |
| E | Energy and comfort in buildings ENG-445 | GC | Licina Sonta | 2h | 1h | | Win | During the semester | 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 | Koliji Laloui | 2h | 2h | | Win | Written | 4 |
| E | Hydropower schemes and pumped-storage CIVIL-469 | GC | De Cesare Manso | 2h | 2h | | Win | Written | 4 |

Block 2

| Courses | | | Master 1 | Master 2 | Exam Session | Exam | Credit | |
|----------|---|---------|---|----------------|--------------|-------|--------------------------|--------------------------|
| Language | Code | Section | Teacher | Specialization | on p | I e p | | |
| E | Civil engineering laboratory CIVIL-492 | GC | Profs divers | 5h | | 5h | Sum Win | During the semester 4 |
| F | Civil Engineering teaching unit: Docta Manus CIVIL-475 | GC | Baur Corres Sojo Fernandez-Ordoñez Guaita | 2h 2h | | Win | During the semester 4 | |
| E | Civil system project CIVIL-491 | GC | Profs divers | 5h | | 5h | Sum Win | During the semester 4 |
| E | Construction project CIVIL-490 | GC | Profs divers | 5h | | 5h | Sum Win | During the semester 4 |
| 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 | |
| | HSS : Introduction to project SHS | | | | | Win | | 3 |
| | HSS : Project SHS | | | | | Sum | | 3 |

Group "Optional courses"

| Courses | | | | Master 1 | Master 2 | Exam Session | Exam | Credit | |
|----------|--|---------|---------|----------------|---------------------------|--------------|------|---------------------|---|
| Language | Code | Section | Teacher | Specialization | on p | I e p | | | |
| E | Advanced composites in engineering structures CIVIL-443 | | | AR | Vassilopoulos | 2h 1h | Win | Oral | 3 |
| E | Advanced design of concrete structures CIVIL-414 | | | GC | Fernandez-Ordoñez | 1h 2h | Sum | During the semester | 3 |
| E | Composites design and innovation CIVIL-464 | | | GC | Molinari Vassilopoulos | 2h 1h | Sum | Oral | 3 |

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| E | Computational geomechanics CIVIL-423 | GC | Lecampion | 2h 3h | | Win | During the semester | 5 |
| E | Computational systems thinking for sustainable eng. CIVIL-534 | GC | Sonta | | 2h 1h | Sum | During the semester | 4 |
| F | Concrete bridges CIVIL-430 | GC | Muttoni | 2h 1h | | Win | Oral | 3 |
| F | Construction law for engineers I ENG-470 | GC | Di Cicco Mouvet Müller | 2h | | Win | Written | 2 |
| F | Construction law for engineers II ENG-471 | GC | Di Cicco Müller | | 2h | Sum | Oral | 2 |
| E | Continuum mechanics and applications CIVIL-425 | GC | Lecampion Molinari | | 3h 2h | Sum | Oral | 6 |
| E | Dam engineering CIVIL-411 | GC | Manso Mouvet | 3h | | Win | Oral | 3 |
| E | Decision-aid methodologies in transportation CIVIL-557 | GC | Paschalidis Torres | | 2h 2h | Sum | Oral | 4 |
| E | Deep learning for autonomous vehicles CIVIL-459 | GC | Alahi | | 2h 4h | Sum | During the semester | 6 |
| E | Energy geostructures CIVIL-444 | GC | Laloui | | 2h 1h | Sum | Written | 4 |
| E | Engineering geology for geo-energy CIVIL-428 | GC | Nussbaum | | 2h 1h | Sum | During the semester | 3 |
| E | Engineering of existing structures CIVIL-511 | GC | Denarié Nussbaumer | 3h 1h | | Win | Oral | 4 |
| F | Flood and dam break waves CIVIL-515 | GC | | | 2h 1h | Sum | Oral | 3 |
| E | Flow monitoring technology in water engineering CIVIL-427 | GC | | | 2h 1h | Sum | During the semester | 3 |
| F | Fluvial hydraulics and river training works CIVIL-410 | GC | André Arborino De Cesare | 2h 1h | | Win | Oral | 3 |
| F | Geology for construction and environment CIVIL-403 | GC | Tacher | 2h 1h | | Win | During the semester | 3 |
| E | Geothermal resource development CIVIL-470 | GC | | 2h 1h | | Win | Oral | 3 |
| F | Impact studies ENG-474 | GC | Devanthéry Helfer Schmidt | 2h 1h | | Win | Oral | 3 |
| E | Indoor air quality and ventilation CIVIL-460 | GC | Licina | | 2h 2h | Sum | During the semester | 4 |
| E | Innovation for construction and the environment CIVIL-424 | GC | Terzis | 2h 1h | | Win | During the semester | 3 |
| E | Machine learning for predictive maintenance applications CIVIL-426 | GC | Fink | 2h 2h | | Win | During the semester | 4 |
| F | 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 |

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| E | Nonlinear analysis of structures CIVIL-449 | GC | Beyer 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 | 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 | Quantitative imaging for engineers CIVIL-510 | GC | Andò | 2h | 1h | | Win | During the semester | 3 |
| E | Reinforced concrete structures - advanced topics CIVIL-512 | GC | Ruggiero | | 3h | 1h | Sum | Written | 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 |
| F | River eco-morphology ENV-418 | GC | De Cesare Gostner | 2h | 1h | | Win | During the semester | 3 |
| E | Rock mass characterization for engineering design CIVIL-496 | GC | Kushnir Passelègue Violay | | 3h | 2h | Sum | During the semester | 5 |
| E | Seismic engineering CIVIL-522 | GC | Lignos Saloustros Vanin | | 4h | 2h | Sum | Written | 6 |
| E | Selected topics in mechanics of solids and structures CIVIL-527 | GC | | 2h | 1h | | Win | Oral | 3 |
| E | Slope stability CIVIL-530 | GC | Ferrari | | 2h | 1h | Sum | Written | 3 |
| | Steel structures CIVIL-526 | GC | Nussbaumer | 2h | 1h | | Win | Written | 3 |
| E | Structural stability CIVIL-369 | GC | Heredia Rosa Lignos Sousa | | 3h | 1h | Sum | Written | 4 |
| E | Thermodynamics of comfort in buildings CIVIL-450 | GC | | | 1h | 2h | Sum | During the semester | 3 |
| F | Timber construction CIVIL-433 | GC | Natterer | | 2h | 1h | Sum | Oral | 3 |
| F | Towns and Transports CIVIL-451 | GC | Tufo | 2h | 1h | | Win | During the semester | 3 |
| E | Transportation economics CIVIL-455 | GC | Geroliminis Yang de Palma | | 2h | 1h | Sum | During the semester | 3 |
| F | Transport facilities I CIVIL-463 | GC | Tille | 2h | 1h | | Win | Written | 3 |
| F | Transport facilities II CIVIL-454 | GC | Tille | | 2h | 1h | Sum | Written | 3 |
| F | Underground construction technology CIVIL-404 | GC | Sandrone Seingre | | 2h | 1h | Sum | During the semester | 3 |
| E | Urban hydraulic systems CIVIL-413 | GC | Pfister | | 2h | 1h | Sum | Oral | 3 |

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| E | Water resources management | | | Bieri Leite Ribeiro Perona | 2h 1h | Sum | Oral | 3 |
| | CIVIL-466 | GC | | | | | | |

Master project

| Courses | | | | Master 1 | Master 2 | MP Autumn | MP Spring | Exam Session | Exam | Credit | | |
|----------|---|---------|--------------|----------------|----------|-----------|-----------|--------------|------|---------|--------------|----|
| Language | Code | Section | Teacher | Specialization | h | p | l | e | p | l | e | p |
| E | Engineering internship credited with Master Project (master in Civil engineering) | | | | | | | | | | | |
| | CIVIL-597 | GC | Profs divers | | 320h | | 320h | | 320h | Sum Win | Term paper 0 | |
| | Master project in Civil Engineering | | | | | | | | | | | |
| | CIVIL-599 | GC | Profs divers | | | | 900h | | 900h | Sum Win | Oral | 30 |

Pré-étude obligatoire

| Courses | | | | Master 1 | Master 2 | Exam Session | Exam | Credit | |
|--------------------------|-----------|---------|-----------------|----------------|----------|--------------|------|--------|-----------------------|
| Language | Code | Section | Teacher | Specialization | h | p | l | e | p |
| Pre-study master project | | | | | | | | | |
| E | CIVIL-598 | GC | Profs divers | | 3h | | Win | | During the 3 semester |