MSc in Civil Engineering for Risk Mitigation - Lecco Campus

Fall Semester

Option 1 (34 ECTS)

- Numerical Methods for Partial Differential Equations (12 ETCS)
- Soil-structure interaction (9 ETCS)
- Tools for Risk Management (7 ETCS)
- Hydrology for Flood Risk Evaluation (6 ETCS)

Pre-requisites: matrix algebra, ordinary differential equations, solid mechanics, strength of materials, statistics, geotechnics

Option 2 (30 ECTS)

Choice of two of the following modules (pre-requisites defined for each module)

- Engineering structures for the environment (15 ECTS)
- Structure retrofitting (15 ECTS)
- Emergency plans for hydrogeological risk (15 ECTS)
- Hazards from industrial sites: process analysis and risk assessment (15 ECTS)

Pre-requisites:

- *Engineering structures for the environment: Hydraulics, Continuum mechanics and structural design, chemistry, soil mechanics, soil-structure interaction*
- *Structure retrofitting: Math1 and 2, Differential equations, Structural mechanics, Structural dynamics, Structural design, Geotechnics, soil-structure interaction, fire safety of materials and structures*
- *Emergency plans for hydrogeological risk: Basic knowledge and competencies of: Mathematics, Calculus, Fluid Mechanics*
- *Hazards from industrial sites: process analysis and risk assessment: Basic knowledge and competencies of: Mathematics, Calculus, Physics, Chemistry, Fluid Mechanics*

Spring Semester

Option 1 (26 ECTS)

- Structural Analysis (15 ETCS)
- Fundamentals of GIS (5 ETCS)
- River Hydraulics for Flood Risk Evaluation (6 ETCS)

Pre-requisites: matrix algebra, ordinary and partial differential equations, solid mechanics, strength of materials, statistics, hydraulics

Option 2 (30 ECTS)

Choice of two of the following modules (pre-requisites defined for each module):

- Transport management in emergency planning (15 ECTS)
- Geo-Engineering Techniques for Site Assessment and Monitoring (15 ECTS)
- Information Technology supporting Seismic Emergency Management (15 ECTS)

Pre-requisites:

- *Transport management in emergency planning: Basic informatics, mathematics, statistics*
- *Geo-Engineering Techniques for Site Assessment and Monitoring: Mathematical Analysis, Physics (mechanics, notions of electromagnetism)*
- *Information Technology supporting Seismic Emergency Management: Basic proficiency in Computer Science*