

MSc in Civil Engineering MI_GlobalE3

Starting from academic year 2013-14, the track “Structures” of the Master of Science Program in Civil Engineering will be entirely taught in English.

The track is devoted to the analysis and design of civil and industrial structures (buildings, bridges, dams, etc.).

The nominal duration of the program is two years. 120 credits are required to obtain the degree, 14 of which are devoted to the final project (or “thesis”).

For each semester of the MSc Program, groups of courses for about 30 credits are eligible as follows:

1st year, 1st semester

Numerical methods for civil engineering (6 credits)

Computational mechanics and Inelastic structural analysis (10 credits)

Advanced structural design (6 credits)

Theory of structures and Stability of structures (10 credits)

Prerequisites: matrix algebra, ordinary and partial differential equations, solid mechanics, strength of materials

1st year, 2nd semester

Dynamics of structures (10 credits)

Computational structural analysis OR Reinforced and prestressed concrete structures (10 credits)

Fracture mechanics AND/OR Advanced computational mechanics AND/OR Mechanics of materials and constitutive models (6 credits) – 2 courses out of 3

Prerequisites: matrix algebra, ordinary differential equations, solid mechanics, strength of materials, fundamentals of concrete structures, introduction to the finite element method, introduction to theory of plasticity for materials and structures

2nd year, 1st semester

Bridge theory and design (10 credits)

Foundations (10 credits)

Precast concrete structures AND/OR Underground excavations (6 credits) AND/OR Earthquake resistant structures- part 1 (5 credits) – 2 courses out of 3

Prerequisites: ordinary and partial differential equations, solid mechanics, strength of materials, dynamics of structures, soil mechanics, fundamentals of concrete structures, theory of plates

2nd year, 2nd semester

Computational structural analysis OR Reinforced and prestressed concrete structures (10 credits, 2nd semester)

Structural rehabilitation (6 credits)

Fracture mechanics AND/OR Advanced computational mechanics AND/OR Mechanics of materials and constitutive models (6 credits) – 2 courses out of 3

Earthquake resistant structures- part 2 (5 credits)

Prerequisites: matrix algebra, ordinary differential equations, solid mechanics, strength of materials, dynamics of structures, fundamentals of concrete structures, fundamentals of earthquake resistant structures, introduction to the finite element method, introduction to theory of plasticity for materials and structures

Students willing to obtain a MSc degree in Civil Engineering from Politecnico di Milano must attend courses for a minimum of 106 credits selected from the list above, pass the corresponding exams, develop a thesis and pass a final examination.

Students willing to spend one or two semesters at Politecnico within any student exchange program (Erasmus, GlobalE3, etc.) can select courses from either one or two of the groups listed above, according to their interests and knowledge.