

Civil Engineering / Ingegneria Civile

The Master's Degree Programme in **Civil Engineering** aims to educate civil engineers with advanced knowledge and skills for the analysis, design, construction, management, and maintenance of civil structures and infrastructures.

The educational programme offers two curricula: **Structural Engineering** and **Infrastructure Engineering**. The former is taught in English, while the latter is taught in Italian, with some courses delivered in English.

The **Structural Engineering** curriculum is mainly focused on the analysis, design, construction, and rehabilitation of civil structures. Students in the Structural Engineering curriculum acquire advanced and specialized knowledge for the design, construction, testing, and management of complex civil structures, including damage diagnosis, monitoring, and rehabilitation of existing structures. In-depth study is devoted to mathematical models, structural analysis methods with particular attention to computational mechanics, seismic design criteria and methods, the study of special structures (bridges, skyscrapers, tunnels, large-span roofs, etc.), and the rehabilitation and strengthening of existing structures using innovative techniques. All courses in this track are taught in English, in line with the rapid internationalization of company activities, which increasingly require structural engineers with a strong command of this language.

The **Infrastructure Engineering** curriculum places greater emphasis on the conception, planning, design, construction, environmental/territorial integration, and management of complex systems necessary for civil interaction activities. Students in the Infrastructure Engineering curriculum acquire specific knowledge related to: planning, construction, management, and maintenance of road infrastructures; management of plants and, more generally, of water resources; modelling of processes in river basins and watercourses and related

management criteria; management and use of groundwater; management and design of special hydraulic systems (hydropower plants, complex pressurized water networks, irrigation systems, hydro-meteorological monitoring networks).

Within this framework, the Master's Degree Programme in Civil Engineering promotes the education of engineers with professional skills that can be used both in Italy and abroad. Students have the opportunity to complete part of their studies abroad within the framework of the Erasmus Plus programme and other exchange programmes, thanks to the numerous bilateral agreements active at the Department.

Information on applications for the programme for the academic year 2026/2027 can be found at the page:
<https://www.unipg.it/en/international-students/students-wishing-to-enroll/how-to-apply>

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DIPARTIMENTO
DI INGEGNERIA
CIVILE E AMBIENTALE



Civil Engineering /Ingegneria Civile

Master's Degree
Programme (LM-23)

a.y. 2026/2027

Teaching plan

Study plan

a.y. 2026/2027

curriculum

Structural engineering

	Courses	CFU	
	Modules		
FIRST YEAR	Technical systems for buildings	5	
	Diagnosis of structural damages and modern building materials	9	
	Structural plasticity and stability	9	
	Design, construction and management of bridges	12	
	Theory and construction of bridges	6	
	Design and management of bridges	6	
	Computational mechanics	9	
	Dynamics of structures	6	
	a) Probabilistic methods for earthquake engineering	5	
	b) Structural testing and assessment	5	
	c) Costruzioni idrauliche (in italian)	5	
	d) Idrologia II (in italian)	5	
	Courses a), b), c), and d) are alternatives; two of them must be selected to obtain 10 CFU.		

	Courses	CFU
	Modules	
SECOND YEAR	Retrofitting of structures	9
	Earthquake engineering	12
	Earthquake engineering I	6
	Earthquake engineering II	6
	Foundation engineering	9
	Activities chosen by the student	9
	Seminars for professional development	3
	Traineeship	6
English language (level B2 or higher)	3	
Final exam	9	

curriculum

Infrastructure Engineering

/Ingegneria delle infrastrutture

	Courses	CFU
	Modules	
FIRST YEAR	Technical systems for buildings	5
	Costruzione di infrastrutture viarie	5
	Ingegneria delle infrastrutture viarie e dei trasporti	5
	Idrologia e costruzioni idrauliche	10
	Costruzioni idrauliche	5
	Idrologia II	5
	Computational mechanics	9
	Rischio idraulico e dinamica degli inquinanti	8
	Hydraulic risk	3
	Dinamica degli inquinanti nei fluidi e nel suolo	5
	Gestione e manutenzione delle infrastrutture viarie	5
	a) Design, construction and management of bridges	12
	Theory and construction of bridges	6
	Design and management of bridges	6
b) Sistemi idrici	12	
Gestione e monitoraggio sistemi acquedottistici	6	
Complementi di costruzioni idrauliche	6	
Courses a) and b) are alternative options for obtaining 12 CFU.		

	Courses	CFU
	Modules	
SECOND YEAR	Ingegneria per la sistemazione dei bacini idrografici	10
	Ingegneria dei corsi d'acqua	5
	Sistemazione dei bacini idrografici	5
	Gestione e impianti per le risorse idriche	10
	Gestione delle risorse idriche	5
	Impianti idraulici per usi idroelettrici e irrigui	5
	Foundation engineering	12
	Activities chosen by the student	8
	Seminars for professional development	3
	Traineeship	6
	English language (level B2 or higher)	3
Final exam	9	