



## MASTER'S DEGREE IN CIVIL ENGINEERING

### DEGREE PROGRAMME 2021/2022

Course contents are available at this [link](#)


#### 1<sup>st</sup> year

Sem	Teaching course	SSD*	TAF*	Credits	h
<b>Common courses</b>					
1	Spatial Planning	ICAR/20	C	6	60
1	Integrated Course: Theory and Computational mechanics of structures - Module: Theory of Structures	ICAR/08	B	6	60
2	- Module: Computational mechanics of structures 	ICAR/08	B	6	60
1	Integrated Course: Construction of Road, Railways and Airport 2 and Transportation Planning (*) - Module: Construction of Road, Railways and Airport 2	ICAR/04	B	6	60
2	- Module: Transportation Planning	ICAR/05	B	6	60
<b>Hydraulics Curriculum</b>					
1	Numerical Calculus	MAT/08	C	6	60
2	Integrated Course: Hydraulics 2 and Maritime Hydraulics - Module: Hydraulics 2	ICAR/01	B	6	60
2	- Module: Maritime Hydraulics	ICAR/01	B	6	60
<b>Sustainable Smart Building and Constructions Curriculum</b>					
1	Mathematical Models and Methods in Engineering	MAT/09	C	6	60
2	Sustainable Building: bioclimatic design	ICAR/10	B	6	60
2	<i>One course among:</i> Thermal Hvac Systems	ING-IND/11	C	6	60
2	Real Estate Appraisal	ICAR/22	C	6	60
2	Sustainable Spatial Planning	ICAR/20	C	6	60
<b>Structures Curriculum</b>					
1	Numerical Calculus	MAT/08	C	6	60
2	Theory and Design of Steel Construction	ICAR/09	B	6	60
<b>Transportations Curriculum</b>					
1	Mathematical Models and Methods in Engineering	MAT/09	C	6	60
2	Integrated Course: Transport System Design and Theory and Technology Traffic Flow - Module: Transport System Design	ICAR/05	B	6	60
2	- Module: Theory and Technology Traffic Flow	ICAR/05	B	6	60

(\*) For students that passed the exam of Construction of Road, Railways and Airport 2 during the bachelor's degree (ex D.M. 509/99) Integrated Course: Road, Airfield and Railway Pavements and Transportation Planning is available.



2<sup>nd</sup> year

Sem	Teaching course	SSD*	TAF*	Credits	h
<b>Common courses</b>					
1	Foundations and Earth Retaining Structures	ICAR/07	C	6	60
1	Watershed and Stream Restoration Engineering	ICAR/02	B	6	60
1	Integrated Course: Design, Control and Inspection of Structures and Buildings in Wood and Masonry				
1	- Module: Design, Monitoring and Inspection of Structures	ICAR/09	B	6	60
2	- Module: Design of Timber and Masonry Structures	ICAR/09	B	6	60
<b>Hydraulics Curriculum</b>					
1	Hydrological Models	ICAR/02	B	6	60
2	Water Systems Planning and Management	ICAR/02	B	6	60
2	Maritime Engineering	ICAR/02	B	6	60
1-2	Other activities		F	3	
<b>Sustainable Smart Building and Constructions Curriculum</b>					
	<i>One course among:</i>				
1	Hydraulic Services Design	ICAR/02	B	6	60
1	Structural Diagnosis and Reinforcement of Buildings	ICAR/09	B	6	60
1	Urban microclimatic design and natural building ventilation	ICAR/01	B	6	60
2	Integrated Course: Sustainable Building				
2	- Module: Energy Performance of Building	ING-IND/11	C	6	60
2	- Module: Building Information Modeling: from knowledge to integrated design	ICAR/11	B	6	60
2	Integrated Building Design Lab - Sustainable Building		F	3	40
<b>Structures Curriculum</b>					
1	Design of Bridges and Special Structures	ICAR/09	B	6	60
1	Structural stability and limit analysis of structures 	ICAR/08	B	6	60
2	Integrated Course: Dynamics of Structures and Seismic Engineering				
2	- Module: Dynamics of structures	ICAR/08	B	6	60
2	- Module: Seismic engineering	ICAR/09	B	6	60
1-2	Other activities		F	3	
<b>Transportations Curriculum</b>					
2	Road, Airfield and Railway Pavements	ICAR/04	B	6	60
2	Logistic and Freight Transportation	ICAR/05	B	6	60
	<i>Choose between:</i>				
2	Urban and Metropolitan Transport	ICAR/05	B	6	60
2	Rail Transport	ICAR/05	B	6	60
1-2	Other activities		F	3	

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### Additional credits to be acquired

Sem	Activity	SSD*	TAF*	Credits	h
	Elective activities <sup>1</sup>		D	12	
	English Language Test <sup>2</sup>		F	3	
	Final Examination		E	12	

**TOTAL CREDITS 120**

- (1) The elective activities must be consistent with the personal educational plan and they need approval by the Degree Programme Board.
- (2) The credits of European language level can be acquired:
- passing the English language test at B2 European level (CEFR) at Centro Linguistico d'Ateneo,
  - showing appropriate certification of B2 European level (CEFR) knowledge.

### Other optional activities:

Sem	Laboratories	SSD*	TAF*	Credits	h
1	Traffic Simulation Model Laboratory	ICAR/05	F	3	45
1	Structures Finite Element Modeling	ICAR/09	F	3	45
2	Laboratory of Maritime Hydrodynamics Modelling	ICAR/01	F	3	45
2	Laboratory of Integrated Design of Roads, Railways and Airports	ICAR/04	F	3	45
2	Watershed and Stream Restoration Engineering Laboratory	ICAR/02	F	3	45
2	Structural Reconditioning: Analysis, Diagnosis, Retrofitting	ICAR/09	F	3	45

### \*Abbreviations

SSD	Scientific Disciplinary Sector
TAF	Type of Educational Activity

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