

The *General Study Plan* allows students to compose their programme according to the appropriate rules. The Master's Degree Course Management Board evaluates all submitted programmes proposed on the basis of the General Study Plan.

General Study Plan

Course	ETCS	Scientific Field Code	Type (*)	Skill Area	Pre-requirements
First Year – first term					
Language Skills	3		6	Other skills	None
Positioning and location-based services	9	ICAR/06	2	Civil Engineering	None
<i>Choice from table III</i>	<i>A = 0 or 9</i>		4	<i>Measures, analyses, decision support</i>	
<i>Choice from table IV</i>	<i>B = 0 or 9</i>		4	<i>Enabling ICT and industrial technologies</i>	
First Year – second term					
Machine Learning and big data [1]	9	ING-INF/05	4	Enabling ICT and industrial technologies	None
Intelligent Transportation Systems	9	ICAR/05	2	Civil Engineering	None
Road Safety or Sustainable road materials	9	ICAR/04	2	Civil Engineering	None
<i>Choice from table III</i>	<i>9 - A</i>		4	<i>Measures, analyses, decision support</i>	
<i>Choice from table IV</i>	<i>9 - B</i>		4	<i>Enabling ICT and industrial technologies</i>	
<i>Autonomous Choice (see table V for suggestions)</i>	<i>C = 0 or 6 or 9</i>		3	<i>Autonomous choice</i>	
Second Year – first term					
<i>A course from Table I or II</i>	9		2	<i>Civil Engineering</i>	
<i>A course from table IV</i>	9		4	<i>Enabling ICT and industrial technologies</i>	
Second Year – second term					
<i>A course from Table I or II</i>	9		2	<i>Civil Engineering</i>	
<i>Autonomous Choice (see table V for suggestions)</i>	<i>15 - C</i>		3	<i>Autonomous choice</i>	
Lab / Internship	9		6	Other skills	
MSC Thesis	12		5	Ing. Elettrica	

(*) Types of learning activities (Decree)

Learning Activity	1	2	3	4	5	6	7
Reference Decree 270/04	Art. 10 parag. 1, a)	Art. 10 parag. 1, b)	Art. 10 parag. 5, a)	Art. 10 parag. 5, b)	Art. 10 parag. 5, c)	Art. 10 parag. 5, d)	Art. 10 comma 5, e)

Table I + II: Transportation Engineering, roads and railways

Course	ETCS	Scientific Field Code	Type (*)	Pre-requirements
First-term				
Testing and validation of automated road vehicles	9	ICAR/05	2	
Traffic control	9	ICAR/05	2	Basic background on transportation modeling (ICAR/05)
Transport planning and appraisal	9	ICAR/05	2	Basic background on transportation modeling (ICAR/05)
Second term				
Freight and logistics	9	ICAR/05	2	Basic background on transportation modeling (ICAR/05)
Railway and transit services	9	ICAR/05	2	Basic background on transportation modeling (ICAR/05)
Demand analysis and forecasting (**)	9	ICAR/05	2	Basic background on transportation modeling (ICAR/05)
Road Safety	9	ICAR/04	2	
Sustainable Road Materials	9	ICAR/04	2	
Pavement Management Systems (**)	9	ICAR/04	2	
Civil Information Modeling – CIM (**)	9	ICAR/04	2	

Table III: Measures, analyses, decision support

Course	ETCS	Scientific Field Code	Type (*)	Pre-requirements
First-term				
Digital maps and geological 3D Models	9	GEO/05	4	
Statistical lab for industrial data analysis ^[2]	9	SECS-S/02	4	
Structural health monitoring for infrastructures	9	ICAR/09	4	Basic background on structural engineering (ICAR/09)
Measurement sensors and transducers (**)	9	ING-INF/07	4	
Second term				
Transport Geotechnics (**)	9	ICAR/07	4	Basic background on geotechniques (ICAR/07)

Table IV: Enabling ICT and industrial technologies

Course	ETCS	Scientific Field Code	Type (*)	Pre-requirements
First-term				
Electric systems in transportation	9	ING-IND/33	4	
Energy management for transportation	9	ING-IND/32	4	
Systems and Control fundamentals	9	ING-INF/04	4	
Second term				
Image processing for computer vision ^[4]	9	ING-INF/03	4	
Real-time systems	9	ING-INF/05	4	

Table V: Suggested alternatives for autonomous choices

Course	ETCS	Scientific Field Code	Type (*)	Pre-requirements
First-term				
Operational Research ^[5]	9	MAT/09	3	
Mathematical Physical Models ^[5]	9	MAT/07	3	
<i>All courses of the first term from Tables I to IV</i>	9		3	
Second term				
Resilience of Transportation Systems ^[8]	6	ICAR/05	3	
Smart Roads and cooperative driving ^[1]	6	ICAR/05	3	
Resilience of geotechnical systems ^[8]	6	ICAR/07	3	
Laboratorio di sicurezza stradale ^[6]	9	ICAR/04	3	
Fondamenti di diritto per l'ingegnere ^[6]	9	IUS/01	3	
Project Management per le opere civili ^[6]	9	ING-IND/35	3	
Meccanica del Veicolo ^[7]	9	ING-IND/13	3	
<i>All courses of the second term from Tables I to IV</i>	9		3	

Notes:

(**) Inactive courses for the year 2022-23

^[1] From LM MOVE

^[2] From LM Ingegneria Aereospaziale

^[3] From LM STREGA

^[4] From LM Ingegneria delle Telecomunicazioni e dei media digitali

^[5] From LM Mathematical Engineering

^[6] From LM ISIT – in Italian

^[7] From LM Ingegneria Meccanica della produzione e della progettazione – in Italian

^[8] Didattica di eccellenza