



UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
POLYTECHNIC AND BASIC SCIENCES SCHOOL

DEPARTMENT OF CIVIL, BUILDING AND ENVIRONMENTAL
ENGINEERING

Student's Guide

2nd Cycle Degree/Master

MSc in
Transportation Engineering and Mobility

Degree programme class: LM-23

A quick guide to the study program

The study program at a glance

The Master's degree in Transportation Engineering and Mobility (MSc TEAM) responds to the profound transformations taking place - or expected soon - in the transportation sector. The aim of the study program is to train a new generation of engineers able to meet the challenges of transformation and to satisfy the demand for new skills and competences in the field of transport and mobility, as required by the global market. The study program trains transportation and mobility engineers able to compete in the dynamic world of transport by exploiting the skills acquired in the modelling and simulation of transport systems, thus responding to the needs dictated by the strong economic and technological growth of the sector and, at the same time, ensuring sustainability objectives.

To this end, MSc TEAM at the University of Naples Federico II offers a training approach geared towards the acquisition of a wide range of skills. The training activities are complemented by experiential and laboratory teaching, corroborated by other skills useful for a rapid transition to the labor market. Students explore applicative problems in their internship and dissertation and develop and test solutions with industrial players. As a result, Master's graduates in Transportation Engineering and Mobility work in highly innovative professional contexts, characterized by a significant propensity to use new technologies.

Job opportunities

The job opportunities for the Master's degree in Transportation Engineering and Mobility are in large and medium public and private road operators, in public administrations, in agencies responsible for mobility and transport, in business units dealing with transport infrastructures, networks and services, in public and private companies dealing with the production and management of mobility services, transport systems and fleets of shared and/or autonomous and connected vehicles, in small and medium-sized companies with highly innovative characteristics in the mobility sector. The master's degree covers occupations with highly specialized professional, intellectual and scientific functions in transportation engineering. The interdisciplinary knowledge, competences and skills acquired by Master's graduates in Transportation Engineering and Mobility enable broad employment possibilities, spanning many sectors.

The masters' degree prepares for the professions of Transportation And Mobility Engineer.

Admission to the program and prerequisites

Joining the master's degree in Transportation Engineering and Mobility is allowed to BSc graduates from a large range of Engineering Fields. The access is encouraged for BSc graduate in the class L7 (Civil and Environmental Engineering), L8 (Computer and Information and Communication Engineering), and L9 (Industrial Engineering). Otherwise, at least a level 6 qualification (European Qualifications Framework - EQF) is required, and admission will be subject to the assessment of basic knowledge, which should include at least 36 ETCS in basic sciences and at least 39 ETCS in industrial engineering or information and communication technology or civil engineering.

In all cases, evidence of English language proficiency at level B2 or higher (CEFR - Common European Framework of Reference for Languages) must be provided in the form of a certificate issued by the University of Naples Federico II or a higher-level body recognized by the University of Naples Federico II.

For further details refer to:

<https://transpeng.unina.it/admission>

Study plan

General Study Plan

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

Courses of the first year,

- Language Skills (3 ETCS), MooC at Federica Web Learning, online, first semester
- Positioning and location-based services (9 ETCS), online and in presence, first semester
- Electric Systems in Transportation (9 ETCS), online and in presence, first semester
- Systems and Control Fundamentals (9 ETCS), online and in presence, first semester
- Road Safety (9 ETCS), in presence, second semester
- Machine Learning and Big Data (9 ETCS), in presence, second semester
- Modelling Transportation and Mobility (9 ETCS), in presence, second semester
- Lab activities (Python Coding Lab Course – 2 ETCS), online self paced course, second semester

Courses of the second year

- 1 choice out of 3 options
 - Digital Maps and geological 3D models (9 ETCS), in presence, first semester
 - Safety of excavations for infrastructures (9 ETCS), in presence, first semester
 - Structural Health Monitoring for Infrastructures (9 ETCS), in presence, first semester
- 2 choices out of 6 options
 - Transport Planning and Appraisal (9 ETCS), in presence, first semester
 - Traffic Control (9 ETCS), in presence, first semester
 - Sustainable road materials (9 ETCS), in presence, second semester
 - Intelligent Transportation Systems (9 ETCS), in presence, second semester
 - Railway and Transit services (9 ETCS), in presence, second semester
 - Freight and logistics (9 ETCS), in presence, second semester
- Free elective choices for a total of 15 ETCS
(subjects in [Table A](#) or [Table B](#) are automatically accepted)
- Lab activities or Internship (9 ETCS), first or second semester
- MSc Thesis (12 ETCS), first and/or second semester

Table A (scheduling of classes is optimised for easy attending)

- Energy Management for Transportation (9 ETCS), in presence, first semester
- Unmanned Aircraft Systems for Transportation and Mobility (6 ETCS) in presence, first semester
- Resilience of Transportation Systems (6 ETCS), in presence, II Semester
- Resilience of Geotechnical Systems (6 ETCS), in presence, II Semester
- Real-time systems (9 ETCS), in presence, II semester

Table B (scheduling of classes not optimised)

- Statistical Lab for Industrial Data Analysis (9 ETCS) in presence, first semester
- Infrastructure-Building Information Modelling (9 ETCS) in presence, second semester
- Testing and validation of automated road vehicles (9 ETCS) in presence, first semester

Pre-filled Study Plans

Pre-filled Study Plans are also available. Choosing a pre-filled study plan guarantees acceptance and faster processing by the Master's Degree Course Management Board. Three pre-filled study plans are currently available:

- Smart Mobility (<https://transpeng.unina.it/smart-mobility/>)
- Smart Planning (<https://transpeng.unina.it/smart-planning/>)
- Resilient Networks (<https://transpeng.unina.it/resilient-networks/>)

Special training paths

Starting from the study program in Transportation Engineering And Mobility the diploma of [Smart Infrastructure Developer](#) or the one of [Applied Machine Learning](#) can be obtained with an additional 10 ETCS activities.

Additional study plan information

All Study Plans can be consulted at <https://transpeng.unina.it/study-plans/>

Traineeship opportunities

Training activities are integrated with experiential and laboratory teaching, corroborated by other helpful skills preliminary to involvement in the job market. Students explore applicative problems in their lab/internship activities and during the masters' thesis. Generally, they develop and test solutions for which industrial stakeholders have manifested their interest.

The activities can be carried out in the form of labs, under the joint supervision of a faculty member of the University and of an industrial tutor. As an alternative, the University of Naples Federico II allow for accessing to a formal external internship, and to this aim supplies a wide selection of agreements with private companies and public institutions (<http://www.unina.it/didattica/tirocini-studenti>). The University also offers post-graduate internships, made available by several companies (<http://www.orientamento.unina.it/tirocinio-post-laurea/>).

In case of formal external internship, the competent Didactic Area Offices collect the students' curricular internship requests, they then provide the student with the internship booklet and the documents for the final registration by the university tutor. They also collect the requests for the stipulation of extra-moenia internship agreements by the professors belonging to the department and take care of the transmission to the University Student Internship Office of the internship agreements already signed by the companies for subsequent signature by the Rector or his delegate.

Graduation thesis and exam

Characteristics

The Master's Degree in Transportation Engineering and Mobility is subject to a final dissertation. The test consists of the evaluation by a Commission appointed by the didactic structures of the master's degree thesis, presented by the graduate student and elaborated by him in an original way, under the guidance of one or more university supervisors and with the possible correlation of experts also external to the 'University. The thesis (final dissertation), however, characterized by originality, can be developed within a culturally homogeneous and coherent path that also involves laboratory activities and elective teaching; these activities can also be carried out in collaboration with qualified external parties. The thesis must demonstrate theoretical and / or methodological and / or numerical and / or experimental activities and must demonstrate mastery of the topics covered, the ability to operate with originality and autonomously and a high level of communication skills.

How to access the final dissertation:

To access the final exam, the student must have acquired all the credits required by his / her study path, except for those for the final dissertation, in accordance with the General Didactic Regulations and the Regulations of the Transportation Engineering and Mobility Master's Degree Course. The final dissertation is evaluated by a Commission appointed by the didactic structures and usually chaired by the Course Coordinator or his / her delegate. The final exam includes the discussion of the master's dissertation. During the discussion, the use of projection tools and audio-visual supports is encouraged. The discussion must be in English. The evaluation of the final exam is graded out of 110, with possible honours attributed by the Commission unanimously; the evaluation takes into account the weighted average of the marks of the curricular exams, weighted with the relative credits and compared to 110; it is also possible to take into account the student's entire career, in terms of quality, continuity and duration.

International exchange programmes (Erasmus programme)

Erasmus agreements already active in the civil area are automatically extended to all degrees included in the learning activities of the department. More details on this argument can be found at: <https://www.dicea.unina.it/erasmus-2/>

Orientation and Tutoring

Orientation to incoming students

The incoming orientation activity is carried out through several channels. The main channel is managed by the Polytechnic School and Basic Sciences (<http://www.scuolapsb.unina.it/>), with periodical orientation days shared with the other MScs of the school. Other initiatives are independently organized and carried out by the Department of Civil, Building and Environmental Engineering (DICEA). Finally, a communication channel is in place thanks to SoFTel (Orientation, Training and Teledidactics Service - www.orientamento.unina.it)

The orientation activity is aimed primarily at students enrolled in the Degree Programs of the L7 Class of the University, but also at those of the other three-year engineering study classes (classes L8 L9) in Italy and abroad. Orientation is also carried out by means of digital and web resources like websites and socials, video resources, and webinars. These tools that allow the achievement of a massive audience are accompanied by specific tools for different territorial scales. At the international level, the network of international research and training contacts of the Department of Civil, Building and Environmental Engineering is active in order to focus attention on massive material. With reference to the Mediterranean scale, the channels already consolidated with the DICEA 'Mediterranean PhD Short School' initiative, linked to the department of excellence project, is also exploited. At the international level, the collaboration of large global companies that have expressed an explicit support for the course of study (Almaviva, FS Italiane, CRF/Stellantis) is exploited as well, including the support from the National Transport Cluster. These same subjects will be called upon to collaborate in the input orientation with reference to the national territorial scale, supported in this by the national subjects who have expressed an interest (Ministry of Infrastructure and Transport). At a regional and local level, incoming orientation will also be carried out through the organization of events and presentation days.

Incoming orientation, at any level and by any means, is aimed at providing information on the framework of the training offer (study plans), through the presentation of cultural profiles, professional opportunities, educational organization, and cultural and aptitude requirements.

Tutoring and counseling

The tutoring is entrusted above all to the teachers identified for this task, as well as to the Coordinator. In addition to them, the students are able to have a direct relationship during the teaching hours or during dedicated time windows with all the teachers of the MSc. This traditional and irreplaceable form is flanked by more structured initiatives. In particular, further specialized support services are made available by the SINAPSI University Center (www.sinapsi.unina.it), aimed at reducing the drop-out phenomenon through different levels of intervention:

- a) specialized tutoring services aimed at students with disabilities and students with Specific Learning Disorders (SLD), aimed at facilitating the student's integration into university life; starting from the peculiarities and needs of each student, through psychological, pedagogical-didactic and technological interventions, the services are aimed at removing the 'barriers' and supporting the student throughout the course of study;
- b) university success support services aimed at all students of the University of Naples Federico II who experience difficulty in facing their university career and encounter, during the academic process, obstacles of various kinds, such as delay in studies, difficulties on a personal level, doubts regarding the university choice, problems of social exclusion, difficulties in improving one's own set of skills; in this context, activities are developed aimed at mapping drop-out risk indicators, promoting Focus Group, Community Learning, and counselling initiatives, planned at the request of the individual student or teachers and coordinators of the Degree Programs concerned;
- c) interventions related to the Anti-Discrimination and Culture of Differences area aimed at preventing and combating violations of human rights and prevarications related to gender, sexual orientation, ethnicity, and socio-economic status.

Career orientation and job placement

Outbound orientation and placement initiatives are active at the University and School facilities. The University has activated a helpdesk for outbound orientation and placement accessible through the portal <http://www.orientamento.unina.it/>, from which information on initiatives and opportunities for professional integration can be obtained.

The School of Polytechnics and Basic Sciences, as part of the revision and enhancement of the University's orientation/insertion initiatives, has launched in 2019 the testing of a new formula consisting of a periodic cycle of structured meetings with companies called 'The School meets companies'. During these meetings, companies have the opportunity to introduce themselves, receive job applications tailored to their needs, conduct brief interviews with candidates and share experiences and ideas with researchers from the departments.

In addition to the targeted events, the portal of the Polytechnic School and Basic Sciences (www.scuolapsb.unina.it) has a special section (The School meets the Companies) in which recruitment events, the 'job fairs' are systematically reported.

The internship and traineeship activities with companies are also part of the process of placement, thanks to the value of contact with companies.

Calendar of educational activities and timeline

Application timeline

First-year enrolment and enrolment in subsequent years usually take place from 1 September to 31 October of each year, as disclosed in a specific *Guide to registration and payment of fees* published at <https://www.unina.it/didattica/sportello-studenti/guide-dello-studente>

The enrolment procedure for **international students** is published at:

<https://transpeng.unina.it/admission>

Further deadlines (deadlines for submitting study plans, deadlines for submitting ERASMUS applications, etc.) are indicated on the MSc website or can be requested from the Director of the Study Program: <https://transpeng.unina.it/contact/>

Academic Calendar: courses and exams

The academic calendar with the days of vacation at the university can be consulted at the link <https://www.unina.it/didattica/sportello-studenti/calendario-accademico>

The calendar with the start of classes, the suspension between the first and the second semester and the exam time window can be read at this link: <https://www.scuolapsb.unina.it/calendario-delle-attivita-didattiche-del-collegio-di-ingegneria/>

The schedule of exams for each course of the Study Program can be found at this link: <https://transpeng.unina.it/download/current-calendar-of-examinations/>

Course Timetable

The course Timetable (class scheduling) can be found at [this link](#):

Graduation dates

Graduation dates can be found at this link: <https://www.scuolapsb.unina.it/esame-di-laurea-collegio-degli-studi-di-ingegneria/>

Contact persons

Director of the Study Program: Prof. Gennaro Nicola BIFULCO – Department of civil, building and environmental engineering – phone +39 081 76 83883 – eMail: gnbifulc@unina.it

Contact person for Erasmus and International activities: Prof.ssa Francesca PAGLIARA – Department of civil, building and environmental engineering – phone +39 081 76 83932 – eMail: fpagliar@unina.it

Contact person for student orientation: Prof. Giovanni PUGLIANO – Department of civil, building and environmental engineering – eMail: giovanni.pugliano@unina.it

Student Administration Offices: Dott.ssa Antonella Greco – Department of civil, building and environmental engineering – eMail: antonella.greco@unina.it

Services for students with special needs and with specific learning disabilities:
[https://www.sinapsi.unina.it/home sinapsi](https://www.sinapsi.unina.it/home_sinapsi)

Further contact persons at the websites (also useful for info, news and resources):
<https://transpeg.unina.it>

Sites and links

Site/address: Via Claudio 21, 80125 Napoli (IT), Bulding 5;
<https://goo.gl/maps/nXs8HXe1ByBmG6Do6>

Department: Department of Civil, Building and Environmental Engineering

Degree program website: <https://transpeng.unina.it>

Department website: <https://www.dicea.unina.it/>

School website: <https://www.scuolapsb.unina.it/>

University website: <https://www.unina.it/>

Orientation website: <https://www.orientamento.unina.it/>

Social networks:

<https://www.facebook.com/Trasportation.Engineering.and.Mobility>

<https://www.linkedin.com/company/msc-team/>

https://www.instagram.com/transportation_engineering/

https://www.youtube.com/channel/UCe7x8zj10IT2fKp4JMApv_A

Schede Insegnamenti > Course description

Il contenuto e gli obiettivi degli insegnamenti insieme al nome del titolare del corso, alla modalità di svolgimento e di verifica sono consultabili al link.....