WHY ENROLL ?

Design, Development, and Testing of Autonomous Vehicle Systems

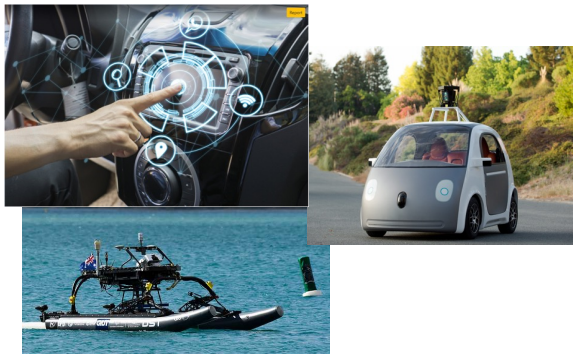
Surface, aerial, and marine transportation systems are currently undergoing a profound transformation driven by the progressive integration of autonomous functionalities. These capabilities span a wide spectrum, ranging from advanced assistance and control of individual vehicles to the fully autonomous execution of complex missions, including coordinated operations among multiple vehicles, without direct human intervention.

The design and implementation of autonomous vehicles require solid and interdisciplinary expertise, combining principles of modern industrial engineering with recent advancements in information and communication technologies. In this context, the **Master of Science (MSc) in AutonoMOus Vehicle Engineering (MOVE)** is designed to educate engineers with strong technical and intercultural competencies, capable of addressing the scientific and technological challenges associated with autonomous mobility.

Graduates of the programme will develop advanced knowledge and skills in the following areas:

- Design, development, and management of autonomous land, aerial, and maritime transport systems;
- Information fusion techniques for real-time perception and decision-making;
- Sensors, algorithms, and control strategies for high-level autonomous navigation and driving;
- Integration and operation of autonomous vehicles within complex and dynamic environments.

Applications to Real-World Vehicle Systems



Links

General Info for International student mobility
https://www.international.unina.it/education/admission-regulation/

Polytechnic and Basic Sciences School
www.scuolapsb.unina.it

Department of Industrial Engineering
www.dii.unina.it

Master's Degree in Autonomous Vehicle Engineering
move.dii.unina.it

For more info:
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Polytechnic and Basic Sciences School,
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Corso N. Protopisani 70, build C, San Giovanni a Teduccio
segreing@unina.it

Opening times:
Monday - Friday 9:00-12:00;
Tuesday, Thursday 9:00-12:00; 14.30-16.30.

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UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
SCUOLA POLITECNICA E DELLE SCIENZE DI BASE

ENGINEERING

MASTER'S DEGREE IN AUTONOMOUS VEHICLE ENGINEERING

MOVE

DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

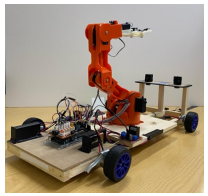
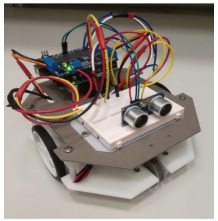
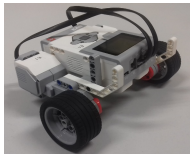
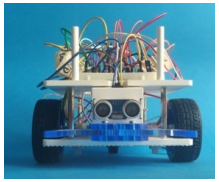
2025-2026

LEARNING OUTCOMES

The MS MOVE programme is a highly interdisciplinary degree. Effective engagement in the field of autonomous vehicles requires solid expertise in information technology–related disciplines, including systems control, machine learning, big data and data analytics, computer vision, the Internet of Things, integrated transportation systems, and smart road technologies, as well as their applications to vehicular systems. In addition, a sound understanding of vehicle design and operational principles is essential. Graduates of the programme are trained to develop a professional profile centred on systems and technology integration. They are equipped to operate across two complementary engineering domains: a mechanically oriented domain, encompassing transportation system dynamics and control, and an information technology–oriented domain, focused on the definition, integration, and implementation of hardware and software requirements for autonomous guidance and navigation.

The MOVE programme offers extensive experimental activities in the various engineering laboratories of the University and many industry stage opportunities.

Tests on prototypes

REQUIREMENTS FOR ENROLLMENT

Admission to the Master of Science in Autonomous Vehicle Engineering requires the possession of a three-year bachelor's degree in Industrial Engineering (Italian class L-9) or Information Engineering (Italian class L-8). In addition, applicants must have acquired at least 12 ECTS in mechanical engineering–related disciplines. Candidates holding a three-year degree in other scientific or technological fields will have their qualifications assessed by the Study Programme Teaching Committee.
The programme is delivered entirely in English; therefore, a minimum English language proficiency at the B2 level is required for enrolment.

TRAINING PLAN

First Year	Credits (ECTS)
Control Oriented Models for Vehicles Dynamics	6
Digital Modelling of Interactive Systems and Interfaces	6
Sensor Data Fusion and Measurement Uncertainty Management	12
Guidance and Navigation	6
Control Architectures for Autonomous Driving.	12
Machine Learning and Big Data	9
Image and Video Processing for Autonomous Driving	6

Second Year	Credits (ECTS)
Laboratory of Autonomous Vehicle Design and Development	12
Traineeship	12
Thesis	15

Second year of the MS MOVE includes three more characterized study plans (tracks):

- Self-driving cars,
- Autonomous aerial systems,
- Autonomous marine vehicles.

For each of them a design course is offered to integrate and complement the acquired knowledge and skills.

The student collects 24 ECTS with courses in the following list:

Power and Propulsion Systems for UV	9
Smart Roads and Cooperative Driving	6
Testing and Validation of Automated Road Vehicles	9
Systems for Autonomous Aircraft	6
Design of Autonomous Aircraft	9
Unmanned Marine Plants	6
Design of Autonomous Marine Vehicles	9

The students will operate in industry-like groups, interacting on the various parts of the autonomous vehicle design, also with a view to enhancing team working capabilities and soft skills.

JOB AND CAREER OPPORTUNITIES

The automotive, aerospace, and shipbuilding industries increasingly require interdisciplinary teams capable of integrating diverse technical competencies to address future challenges in vehicle engineering. In this context, graduates of the Master's Degree in Autonomous Vehicle Engineering (MOVE) are well suited to act as integrative figures in the development of autonomous systems.

MOVE graduates have career opportunities in industrial companies of all sizes, as well as in research laboratories, start-ups, and spin-offs operating in autonomous vehicle engineering. Furthermore, the interdisciplinary nature of the programme provides strong employment prospects within the Industry 4.0 framework, as graduates are able to combine multiple engineering disciplines, operate in intercultural environments, and effectively apply information and communication technologies to the design, production, and operation of mechanical systems.

CAMPUS AREA

Teaching activities in classes and labs are carried-out in Naples both in Fuorigrotta (close to the Diego Armando Maradona Stadium) and in the new Campus in San Giovanni a Teduccio.