

# WHY ? TO ENROLL

## Designing, developing and testing of aerospace systems and technologies

The study course programme in Aerospace Engineering offers a challenging international education for the highly competitive global aerospace sector, characterised by highly technological contents in continuous and dynamic evolution. Graduates for the programme will gain solid theoretical skills in aerospace modelling, analysis and design, as well as a general ability to approach and solve complex engineering tasks and a habit of working in teams. Specific cultural areas include: fluid dynamics, flight mechanics, aerospace structures and technologies, on board aerospace systems, aerospace propulsion. Specific training objectives are focused on the students ability to analyse, design and manage innovative systems, processes and services, as well as planning, building, execution and simulation of experiments. The ability to solve complex problems with a multidisciplinary approach makes aerospace engineers particularly attractive profiles for the employment market.

### A course of study for Aeronautics and Space



Links

General Info for International student mobility  
[www.international.unina.it/welcome-message/](http://www.international.unina.it/welcome-message/)

School "Politecnica e delle Scienze di Base"  
[www.scuolapsb.unina.it](http://www.scuolapsb.unina.it)

Department of Industrial Engineering  
[www.dii.unina.it](http://www.dii.unina.it)



Master's studies in Aerospace Engineering  
[aerospaziale.dii.unina.it](http://aerospaziale.dii.unina.it)

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neapōlis



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

ENGINEERING

## MASTER'S DEGREE IN AEROSPACE ENGINEERING



DIPARTIMENTO DI  
INGEGNERIA  
INDUSTRIALE

updated to May 2020

## LEARNING OUTCOMES

The two-year programme in Aerospace Engineering is organized in semesters. During the first term, all students take fundamental mandatory courses. During the first semester of the second term, students choose one of the available tracks, each with elective courses. A set of recommended courses are also provided, but students choose elective courses based on their own interests. There are also many possibilities to combine courses between the tracks. The programme ends with a six-month internship and a final master's degree thesis. This project is performed either at an industry, at a university or a research center, in Italy or abroad. The research activities of the teachers in international projects enrich and complement the course lessons. The first in Italy to receive the PERSEUS label (PEGASUS European Recognition of Scientific Excellence of Universities), the programme includes a track with all courses in English within the European universities network PEGASUS. Some elective courses provide to the students strong interaction between theory and practice and the opportunity to apply theoretical skills through projects and experiences aboard ultralight aircrafts.

### Students attending ESA Low Gravity

Research Summer School,  
June 2019



### Students during the NASA Space Apps Challenge

at the School of Engineering in S. Giovanni a Teduccio, October 2019

Based on the Shanghai Academic Ranking of World Universities 2019, the University of Naples Federico II, for the Aerospace Engineering sector, is in the world top 18 universities, the first in Italy, the second in Europe. Several international programmes are available for students, including the Erasmus Lifelong Learning Programme (LLP). Teachers establish active collaborations with students by organizing events, seminars, guided tours to companies, and every year worldwide contests such as the NASA Space Apps Challenge.

Immediately after the master's degree, graduated students may spend up to six months of internships in aerospace companies with insurance and pension charges borne by the University.

## TRAINING PLAN

The study programme includes mandatory courses for all tracks at the first year and elective courses for each track at the second year. The tracks include: Fluid dynamics, Aerospace Systems, Space, Aircrafts, Pegasus, the latter with all classes in English.

First Year	Credits
Aircrafts Aerodynamics	9
Advanced Calculus	6
Advanced Aerospace Structures	9
Applied Mechanics	9
Economy and business management	6
Avionics	6
Fligh Dynamics and Simulation	6
<b>Second year</b>	
3 Elective Courses	27
Other courses at student's choice	15
Traineeship	12
Thesis	15

### Tracks

*Fluid dynamics:* Space Fluid Dynamics, Rotorcraft Aerodynamics, Fluid-dynamic Stability, Computational Fluid Dynamics, Turbulence, Aerospace Design Project\*

*Aerospace Systems:* Aerospace Remote Sensing Systems, Air Traffic Management and Control, Space Flight Dynamics, Space Systems, Unmanned Aircraft Systems, Aerospace Design Project\*

*Space:* Aerospace Remote Sensing Systems, Space Fluid Dynamics, Space Flight Dynamics, Space Systems, Space Mission Design, Aerospace Design Project\*

*Aircrafts:* Aeroelasticity, Aircraft Design, Advanced Aerospace Constructions, Flight Tests, Aerospace Design Project\*

*Pegasus:* Advanced Gasdynamics, Aeroelasticity, Aerospace Remote Sensing Systems, Aircraft Design, Air Traffic Management and Control, Fluid-dynamic Stability, Space Flight Dynamics, Space Systems, Unmanned Aircraft Systems, Aerospace Design Project\*

\*Multidisciplinary projects to test team working of students with different tracks.

## JOB AND CAREER OPPORTUNITIES

The Master's programme in Aerospace Engineering aims to provide students with professional skills enabling:

- (a) to find employment as project managers, system engineers or technical specialists in european or non-european aerospace industries, or in research centres around the world;
- (b) to establish working relationships with aerospace and space agencies, as well as with the Air Force;
- (c) to connect with public institutions and companies for aircrafts testing and certification, as well as for air traffic control by airworthiness authorities;
- (d) to work within airlines, manufacturing or service companies, or as aerospace consultants.

For example, students choosing the Aeronautics track are particularly attractive to companies working in aerodynamics and aeronautics, while Space engineers may work in development, testing and operation of satellites, launchers, rockets or other space systems. Because of its inherent interdisciplinary appearance and the technological innovations, the Master programme in Aerospace Engineering prepares students for a future in the development of new products or applications for the coming decades, opening a wide range of career opportunities also in industry and research areas outside the aerospace sector.

## CAMPUS AREA

Teaching activities, labs, libraries and offices of the Department of Industrial Engineering are located in Napoli (Fuorigrotta) close to the San Paolo stadium.

