



UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

POLYTECHNIC AND BASIC SCIENCE SCHOOL

DEPARTMENT OF INDUSTRIAL ENGINEERING

Student's Guide

Master Degree in Aerospace Engineering

2026-27

Degree programme class: (LM-20)

Naples, JULY 2026

A quick guide to the programme

The programme at a glance

The Master's Degree in Aerospace Engineering aims to train engineers for a competitive and interdisciplinary international environment, characterised by highly advanced and constantly evolving technology, thereby producing versatile engineers capable of working in highly specialised and rapidly developing industrial sectors.

By integrating and building upon the knowledge gained during their undergraduate studies, students will acquire a solid grounding in specific fields such as fluid dynamics, flight mechanics, aerospace structures and technologies, aerospace systems and installations, and aerospace propulsion.

Specific learning outcomes relate to the ability to analyse, design and manage innovative systems, processes and services; and to conceive, carry out and simulate experiments. The ability to solve complex problems using a multidisciplinary approach makes Master's-level engineers highly sought-after in the labour market. A solid grounding in methodological, scientific and technical knowledge, as well as systemic and technological skills, enables students to combine fundamental knowledge with specific professional competencies. Students will also acquire transferable skills in communication and interpersonal relations, organisation and management, and planning. The programme will provide an opportunity to familiarise students with concepts useful for understanding the regulatory constraints governing engineering practice, equipping them with the tools for a more informed engagement with the professional world.

The training of aerospace engineers with a Master's degree is highly interdisciplinary, enabling recent graduates to apply their specialised knowledge effectively in other sectors of engineering or in the world of research.

The degree programme is offered by the Department of Industrial Engineering (<http://www.dii.unina.it>), which is part of the School of Engineering and Basic Sciences (<http://www.scuolapsb.unina.it/>).

Job Opportunities

The Master's Degree in Aerospace Engineering aims to provide the skills required to work in a variety of fields, differing in context and purpose, such as:

- 1) in the research and development sector within national and international aerospace industries or in research centres in the sector;
- 2) in public agencies, the air force and space agencies;
- 3) in public and private organisations involved in testing, aircraft certification and air traffic control;
- 4) in airlines, manufacturing or service companies, or engineering firms.

In this context, graduates with a Master's degree have access to career opportunities that extend well beyond regional and national boundaries.

Graduates with a Master's degree may also take on managerial roles in industries or certification bodies not exclusively related to aerospace, thanks to their highly interdisciplinary qualifications, or apply their specialised knowledge in various sectors of the research world.

Admission to the programme and prerequisites

Enrolment in the Master's Degree in Aerospace Engineering requires possession of a Bachelor's Degree or a three-year university diploma or another qualification obtained abroad recognized as equivalent. Access to the Master's Degree in Aerospace Engineering is free, subject to verification of possession of the curricular requirements specified in the Didactic Regulation of the Master's Degree Course, as well as verification of the requirements of adequacy of the student's personal preparation, as reported in the Didactic regulation published on the Degree Programme website in the section dedicated to the Master's Degree (<http://aerospaziale.dii.unina.it/en/orientation-lm>).

Study Plan 2026–2027

The Master's Degree in Aerospace Engineering is divided into three specialisations:

- Aeronautics
- Fluid Dynamics and Propulsion
- Space

Breakdown of study modules in automatically approved study plans:

- Related or Supplementary Modules up to 15 ECTS
- Characterising Modules up to 66 ECTS
- Elective Modules (at the student choice) up to 15 ECTS
- Further Training Activities up to 12 ECTS
- Final examination up to 12 ECTS

The modules are distributed over the two years of the programme as follows:

First year

- Related or Supplementary modules chosen by the student up to 15 ECTS (Table A)
- Compulsory Characterising modules up to 36 ECTS (varying by specialisation)
- Annual optional characterising module common to all three specialisations (9 ECTS)
- Elective modules up to 15 ECTS (see study plan notes)

Second Year

- Characterising modules at the student choice up to a total of 66 ECTS selectable from the following tables:
 - B1 – Aeronautics specialisation
 - B2 – Fluid Dynamics and Propulsion specialisation
 - B3 – Space specialisation
- Elective Modules up to 15 ECTS (see study plan notes)
- Further Training Activities up to 12 ECTS (see study programme notes)
- Final examination up to 12 ECTS (see study programme notes)

Table A – Related and Supplementary Modules

First Semester

Applied Mechanics for Aerospace Engineering (9 ECTS)

Mathematical Methods for Engineering (9 ECTS*)

Second Semester

Reliability and Risk in Aerospace Engineering (6 ECTS*)

Economics and Organisation of the Aerospace Sector (6 ECTS)

Compulsory Characterising Modules

Aeronautics Specialisation

First Semester

Advanced Aerospace Structures (9 ECTS)

Dynamics and Flight Simulation (9 ECTS)

Second Semester

Aircraft Aerodynamics (9 ECTS)

Avionics (9 ECTS)

Fluid Dynamics and Propulsion Specialization

First Semester

Numerical Fluid Dynamics (9 ECTS)

Dynamics and Flight Simulation (9 ECTS)

Second Semester

Space Propulsion (9 ECTS*)
Aircraft Aerodynamics (9 ECTS)

Space Specialisation

First Semester

Space Structures (9 ECTS*)
Space Systems (9 ECTS*)

Second Semester

Space Propulsion (9 ECTS*)
Space Flight Dynamics (9 ECTS*)

Optional Annual Characterising Module Common to all specialisations

Aerospace Design Project (9 ECTS*)

Table B1 – Characterising Modules at the student choice - Aeronautics Specialisation

First Semester

Numerical and Experimental Methods for Aircraft Design (9 ECTS*)
Unmanned Aircraft Systems (9 ECTS*)
Aerospace Structures II (9 ECTS)
Structural Dynamics (9 ECTS)
Aeroelasticity (9 ECTS*)
Air Traffic Management and Control (9 ECTS *)
Aircraft Operations (6 ECTS*)

Second semester

Rotating Wing Aerodynamics (6 ECTS)
Aircraft Design Project
Aircraft Design (9 ECTS *)
Fluid-Structure Interaction (6 ECTS *)
Aircraft On-Board Systems (6 ECTS *)
Flight Testing (6 ECTS *)

Table B2 – Characterising Modules at the student choice – Fluid Dynamics and Propulsion

Specialisation

First Semester

Hypersonic Aerodynamics (9 ECTS*)
Experimental Fluid Dynamics (9 ECTS *)
Aeroelasticity (6 ECTS*)

Second Semester

Rotating Wing Aerodynamics (6 ECTS)
Fluid-Structure Interaction (6 ECTS*)
Space Experiments (6 ECTS*)
Fluid Dynamic Stability (6 ECTS *)
Turbulence (6 ECTS)

Table B3 – Characterising Modules at the student choice – Space Specialisation

First Semester

Hypersonic Aerodynamics (9 ECTS*)
Aerospace Remote Sensing Systems (9 ECTS*)

Second Semester

Space Mission Design (9 ECTS*)
Spacecraft Dynamics and Control (6 ECTS*)
Space Experiments (6 ECTS*)
Launch and Re-entry Vehicle Design and Dynamics (6 ECTS*)

Table C – Suggested Elective Modules

Geometric Modelling and Virtual Prototyping for Aerospace Engineering (9 ECTS)

Combustion and Fluid Dynamics of Reactive Systems (6 ECTS)
 Hybrid Propulsion Systems (6 ECTS)
 Statistical laboratory for industrial data analysis (9 ECTS*)
 Machine Learning and Big Data (9 ECTS*)
 Radar Systems (9 ECTS)
 Multimedia Signal Processing (9 ECTS)
 Principles of Design for Renewable Energy Systems from Wind and the Sea (6 ECTS)
 Electrical Fundamentals for Aeronautics (6 ECTS)
 Electromagnetic Fundamentals for Space Applications (9 ECTS)
 Experimental Vibroacoustics (6 ECTS*)
 Impact Dynamics (6 ECTS*)
 Principles of Elastodynamics and Structural Health Monitoring (6 ECTS*)
 Chemistry of Eco-Sustainable Materials for Aerospace and Energy (9 ECTS)
 UAS SIGNATURE, COMMUNICATIONS, AND COUNTERMEASURES (6 ECTS*)

*All courses marked with an asterisk are taught in English and the corresponding examinations must be taken in English

Further and more detailed information are available on the degree programme's website in the Master's Degree Programme section, at the following link:
<https://aerospaziale.dii.unina.it/it/manifesto-lm>

Additional Study Plan Information

1. Related or Supplementary Modules: one 9 ECTS module in the first semester and one 6 ECTS module in the second semester (Table A).
2. Second-Year Characterising Modules: two 9 ECTS modules (or a single 9 ECTS module, in case the student has selected, in the first year, the annual optional module common to all three specialisations) and two 6 ECTS modules, as indicated in Tables B1, B2, B3, depending on the chosen specialisation.
3. The 15 ECTS for elective modules may be selected from:
 - 3.1 all characterising modules offered in the first year in specialisations other than the one chosen, all characterising modules listed in Tables B1, B2 and B3, regardless of the chosen specialisation, and all modules in Table C. This choice does not require the submission of an individual study plan. The study plan will be automatically approved
 - 3.2 Modules delivered at the Polytechnic School or as part of the ERASMUS programme. This choice requires the submission and approval of an individual study plan.
4. Further Training activities normally comprise 3 ECTS for further language knowledge and 9 ECTS of internship. Students who do not hold a certificate of English language proficiency, at least at B2 level, are required to allocate 3 of the 12 ECTS credits to language knowledge. Students who hold a B2-level English certificate at the time of enrolment may apply for the recognition of 3 ECTS credits for language knowledge.
5. The internship may be intramoenia or extramoenia. In all cases, the internship may serve as preparatory work for the final thesis, and the completion of these tasks must be certified by filling up the AC form, countersigned by the professor responsible for the internship or by the final thesis supervisor.
6. The final examination consists of the assessment by an academic committee of the Master's thesis, prepared by the student under the supervision of a university supervisor.
7. Fulfilment of the conditions set out in notes 1), 2) and 3.2) constitutes a study plan that is automatically approved; for this, the student must simply notify the Student Office of the chosen specialisation, within the deadlines for the submission of study plans, as set out in the academic regulations
8. Alternative arrangements may be made upon submission of an individual study plan, exclusively within the time limits set out in the Academic Regulations.

9. Finally, it should be noted that, in all cases, an examination may only be sat after the relevant course has been delivered during the academic year in which the study plan is submitted.

Customizing the study plan

The Study Plan is normally submitted by 31 October of each academic year. Detailed instructions on how to customise and submit the Study Plan can be found at the following link:

<http://aerospaziale.dii.unina.it/it/piani-di-studio-lm>

Traineeship opportunities

"Further training activities" in the Study Plan can be acquired either through intramoenia internship carried out at University laboratories, under the guidance of a Degree Programme Teacher, or through extramoenia internship activities carried out at external structures (companies, public and/or private bodies) that have a specific agreement with the University Federico II.

The Degree Programme is particularly active in the field of international internships both through the PEGASUS aerospace study course network (<https://www.pegasus-europe.org>), with Airbus-PEGASUS international internships, and thanks to specific collaborations of the teachers with foreign companies and universities, which offer mobility and study activities abroad.

Details on the procedures for carrying out a curricular internship are at the link <http://aerospaziale.dii.unina.it/en/internship>

Graduation thesis and exam

The final exam consists in the presentation of a master's thesis written by the student under the guidance of one or more university supervisors. The thesis work, which can also be associated with an in-depth study on a topic covered during the internship, can also be written in English. Usually the student identifies through informal interviews a professor willing to entrust him with the thesis work. Alternatively, he can ask the Coordinator of the Study Course to identify an official supervisor. Usually the supervisor is a professor or researcher of the Degree Programme, but external professors are equally qualified to carry out this task.

The thesis concerns theoretical, and/or numerical, and/or experimental activities, carried out at a university laboratory, in research laboratories external to the university, as well as in Italian and foreign companies and institutions, provided that they are included in a training program guided by the university supervisor.

The final exam is taken by the Candidate with a Board chaired by the Coordinator of the Degree Course or by another teacher of the Degree Programme. The candidate is allowed to use audio-visual support. At the end of the presentation, each professor can pose questions to the candidate, relating to the topic of the thesis work. The presentation usually lasts 12 minutes.

Further information is available at the following link: <http://aerospaziale.dii.unina.it/en/thesis>

International exchange programmes (Erasmus programme)

The Master's Degree in Aerospace Engineering adheres to internationalization programs and other inter-university cooperation programs aimed at issuing degrees, also jointly with other foreign universities. In particular, two programs are active that provide for the issuing of a double degree at the Universidad de Sevilla (Spain) and at the École Nationale Supérieure de Mécanique et d'Aérotechnique (ISAE-ENSMA) in Poitiers (France). For participation in the double degree program with the University of Seville, the selection announcement for a maximum of 3 students is published annually on the degree program website.

Further information is available in the Degree Programme regulations published on the Degree Programme website: <http://aerospaziale.dii.unina.it/en/double-degree>

Furthermore, the Degree Course adheres to the ERASMUS+ student mobility program to allow students to spend a period of study or carry out an internship at a partner institution belonging to a University of the European Union, see link (<https://www.unina.it/didattica/opportunita-studenti/erasmus/programma>)

Special Educational Paths

Expert in Aeronautical Maintenance

The Master's Degree in Aerospace Engineering offers students the choice of a particular study plan aimed at acquiring specific skills in the field of Aircraft Maintenance and formally recognized by the National Civil Aviation Authority (ENAC). The engineering training acquired through this study path will allow the development of a professional profile of "Expert in Aeronautical Maintenance" and to obtain an Examination Credit Certificate (ECC) recognized by ENAC to undertake a career as an independent engineer with the qualification of "certifying staff" or in a company with the appropriate licenses and authorizations to certify the maintenance performed on aircraft, in accordance with the requirements set by European legislation (EASA Part 66, EU Regulation).

The criteria for obtaining the "ENAC Examination Credit Certificate" are available on the Degree Course website (<http://aerospaziale.dii.unina.it/en/allcategories-en-gb/39-opportunita/123-aircraft-maintenance-licence-aml>).

Minor in Space Economy

The Minor Course in "Space Economy" stems from the growing interest and need of the national and international economic, productive, and institutional systems to train new professionals capable of identifying, understanding, and effectively managing high-tech business opportunities within the Space Economy. This aims to improve products, services, and processes in existing organizations and stimulate new entrepreneurial ventures. The educational goal of the Minor Course in "Space Economy" is to develop skills and knowledge to form professionals capable of integrating technical-scientific, legal-institutional, and managerial aspects within organizations operating in the Space Economy. These professionals will be able to drive technology transfer and capacity building actions, facilitating the use of advanced technologies in large and medium-small enterprises.

The innovative elements of the Minor Program also lie in its choice of an innovative learning strategy, based on the philosophy of "learning by doing," aiming to involve students in a training process that develops their skills through a dynamic learning model that combines traditional lectures with individual and group projects, allowing students to acquire skills through direct dialogue with academics and professionals. Further Information are available on the degree program website.

Orientation and Tutoring

Orientation to incoming students

The prospective student can gather information by interacting directly with university personnel responsible for orientation, in online and in-person events, which take place throughout the year.

The calendar of individual events is available on the University website at the portal www.orientamento.unina.it, which is also reported on the website of the Polytechnic School of Basic Sciences (SPSB), www.scuolapsb.unina.it in the orientation section.

In particular, the Degree Course organizes various incoming orientation initiatives coordinated at the Departmental, School and University levels.

Every year the Magistrali@SPSB event is organized in which the following are shown: the educational offer of the master's degrees, the career opportunities and thesis and internship opportunities. The Youtube recordings of these events are also available later via the SPSB website reported in the previous sections.

In the period March-July the "Open Days" events are organized to visit the facilities in person or attend specific events. The dates of these events are provided during the Magistrali@SPSB event and the participation modalities can be found on the website of the Department of Industrial Engineering (<http://www.dii.unina.it/?&lang=en>).

A video presentation of the course of study is available at the link: <http://aerospaziale.dii.unina.it/en/>

Tutoring and counseling

The Degree Course organizes ongoing orientation initiatives, in close coordination with the other courses of study of the Department and in collaboration with the Polytechnic and Basic Sciences School. These initiatives aim to facilitate the student in defining a study plan suited to his inclinations, providing detailed information on the knowledge and skills related to each course.

Career orientation and job placement

The Degree Course organizes outgoing orientation activities in a coordinated manner with its Department, with the Polytechnic and Basic Sciences School (SPSB) and the University.

A list of opportunities for extra-curricular internships (i.e. post-graduate) and job offers is available on the website www.orientamento.unina.it.

In addition, the SPSB manages a dynamic job placement platform, at www.jobservice.unina.it. The platform is aimed at students and companies to facilitate the meeting between supply and demand for curricular internships (pre-graduate), extra-curricular internships (post-graduate) and work.

In order to reduce placement times and make career choices more informed, in spring, the degree course contributes to the SPSB event "Career Day@SPSB", generally in person. During this event, students and recent graduates have the opportunity to personally learn more about the production domains of individual companies and the job profiles offered.

Furthermore, the presentation of professional opportunities and job and research opportunities is also promoted through thematic seminars, organized by the Course of Studies during the year.

Finally, specific training events for soft skills (e.g. communication and relational skills and competences, preparation for entering the job market) are organized periodically.

Calendar of educational activities and timeline

Application timeline

The terms and deadlines for enrolment and registration for subsequent years are set by the University, with methods that are made known within a specific Guide to enrolment and payment of fees published at the URL:

<https://www.unina.it/didattica/sportello-studenti/guide-dello-studente>

Further deadlines (e.g. deadlines for submitting study plans, deadlines for submitting ERASMUS applications, etc.) are reported on the Course of Study website: <http://aerospaziale.dii.unina.it/en/>

Academic Calendar: courses and exams

Details on the academic calendar and exams are available at the link:

<https://www.scuolapsb.unina.it/calendario-delle-attivita-didattiche-del-collegio-di-ingegneria/>

The detailed exam calendar, dynamically updated, is available at the link:

<http://aerospaziale.dii.unina.it/en/info-lm-en>

Course Timetable

The detailed timetable of the lessons, dynamically updated, is available at the link:

<http://easyacademy.unina.it/agendastudenti/index.php?view=rooms&include=rooms& lang=it>

Graduation dates

The detailed and dynamically updated calendar of graduation sessions is available at the link:

<https://www.scuolapsb.unina.it/esame-di-laurea-collegio-degli-studi-di-ingegneria/>

Contact Persons

Degree Programme Director: Prof. Michele Grassi – Department of Industrial Engineering - tel. 081/7682217 - e-mail: michele.grassi@unina.it

Contact person for International Students: Prof. Alfredo Renga – Department of Industrial Engineering - tel. 0817682359 - e-mail: alfredo.renga@unina.it

Contact person for training activities: Prof. Francesco Franco & Prof. Michele Guida – Department of Industrial Engineering - tel. 081-7683632- 7683575 e-mail: francesco.franco@unina.it, michele.guida@unina.it

Contact person for student orientation: Prof. Pierluigi Della Vecchia– Department of Industrial Engineering - tel. 081-7683328 - e-mail: pierluigi.dellavecchia@unina.it

Representative of the student body:

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Student Administration Offices: Dr. Fernanda Nicotera - Department of Industrial Engineering – Tel. 0812537108 – e.mail: uff.didattica.dii@unina.it

Sites and links

Study Course Location: Department of Industrial Engineering
Piazzale Tecchio, 80 - 80125 Napoli (Italy)

Educational activities take place in the western area of Naples, at the following educational facilities:

Piazzale Tecchio, 80 Napoli (Italia) (LAT, LONG: 40.82477593093813, 14.194545098596919)

Via Claudio, 21 Napoli (Italia) (LAT, LONG: 40.82870187914759, 14.190399752943291)

Via Nuova Agnano, 30-38 Napoli (Italia) (LAT, LONG: 40.81828782665476, 14.174878683625861)

Degree programme website

<http://aerospaziale.dii.unina.it/>

Department Web Site

<http://www.dii.unina.it/>

Polytechnic School Web Site

<http://www.scuolapsb.unina.it/>

University Web Site

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

Student Orientation Web Site

<http://www.orientamento.unina.it/>

Social Networks

facebook "Corso di Studi in Ingegneria Aerospaziale"

<https://www.facebook.com/groups/370219660341023>

Course description

The content and objectives of the modules, as well as the teaching methods and assessment procedures, can be found at the link <http://aerospaziale.dii.unina.it/index.php> in the section on the Master's degree programme, where the module descriptions are available. The module descriptions can also be downloaded from the public area of the teacher website.