Politecnico di Torino

ACADEMIC REGULATIONS

Bachelor's degree programme
in
AEROSPACE ENGINEERING

Department of Mechanical and Aerospace Engineering
Collegio di Ingegneria Meccanica, Aerospaziale e dell'Autoveicolo

Academic Year **2025/2026**

The English translation of this document is provided as a support to the student community and has no legal effects.
The Italian version shall constitute the sole authentic text and will be referred to for any legal matter.

SUMMARY

Art. 1 - Specific learning objectives and career prospects

1.1 Specific Learning Objectives

The Bachelor's degree programme in Aerospace Engineering, within the field of Industrial Engineering, trains professionals whose knowledge covers all disciplines and topics involved in the design, production and management of aerospace products. Modern aeronautical and space engineering is indeed a system engineering discipline, increasingly required to integrate from the outset all the elements contributing to the design or management of an aircraft or a space system. The cultural foundation of the aerospace engineer is therefore not narrowly specialised, although it encompasses a wide range of complex knowledge. Focusing on aeronautical and space products, far from narrowing the scope of education, broadens it: aerospace engineers, even when working in a specialised context, must be able to take a holistic view of the various aspects of a problem, assemble knowledge drawn from often distant disciplinary domains, and frame it within the general context in which such a product is conceived, manufactured and used.

To achieve this goal, the Bachelor's degree programme in Aerospace Engineering is designed to provide interdisciplinary training, extending beyond the traditional boundaries of Industrial Engineering (as in the case of Electronics, which today plays an essential role in the aerospace field) to include both the disciplines typical of the aeronautical sector (and, to a lesser extent, of the space sector, which is covered in greater detail in the Master's degree programme) and those needed to establish a dialogue with experts from related areas, as system engineering necessarily requires. In practice, this is achieved through a first year of study (shared with all engineering programmes at Politecnico di Torino) focused on fundamental scientific subjects, followed by a second year (common to all degree programmes in class L-9) providing basic engineering training. The third year, instead, is more specifically oriented towards aerospace engineering.

In this third year, the programme aims to offer students the choice between two study paths: one primarily oriented towards continuing studies, and another which, while ensuring the same conditions of access to the Master's degree programme, also enables immediate entry into the labour market. Both paths provide an overall view of the disciplines underpinning aerospace engineering. The first one, referred to as *Generalist*, has a strongly theoretical foundation and a predominantly methodological approach. The second path, instead, has a more technological and application-oriented character and is designated as *EASA Part 66*, as it is certified by ENAC under the relevant regulation. Its design draws on the sectors of aeronautical production, services and maintenance, all considered accessible to graduates of the Bachelor's programme in Aerospace Engineering. Compared with the Generalist path, the *EASA Part 66* path—also thanks to the company internship that characterises it—prepares professionals with greater awareness of all the aspects, not only technical, involved in aerospace activities. Even without the in-depth study typical of Master's degree programmes, both profiles equip graduates with the competencies required for continuous knowledge updating, active participation in technological innovation, and, eventually, continuing studies.

1.2 Career prospects

The Bachelor's degree programme aims to train a variety of professional profiles. The career prospects and main functions and competencies associated to each profile are illustrated below.

Professional Profile	**Main functions and competencies**
Production Engineer	Functions: The term *Production Engineer* encompasses a set of functions for which the *EASA Part 66* path provides specific preparation. These include production activities (product industrialisation, preparation of work cycles) and testing in quality and safety, computer-aided design and modelling, use of virtual reality, and model-based engineering. Although initially employed within general guidelines defined at higher levels, this professional has the minimum skills required to ensure a certain degree of autonomy. Competencies: Production Engineers are expected to combine basic and technical knowledge in order to properly frame problems and propose the most suitable methods to address them. They must be able to produce sketches and drawings of components, perform structural and thermal calculations related to mechanical, thermodynamic, aerodynamic and aerospace plant engineering problems; use operating systems, computational codes and CAD systems; assess a project in view of preparing

	user manuals; apply methods and processes for quality and safety management; and communicate the results of their work both orally and graphically according to standard professional practices (presentations or technical reports). Potential employers: • Major aeronautical and space industries; • Small and medium-sized enterprises in the supply chains of major companies; • The Air Force, aeronautical divisions of other armed forces and state bodies, and private air transport/work companies; • Technical departments of industries operating outside the aerospace sector.
Aeronautical Maintenance and Services Engineer	Functions: The *Aeronautical Maintenance Support Engineer* trained through the *EASA Part 66* path is the professional typically required to coordinate, manage, verify and supervise aeronautical maintenance activities on both fixed- and rotary-wing aircraft (in particular to ensure continued airworthiness). Their functions are codified by international regulation *EASA Part 66 – Licence category C*. Based on their training and the certification issued by ENAC on behalf of EASA, they are therefore qualified to provide technical support in the following functional roles defined by *Part 66*: Assistant to Technical Data Manager, Assistant to Technical Publication Manager, Assistant to Service Engineering Manager, Technical Publication Department, Spare Parts and Logistics Department, Service Engineering Department, and Maintenance Engineering Assistant. In addition, this professional profile also applies to activities related to aeronautical services, such as customer support, procurement, spare parts management, supply management, logistics support, and equipment engineering. Competencies: The specific competencies of the Maintenance Engineer are defined by *EASA Part 66* and their acquisition is periodically verified by ENAC through audits. They include the ability to: • identify and apply technical requirements and administrative procedures to ensure the continued airworthiness of aircraft; • assess a project in view of preparing maintenance manuals; • analyse reliability and safety requirements at the system level; • apply systemic criteria of reliability, maintainability and safety (Failure Probability, Mean Time Between Failures, spare parts definition, intervention times, logistics, design criteria oriented to maintainability); • use laboratory instrumentation; • communicate the results of their work both orally and graphically according to professional standards (presentations or technical reports). These same competencies also apply in the broader field of aeronautical services. Potential employers: • Agencies and companies responsible for aircraft maintenance; • Agencies and companies providing aeronautical services; • Air transport companies; • Aeronautical companies in general, particularly in the field of customer support.
Preparation for further studies	**Required knowledge for admission to the Master's degree programme in Automotive Engineering**
	Continuing studies is the only option for students who have chosen the *Generalist* track, but it is also fully open, without restrictions, to those who have opted for the *EASA Part 66* track. All graduates may choose among: • Master's degree programme in Aerospace Engineering; • Other Master's degree programmes in the Industrial Engineering class; • First-level Specializing Master's programmes. Required aptitudes • Understanding and interpreting problems formulated in mathematical terms; • Analytical and synthesis skills; • Adequate language proficiency and communication skills; • A critical attitude towards acquired knowledge and the ability to convey it to others.

1.3 Professional profiles (ISTAT codes)

With reference to the list of professional profiles classified by ISTAT (Italian National Institute of Statistics, https://www.istat.it/en/), a graduate from this Bachelor's degree programme can work as:

ISTAT code	Description
2.2.1.1.3	Ingegneri aerospaziali e astronautici

Art. 2 - Admission requirements

To be admitted to this Bachelor's degree programme, applicants must hold a high school diploma (as required by current regulations) or an equivalent qualification obtained abroad, recognized as valid. Additionally, they must have or attain an appropriate level of initial background knowledge.

The number of admissible students is determined annually by the Governing Bodies of Politecnico based on locally programmed admissions, considering the available facilities and the student-to-faculty ratio.

The number of available places and admission procedures are specified in the official Call for applications for admissions published at https://www.polito.it/en/education/applying-studying-graduating/admissions-and-enrolment/bachelor-s-degree-programmes/calls-for-application-regulations-and-ranking-lists .

In particular, for enrolment in this Bachelor's degree programme, applicants must take an admission test (TIL-I), administered in different sessions according to a specific calendar published on the recruitment web pages.

The test is conducted using the technical equipment available in the computer laboratories of the University.

The minimum score required to be included in the ranking list is set at 30% of the total score. Applicants may take the TIL-I test up to a maximum of three times. In the event of multiple attempts, the highest score obtained by the applicant will be considered valid. The test consists of answering 42 questions in 1 hour and 30 minutes. These questions are divided into four sections covering four different subject areas: Mathematics, Reading Comprehension and Logical Reasoning, Physics, and Basic Technical Knowledge.

Applicants who score below 30% in the Mathematics section will have to fulfil some supplementary academic obligations (in Italian, Obblighi Formativi Aggiuntivi - OFA).

They will be invited to attend tutoring math classes during Year 1 and they must attend a supplementary course. This course, called C.I.A.O. - Corso Interattivo di Accompagnamento Online (Interactive Online Support Course), is normally offered in the week before the beginning of classes. It seeks to help applicants fill in the gaps in their Math knowledge through specific online tutoring sessions.

The OFA requirements will be considered fulfilled if, by the end of Year 1, at least one of the following conditions is met:

- students pass one of the two Mathematics exams of Year 1 (Mathematical Analysis I or Linear Algebra and Geometry);
- students pass the final test of the CIAO course by correctly answering at least 10 out of 15 questions. This test will be offered three times during the academic year.

Any exemptions from taking the admission test are specified in the Call for applications for admissions to the Bachelor's degree programmes of Politecnico di Torino.

Students with a non-Italian educational qualification who intend to enrol in the programme, which is delivered entirely in Italian, must hold, at the time of enrolment, a certificate of Italian language proficiency at level B2, as defined by the Common European Framework of Reference for Languages (CEFR).

For more information regarding the Call for applications, the number of admissions, the admission test registration and enrolment procedures, please visit https://www.polito.it/en/education/applying-studying-graduating/admissions-and-enrolment/bachelor-s-degree-programmes/calls-for-application-regulations-and-ranking-lists .

Art. 3 - Programme curriculum

3.1 Programme overview

Consistently with this approach, the programme is organised into several thematic blocks:

- **Scientific and methodological foundations:** This block includes Mathematics and basic sciences (Physics and Chemistry), to the extent that these subjects are indispensable for engineering. The related courses are scheduled in the first three semesters; in the third year, as further evidence of the importance of foundations and methodologies for Aerospace Engineering, students may choose additional courses in Mathematics and Statistics among their electives.
- **Industrial and general engineering:** This block, scheduled in the second year, provides the common engineering background shared by all engineers (both industrial and non-industrial), also helping them to develop the characteristic *forma mentis*. It includes in particular technical drawing, materials science and technology, mechanics of machines, electrical engineering, electronics, applied thermodynamics, heat transfer and structural mechanics (the last three subjects, although based on the same syllabus proposed to other industrial engineering students, are taught with greater emphasis on their connection to subsequent courses in aeronautical structures and aerodynamics).
- **Theoretical foundations of aerospace engineering**: This block, delivered in the *Generalist* track of the third year, comprises the traditional set of knowledge on which aerospace engineering is based and which represents its "core". It includes flight mechanics, aerospace structures, aerospace systems and equipment, fluid dynamics and aerodynamics, and aerospace propulsion. These subjects provide graduates with their main technical expertise, the ability to continuously update their knowledge in their professional life, and the preparation needed for further studies.
- **Aerospace technology and aeronautical maintenance**: Covering partly similar content to the previous block, but delivered with stronger emphasis on direct applicability, this block defines the *EASA Part 66* track. In addition to ensuring the necessary and sufficient background to continue studies, it is designed to prepare graduates for immediate employability in the labour market (beyond aircraft maintenance-related activities). This is ensured both by the compulsory internship in a company or equivalent organisation, and by the supervision of the training activities by ENAC, as part of the European Union Aviation Safety Agency (EASA), which fully recognises them for the purpose of awarding graduates the Aircraft Maintenance Licence – Category C, in accordance with the international regulation *EASA Part 66*.
- **Contextual knowledge and final examination**: Contextual knowledge provides the holistic view required by the systemic nature of aerospace engineering and opens up to external issues (economic, regulatory, environmental, ethical, human and linguistic), whose relevance in aerospace activities is increasing. These subjects—often integrated into courses with broader titles—are distributed throughout the programme and include, in the first year, a course on the history of aviation (with insights into current international aerospace scenarios), a course in English and one in Computer Science, as well as, in the second year, a comprehensive course in Economics including aeronautical regulations and business safety. Students may also choose additional courses in Economics, Humanities, and emerging topics in Engineering from the University's overall course offerings.

The programme concludes with a final examination, consisting of a project carried out independently by the student, presented in a written report and defended before an examination committee. For students enrolled in the *EASA Part 66* track, the final examination may be combined with the mandatory curricular internship, ranging from a minimum of 6 to a maximum of 16 credits. Both the written report and the presentation must follow current standards of technical communication. In order to graduate, students must hold an English language proficiency certificate at level B2, as defined by the Common European Framework of Reference for Languages (CEFR).

3.2 Organization of educational activities

The list of courses (compulsory and optional), curricula, possible organization of courses into modules, any pre-requisites and exclusions and the list of the faculty members responsible for the courses are available at: https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa_2019.vis?p_a_acc=2026&p_sdu=32&p_cds=477

The list of the Scientific Disciplinary Fields (Settori Scientifico Disciplinari) for each activity (specific subjects and complementary subjects) is available at: https://didattica.polito.it/pls/portal30/sviluppo.vis_aiq_2023.visualizza?sducds=32477&tab=0&p_a_acc=2026

Art. 4 - Student career

The Student Guide is published on the Teaching Portal every year before the beginning of the academic year. There is a specific Student Guide for each Bachelor's degree programme. The Student Guide is available on the web site of the degree programme.

It contains information and deadlines on:

- academic calendar;
- supplementary academic obligations (Obblighi Formativi Aggiuntivi - OFA);
- Personal Study Plan and Annual Personal Study Plan;
- free choice credits;
- internships;
- tuition fees;
- dual career;
- classes and exams;
- class delivery;
- foreign language learning;
- studying abroad/mobility programmes;
- exam rules;
- transfers in/out and internal transfers;
- interruption, suspension, withdrawal, forfeiture;
- credit transfer.

Art. 5 – Final Examination

The final examination consists of preparing a written report (Final Project) under the guidance of a *Supervisor*.

The purpose of the Final Project is to assess the student's ability to independently tackle a technical or scientific problem and to present the work carried out, effectively defending it in a technical discussion. The Final Project is worth 3 ECTS credits, corresponding to approximately 75 hours of student work.

Procedure to request the Final Project:

a) **Students with an internship:** the student must indicate the company where the internship has been or is being carried out, the topic of the internship, and the academic tutor. The committee will assign the *Final Examination Supervisor*, who will normally coincide with the internship academic tutor.

b) **Students directly requesting a** Final Project**:** the committee assigns a *Final Project Supervisor*; the student must agree with the Supervisor on the topic to be undertaken.

c) **Students who have already contacted a Politecnico faculty member regarding the** Final Project**:** the student may indicate the faculty member and the topic agreed upon. The *Final Examination Committee* will approve the proposal. If the Committee decides not to approve it, a new *Final Examination Supervisor* will be appointed.

This procedure also applies to students who are part of a student *Team* and wish to present their team activity as the final examination. In this case, they must indicate the Team and the faculty member identified in coordination with the Team's Academic Supervisor.

Students must submit the request online through a dedicated procedure available in their personal page on the teaching portal under the section "Degree and Final Examination," respecting the deadlines for the relevant session published in the Student Guide – Thematic Calendar section.

By the deadline indicated in the Student Guide for submitting the graduation application, the student must obtain the approval of the work by the *Supervisor*. Such approval, together with the successful completion of all exams, allows the student to participate in the corresponding graduation session.

The Final Project must be submitted to the Supervisor by uploading the file in PDF format to the shared space on the didactic portal.

The Final Project may optionally be written in English. Candidates who have obtained the Supervisor's approval may sit for the final examination in the relevant session.

Determination of the final grade

The final grade is determined by the Graduation Examining Committee, which evaluates the overall average grade of the exams on a scale of 110 after having subtracted the 16 worst credits. This number is proportionally reduced if some of the exams have been validated without a grade (pass-or-fail exams) or in the event of credit transfer, since only the exams taken at Politecnico are taken into consideration for this calculation.

To this average, the committee may normally add up to 5 additional points, calculated using the formula **points added X = 0.0772 AG – 3.25** (rounded up), based on:

- the evaluation of the written paper;
- the number of years it took the student to complete his/her studies;
- the evaluation of the educational path partially or totally in English;
- other information about the student's course of study (for instance, the number of exams passed with honours, experience abroad, extracurricular activities etc.).

Students enrolled at Politecnico for the first time starting from a.y. 2022/2023 (and following aa.yy.) who pass their first-year courses and the core courses offered in Year 2 (Mathematical Analysis 2 and Physics 2) by the end of the examination session which immediately follows the semester of first course attendance will get a bonus (0.5 points for each exam) that will be added to the final grade, up to a maximum of 4 points.

Honours (*cum laude)* may be awarded upon achieving a score of 110 (before rounding, i.e., an average higher than 28.52/30), at the discretion of the committee and with a qualified majority, i.e., at least 2/3 of the committee members.

More Information and Deadlines:

- Student Regulations
- Student Guide

Diploma Supplement:

In compliance with article 11, paragraph 8, of Ministerial Decrees No. 509/1999 and 270/2004. Politecnico di Torino issues the Diploma Supplement, a document that can be attached to a higher education qualification. It is designed to improve the transparency of international qualifications, as it provides the description of the curriculum successfully completed by the student. This certificate follows the European model developed by the European Commission, the Council of Europe and UNESCO – CEPES: it is issued in two languages (Italian-English) and it is composed of approximately 10 pages.

More information at: https://www.polito.it/en/education/applying-studying-graduating/academic-experience/certificates-and-other-documents

Art. 6 - References

6.1 Student Regulations

The Student Regulations define the rights and responsibilities of students and set out the administrative and disciplinary rules that all students enrolled in a degree programme or in a single learning activity at Politecnico must abide by.

6.2 Other Regulations

Particular aspects of students' academic progress are governed by specific Regulations or Calls for Applications published on its website.
In particular:

- The Tuition Fee Regulations specify the annual tuition fees that students must pay. The procedure for requesting a tuition fee reduction is explained in a dedicated guide.
- The University Regulations on Funds for Student Mobility Abroad outline the principles and rules for awarding and disbursing mobility grants. Standard procedures apply to all types of mobility programmes with unified Calls for Applications published twice a year at https://www.polito.it/en/education/applying-studying-graduating/studying-abroad
- The Code of Ethical Conduct also applies to students.