Politecnico di Torino

ACADEMIC REGULATIONS

Bachelor's degree programme
in
MECHANICAL ENGINEERING

Department of Mechanic 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 Mechanical Engineering trains professionals with a solid technical foundation in the core disciplines of industrial engineering and specific competencies in the mechanical field, with a particular focus on fundamental knowledge and methodological approaches.

Specifically, the learning objectives of the degree programme are:

- to acquire knowledge of the physical and chemical principles and of the mathematical and IT tools relevant to engineering applications;
- to learn technical fundamentals and methodologies used in the field of industrial engineering;
- to develop solid knowledge and skills in the specific domains of mechanical engineering: materials, design methodologies, thermofluid dynamics, thermal and fluid machinery, manufacturing technologies, industrial plants and related technical services;
- to develop the ability to work independently and effectively as part of a team, including interdisciplinary teams;
- to develop the ability to communicate with specialists from other engineering fields using appropriate technical language and a solid understanding of fundamental concepts;
- to develop the ability to manage change, supported by a strong inclination toward continuous learning and adaptability to a wide range of industrial contexts;
- to develop the ability to conduct experiments and analyse results.

Achieving these objectives will enable graduates to either continue their studies with an adequate knowledge background or enter the job market more easily, thanks to their ability to update and adapt their skills to various professional contexts, supported by the cultural and methodological competencies acquired during the programme.

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
Junior Mechanical Engineer – Product and/or Process Design and Review	Functions: • Collaborates in the modelling and detailed design of components and systems • Contributes to the selection and review of manufacturing processes and methods, as well as to the design, implementation and maintenance of the equipment required for production • Participates in failure analysis activities Competencies: Main competencies: • Functional design of components, assemblies, and systems, including load assessment; • Sizing, material selection and verification of mechanical components and assemblies based on the applied loads; • Stress analysis and material behaviour within the context of failure analysis; • Selection of technologies and execution methods for treatment, machining, and assembly processes to achieve the required product characteristics, also considering product disposal and environmental sustainability; • Design and maintenance of equipment required for the production process; • Definition of manufacturing cycles for individual components; • Use of modelling software tools and management of related technical documentation; • Promotion and management of process digitalisation.

	Potential Employers: Product and/or process design departments in industrial companies and service providers.
Junior Mechanical Engineer – Production	Functions: • Collaborates in managing production systems and methods and evaluating process productivity • Assesses product quality through appropriate measurement techniques and statistical analysis • May develop and manage maintenance plans • Participates in failure analysis activities within their area of expertise Competencies: • Definition of process times and optimisation of production equipment performance • Organisation of the production process with attention to environmental sustainability • Definition of experimental plans for evaluating product quality aspects • Definition of measurement methods and statistical analysis of product characteristics • Analysis of failures and breakdowns in production systems • Definition of test procedures required in failure analysis • Definition and management of control and maintenance plans • Digitalisation of processes and procedures Potential Employers: Production departments in industrial companies and service providers.
Junior Mechanical Engineer – Design, Management, and Maintenance of Industrial Plants	Functions: • Collaborates in the design and maintenance of industrial plants, including sizing of technical services • Contributes to the layout and internal logistics design of plants and production departments • Participates in plant and logistics management activities, with a focus on safety Competencies: • Design of industrial plant layouts • Selection of warehouse types and handling equipment for semi-finished products • Definition of internal logistics processes, including digitalisation of procedures • Sizing of plant systems • Management of internal logistics and facilities • Management of maintenance programmes for plants and production equipment • Evaluation of energy, economic, and environmental performance • Management of occupational safety issues, including with direct responsibility, with awareness of professional and ethical responsibilities Potential Employers: Departments responsible for design, management, internal logistics and maintenance in industrial companies and service providers. Occupational safety managers or officers.
Junior Mechanical Engineer – Technical and Commercial Services	Functions: • Collaborates in technical-commercial services of organisations and companies for the procurement of materials, semi-finished products, mechanical components, and systems • Provides technical support to commercial departments, including product installation and testing Competencies: • Selection and technical assessment of materials, semi-finished products, and components required for production • Management of testing and approval activities for incoming and outgoing products • Management of product installation and servicing at the customer's site • Management of customer support services • Digitalisation of procedures

	Potential Employers: Technical-commercial departments in industrial companies.
Preparation for continuing studies	**Knowledge required for continuing education**
Admission to Master's degree programmes in the field of Mechanical and Industrial Engineering	Solid knowledge of core and specific subjects. Ability to explore the theoretical and methodological aspects of mechanical engineering disciplines in greater depth. Ability to identify and acquire missing information needed to solve specific problems. Ability to work independently and in teams. Ability to communicate technical information effectively.

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
3.1.3.1.0	Tecnici meccanici
3.1.3.7.1	Disegnatori tecnici
3.1.8.2.0	Tecnici della sicurezza sul lavoro
3.3.1.5.0	Tecnici dell'organizzazione e della gestione dei fattori produttivi

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.

This Bachelor's degree programme is delivered both fully in English and fully in Italian.

Students who wish to attend the English-taught programme must have an English language certificate (B2-level or above), as defined by the Common European Framework of Reference for Languages (CEFR) at the time of enrolment.

Students with a non-Italian educational qualification who wish to attend the Italian-taught programme must have an Italian language certificate (B2-level or above), as defined by the Common European Framework of Reference for Languages (CEFR) at the time of enrolment.

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

The educational path is organised into three closely interconnected areas:

- Basic scientific education, including courses in mathematics, chemistry, physics and computer science;
- Basic engineering education in the industrial field, drawing on various disciplinary areas such as technical drawing, thermodynamics, electrical engineering and electrical machines, materials science, applied mechanics, structural mechanics, fluid mechanics, and measurement and experimental techniques;
- Specialised mechanical engineering education, with courses in machine design and drawing, thermal and fluid machinery, manufacturing technologies, and industrial plants.

The programme also includes optional courses for a total of 12 ECTS credits, of which at least 6 ECTS must be chosen from among courses dealing with sustainability, digitalisation, ethics and responsibility, safety, ecological transition, and global challenges, as listed in the University course catalogue. The remaining 6 ECTS may be chosen from these same topics or replaced with an internship.

As established by the Academic Senate, in order to obtain the degree, students are required to get an English language certificate (B2-level), as defined by the Common European Framework of Reference for Languages (CEFR). The English language certificate is worth 3 ECTS credits.

At the end of the programme students are required to take the final examination (worth 3 ECTS credits).

- Year 1 is primarily dedicated to basic scientific education.
- Year 2, in addition to completing the basic scientific education, students take courses in basic engineering and choose 6 ECTS in cross-disciplinary topics (sustainability, digitalisation, safety, ecological transition).
- In Year 3, students complete their basic engineering education, take specialised courses in mechanical engineering, and choose 6 ECTS in cross-disciplinary topics or, alternatively, complete an internship in companies, public or private institutions, or professional practices.

The programme is offered in both Italian and English.

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:

- Ingegneria Meccanica: https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa_2019.vis?p_a_acc=2026&p_sdu=32&p_cds=564
- Mechanical Engineering: https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa_2019.vis?p_a_acc=2026&p_sdu=32&p_cds=566&p_ori=18142

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_aig_2023.visualizza?sducds=32564&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 is worth 3 ECTS credits and is the final activity of the educational path.

The final examination aims to assess the student's ability to independently address a technical/scientific problem. For the Final Examination students are required to autonomously prepare a written paper (final project) which does not require a high level of originality. The final project may be written in English. Students write their final project under the guidance of a Supervisor assigned by the Final Examination Committee of the degree programme.

The Final Examination Committee chooses and appoints the Supervisor considering if the student has participated in a Student Team or has done an internship. Students must submit their application online through a dedicated procedure available on their personal page of the Teaching Portal.

How to apply for the final examination (Teaching Portal)

a) **Students who have already contacted a Politecnico faculty member** (Final Examination Supervisor) for their final examination must specify the agreed topic and the name of their Final Examination Supervisor. The Final Examination Committee normally evaluates the proposal and assigns the proposed Supervisor. If the Committee decides not to approve it, a new Supervisor will be appointed by the Committee.
   This category also includes students who are members of a Student Team and wish to present their team activity as their final project; in this case, they must indicate the Student Team they are involved in and identify a Final Examination Supervisor together with the faculty member responsible for the Team.
b) **Students who directly request a topic for the final examination** will be assigned a Final Examination Supervisor by the Committee. Subsequently, students must agree with their Supervisors on the topic to be developed.

The Supervisor is the person in charge of monitoring that the student is conducting the activities correctly.

The final project should be approximately thirty pages long. It must be submitted to the Supervisor by depositing in the shared drive on the Teaching Portal (PDF format).

Students are required to present the final project to the Graduation Examining Committee. The presentation must not exceed 15 minutes, including the defence.

Students must submit their application online through a dedicated procedure available on their personal page of the Teaching Portal under the portlet called "Degree and Final Examination", ensuring they meet the deadlines for the desired graduation period as published in the Student Guide – Thematic Calendar section.

In compliance with the deadlines for the relevant graduation period published in the Student Guide, students must obtain the approval of their work from their Supervisor. This approval, together with the completion of all exams and the correct submission of the graduation application, allows students to take part in the graduation session.

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. Additionally, the Committee may add up to a maximum of 5 points to this average, considering:

- the evaluation of the work carried out (commitment, autonomy, methodological rigour, use of appropriate technical and scientific language, etc.);
- the presentation of the final project;
- the evaluation of the educational path (for instance, the number of exams passed with honours, experience at other universities or research centres, extracurricular activities, participation in Student Teams 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 may be awarded upon achieving a final grade of 110, at the discretion of the Committee and by a qualified majority (i.e. at least two-thirds 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.