



**Politecnico
di Torino**

ACADEMIC REGULATIONS
Master's degree programme
in
MECHATRONIC ENGINEERING

Department of Control and Computer Engineering
Collegio di Ingegneria Informatica, del Cinema e Meccatronica

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 matters.*

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Art. 1 – Specific learning objectives and career prospects

1.1 Specific learning objectives

A mechatronic system or device can be defined as a system whose design requires an interdisciplinary knowledge base, primarily though not exclusively—in the fields of electronics, mechanics, electrical machines and drives, automatic control and computer science.

Graduates of the Master's degree programme in Mechatronic Engineering therefore go through a cross-disciplinary education that includes the scientific and technical knowledge typical of mechatronic systems—namely, electronics, mechanics, electrical drives, automatic control, and computer science. A mechatronic engineer is thus a professional with broad and comprehensive training, capable of interacting effectively with specialists from different fields and working in the design, engineering, production, operation, and maintenance of mechatronic systems and devices, as well as in the management of laboratories and industrial facilities.

1.2 Career prospects

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

Professional profile	Main functions and competencies
Mechatronic Systems Designer	<p>Functions: Systems designers identify the technical requirements from system specifications and design a mechatronic system, which typically includes electromechanical components, drives, and control systems. The system may be defined at different levels of integration, ranging from a single component to a more complex system. Components not available on the market must be designed and validated, and the designers develop these components to meet the required specifications.</p> <p>Competencies: In this role, mechatronic engineers have specific expertise in:</p> <ul style="list-style-type: none"> • operating principles and technologies of mechatronic devices • design methodologies (hardware/software trade-offs, design optimization) and testing techniques • effective use of software tools for development and modelling • development and implementation of control systems for mechatronic devices • management of production, installation, and maintenance of mechatronic systems • optimization of design solutions by balancing performance, energy consumption, cost, and reliability. <p>Potential employers: Manufacturing and service companies—public or private, large or small—operating in advanced design, planning and management of complex systems, and innovation in products and processes.</p>
Mechatronic Systems Integrator	<p>Functions: Systems integrators identify the technical requirements from the specifications of a mechatronic system—typically composed of electronic and mechanical components, various types of drives, and control systems—and carry out the integration of its parts. The system may be defined at different levels of integration, from a single component to a complex device. Most components currently in use are commercially available (COTS), and integrators focus mainly on their integration. Systems Integrators work in interdisciplinary design teams, where they bring together the specialized skills of electronic, mechanical, electrical, control, and computer engineers.</p> <p>Competencies: Thanks to the cross-disciplinary nature of their education, mechatronic engineers are skilled in:</p> <ul style="list-style-type: none"> • effective use of software tools for mechatronic system development and modelling • use and integration of sensors in mechatronic systems • production, testing, installation, and maintenance of mechatronic systems • evaluating available technologies during integration and understanding their impact on system

	<p>performance</p> <ul style="list-style-type: none">• identifying optimal solutions in the integration process• developing and managing integrated prototype systems <p>Potential employers: Automation companies involved in the development, design, and implementation of complex automation systems; electronics, electromechanical, and mechanical companies designing and producing mechanical systems; companies in the automotive, aerospace, and robotics industries; manufacturing firms where the ability to integrate mechanical expertise with electronics, computer science, electrical drives, and automation is essential.</p>
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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/>), graduates from this Master's degree programme can work as:

ISTAT code	Description
2.2.1.1.1	Ingegneri meccanici
2.2.1.3.0	Ingegneri elettrotecnici e dell'automazione industriale
2.2.1.4.1	Ingegneri elettronici

Art. 2 – Admission requirements

Italian regulations on enrolment in Master's degree programmes require Italian universities to check that applicants meet the following requirements:

- have a **three-year Bachelor's degree or university diploma**, or **other educational qualification obtained outside Italy** and recognized as suitable for admission;
- meet specific curricular requirements;
- have an **academic performance considered suitable** for admission.

CURRICULAR REQUIREMENTS

As far as curricular requirements are concerned, applicants must have a Bachelor's degree or a three-year university diploma, or an educational qualification obtained outside Italy and recognized as suitable for admission. In addition, they must have gained specific knowledge and competencies in their previous academic path (credits in specific Scientific Disciplinary Fields).

The curricular requirements are automatically met by the applicants who have a Bachelor's degree belonging to classes L-8 or L-9.

In all other cases, admission applications will be evaluated by the Academic Advisor of the degree programme, or by a delegate, who will verify that applicants have earned:

- at least 40 credits in the following Scientific Disciplinary Fields (settori scientifico-disciplinari): CHIM/07, FIS/01, FIS/03, ING-INF/05, MAT/02, MAT/03, MAT/05, MAT/08 e 60 CFU
and
- at least 60 credits earned in the following Scientific Disciplinary Fields (settori scientifico-disciplinari): FIS/04, ICAR/01, ING-IND/04, ING-IND/05, ING-IND/08, ING-IND/10, ING-IND/12, ING-IND/13, ING-IND/14, ING-IND/15, ING-IND/16, ING-IND/17, ING-IND/21, ING-IND/31, ING-IND/32, ING-IND/34, ING-IND/35, ING-INF/01, ING-INF/02, ING-INF/03, ING-INF/04, ING-INF/05, ING-INF/06, ING-INF/07, SPS/09.

The credits of the Scientific Disciplinary Fields found both in the first group and in the second group are primarily counted for the first group. The remaining credits are counted for the second group. Therefore, the credits of a course can be counted partly to reach the minimum number of credits of both groups.

The Academic Advisor, or his/her delegate, may decide on the equivalence of credits earned in Scientific Disciplinary Fields other than the ones listed in the present Regulations.

Applicants who lack less than 10 credits may be admitted to the programme by the Academic Advisor. For applicants who lack more than 10 credits, the evaluation will be subject to the final approval of the Coordinator or the Vice coordinator of the degree programme.

Applicants who do not meet the curricular requirements are required to make up for their unfulfilled curricular requirements (missing credits) before enrolment, by means of:

- **enrolment in single courses in order to make up for unfulfilled curricular requirements:** this is possible for students who need to earn up to a maximum of 60 credits. Students who enrol in single courses for this reason are allowed to include in their Personal Study Plan exclusively the courses assigned by the evaluator.
or else,
- **credit transfer at Bachelor's level:** this is possible for students who need to earn more than 60 credits. In this case, students need to enrol in the Bachelor's degree programme that offers the credits in the specific Scientific Disciplinary Fields (core subjects and commentary subjects) required for admission to this Master's degree programme.

SUITABLE ACADEMIC PERFORMANCE

Applicants must have a suitable academic performance and an English language certificate (B2 level or above, as defined by the Common European Framework of Reference for Languages: Learning, Teaching, Assessment - CEFR).

The academic performance will be assessed as follows.

1) Applicants from Politecnico di Torino

Applicants can be admitted to the programme if they earned their Bachelor's degree in:

- 4 years (1) or less - no exam average grade required
- between 4 and 5 years (1) –exam weighted average grade required (2): $\geq 21/30$
- more than 5 years– exam weighted average grade required (2): $\geq 24/30$

The weighted average grade is calculated on all accrued course credits (graded on a scale of 30) counting towards the achievement of the Bachelor's degree, after having subtracted the worst 28 credits.

The duration of the Bachelor's path is calculated on the basis of the number of academic years in which the applicant has been enrolled at the university, starting from the first enrolment in the Italian university system:

- for full-time students: the duration of the Bachelor's path is equivalent to the number of academic years of enrolment.
- for part-time students: each year of enrolment is counted as half-year.
- for full-time students taking part in the "Dual Career" programme: each year of enrolment is counted as half-year, as for part-time students.

In the event of credit transfer, the duration of the Bachelor's path must be increased proportionally to the number of credits that have been recognized by Politecnico (10-60 CFU =1 year, etc.). The worst 28 credits must be subtracted proportionally to the number of validated credits.

(1) Applicants must have graduated by the end of the December Graduation Period

(2) The weighted average is calculated as follows: $\sum(\text{grade} \cdot \text{credits}) / \sum \text{credits}$

2) Applicants from other Italian universities

Applicants who have a Bachelor's degree awarded by another Italian university must have a weighted average grade of all the exams $\geq 24/30$, regardless of the number of years it took them to graduate. The weighted average grade ($\sum(\text{grade} \cdot \text{credits}) / \sum \text{credits}$) is calculated on all accrued course credits (graded on a scale of 30) counting towards the achievement of the Bachelor's degree, after having subtracted the worst 28 credits.

3) Applicants with a non-Italian educational qualification

To be admitted to Politecnico Master's degree programmes, applicants must have an academic qualification awarded by an accredited/recognized foreign university, earned after completing at least 15 years of total education (including primary school, secondary school and university).

Applicants who have attended a university programme lasting five or six academic years (different from the 3+2 system) without completing it must still meet the minimum requirement of 15 years of total education (of which at least 3 years at university level) and they must have earned at least 180 ECTS credits or equivalent. Pre-university courses or foundation years cannot be counted towards the minimum number of credits or the minimum numbers of years of total education mentioned above.

The applicant's academic performance and the consistency between the degree programmes offered by Politecnico and the applicant's previous academic background are assessed by the professors designated by Coordinator of the Collegio. The evaluation is carried out on the Apply@polito platform under the section called "applicants with a non-Italian qualification."

A positive evaluation (offer of admission) allows applicants to enrol in the programme only in the academic year in which the application has been submitted. Admitted applicants who do not complete the enrolment process within the deadlines are required to apply again to the programme in the next academic years.

More information is available at <https://www.polito.it/en/education/applying-studying-graduating/admissions-and-enrolment/master-s-degree-programmes>

Art. 3 – Programme curriculum

3.1 Programme overview

The Master's degree programme is English-taught and builds on the foundational knowledge acquired in previous Bachelor's studies. It offers a broad interdisciplinary technical education focused on the analysis and use of mechatronic components, devices, equipment, and systems, as well as on the ability to apply theoretical tools and software development environments for their modelling and design.

The programme has six specialized tracks (expanded in academic year 2025/26 with the introduction of a sixth track dedicated to the space sector), allowing students to strengthen their expertise in one of the following areas:

- Control Technologies for Industry 4.0: a core track focusing on control systems and enabling technologies in mechatronics
- Software Technologies for Automation: software, firmware, and operating systems for control applications in mechatronic systems
- HW & Embedded Systems for Industry 4.0: hardware systems, embedded systems, and electronic platforms for implementing control technologies
- Technologies for eMobility: technologies and systems for mechatronic applications in the automotive sector, with a specific focus on electric mobility
- Industrial Technologies & Applications: technologies and systems for industrial mechatronic applications
- Technologies for Space Applications: technologies and systems for mechatronic and control applications in the space sector

Regardless of the track, Year 1 focuses on advanced topics in the core disciplines of mechatronic engineering, such as system modelling, electronic systems, automatic control and robotics. To integrate prior knowledge from the Bachelor's degree programme, students must choose one or more core courses based on their academic background, in the areas of control engineering, electronics, electrical systems, or mechanical systems.

Two new courses—Networked Control Systems and Sensors, Embedded Systems and Algorithms for Service Robotics—have been designed especially for students with a hybrid background, such as students from Biomedical Engineering or Mechatronics programmes. These courses are also available as free choice credits (optional courses) for students from other tracks. Year 1 also includes a track-specific course.

In Year 2 students study more in depth both mechatronic engineering and the chosen specialisation track, while placing strong emphasis on laboratory activities essential for consolidating practical skills.

Over the two-year programme, students have three opportunities to choose between alternative courses to further specialise in various areas of mechatronics. In Year 2, students take two core courses in their specialisation track and select one additional course from the list of optional courses, which can either reinforce their track-specific expertise or broaden their interdisciplinary knowledge.

By the end of the programme, students will have developed cross-disciplinary expertise with advanced competencies in one or more of the main knowledge areas of mechatronics, based on their personal choices.

At the end of the programme students must prepare and defend a final thesis, which allows them to consolidate their knowledge and apply their skills to a theoretical, applied, and/or experimental project, contributing original work. The thesis may be carried out at the university or at external institutions—public or private, national or international—with which the university maintains collaborative agreements. Students may also choose to do an internship as part of the programme, which may be combined with the thesis project.

Students interested in international experiences can benefit from agreements with partner universities to spend study periods abroad and/or to work on their thesis project in collaboration with local supervisors. In some cases, double degree programmes are also available.

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=37&p_cds=571

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=37571&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 Master's degree programme. The Student Guide is available on the [web site](#) of the degree programme.

It contains information and deadlines on:

- academic calendar;
- 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 focuses on an innovative analysis, project, or application, related to topics consistent with the educational objectives of the degree programme. It should reflect the candidate's individual contribution and result in a final written report (Master's thesis). The courses offered in Year 2 are organized in a way that leaves sufficient time for the development of the thesis.

The Master's thesis represents a comprehensive assessment of the student's mastery of technical content, as well as organizational, communication, and individual skills, in the context of developing complex analyses or projects. The final examination typically requires the application of knowledge gained from multiple courses, the integration of additional elements and the ability to propose innovative ideas.

The Final examination is worth 30 credits, corresponding to a workload of one semester of full-time work. Students can also choose to split the 30 credits into an 18-credit thesis and a 12-credit internship (https://didattica.polito.it/guida/2025/it/tirocinio_ingegneria?cds=55&sdu=37)

The topic and activities connected with the thesis must be agreed upon with a faculty member from the Politecnico (thesis supervisor). Students are allowed to work at their thesis project also at external organizations or companies, in Italy or abroad, under the supervision of a thesis supervisor from Politecnico and a tutor from the external institution.

Students who have earned at least 48 credits must submit their thesis application and request the thesis topic online through a dedicated procedure available in their personal page on the Teaching Portal, under the section entitled "Thesis," in compliance with the Graduation Periods deadlines published in the Student Guide – Thematic Calendar Section.

Students are required to publicly present and discuss the preparation activities for their thesis and the corresponding results (oral defence) in front of a Graduation Examining Committee, who will evaluate both the work carried out and the presentation. The Master's thesis and its oral defence must be in English.

The Graduation Examining Committee gives the final grade evaluating the student's overall academic path, his/her maturity, capacity for intellectual reasoning and the quality of the thesis. The members of the Graduation Examining Committee evaluate the overall average grade of all the exams on a scale of 110. The committee may add up to a maximum of 8 points, considering the following factors:

- quality of the thesis work (commitment, autonomy, methodological rigor, relevance of results achieved, etc.);
- thesis oral defence (clarity in presentation, etc.);
- outstanding results achieved during the academic path (number of honours, time to graduation).

A degree with honours (lode) may be awarded at the Committee's discretion if the total score is at least 112.51.

If the thesis meets the required standards, the Committee may grant the *dignità di stampa* (printing honour) only if the final grade is 110 cum laude and the Committee's decision is unanimous.

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.