ACADEMIC REGULATIONS

Bachelor's degree programme

in

INDUSTRIAL MANUFACTURING TECHNOLOGIES

Department of Management and Production Engineering

Collegio di Ingegneria Gestionale e della Produzione

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 educational objectives are aimed at creating high-profile technical professionals in the fields of industrial technology and organisation, capable of being rapidly employed in the technical offices of manufacturing companies in the mechanical, textile, mechatronic, and agri-food sectors, as well as in freelance activities and professional offices, entering directly into technical production roles.

These objectives are pursued through learning-by-doing and learning-by-thinking methodologies, where knowledge is transmitted not only through lectures but also through practical laboratory activities and project-based work designed to stimulate reasoning and experimentation supported by reflection.

In this context, the curriculum initially includes a series of activities aimed at consolidating foundational knowledge and skills in mathematics, physics, chemistry, and computer science to create a methodological and knowledge base on which to build professional-level study. Subsequently, a series of specialising activities provide advanced competencies in digital technologies typical of the Industry 4.0 approach, production, and industrial automation, as well as in the principles of lean management of production processes and quality.

In the final phase of the programme, students undertake an in-depth study of methods and knowledge specifically related to mechanical technologies and production processes in their broad disciplinary scope (Mechanical, Mechatronic, Plastics, and Agri-food), facilitated by elective courses. More than half of the credits related to laboratory courses are assigned to scientific-disciplinary sectors (SSD) in "Mechanical Technologies and Energy Efficiency Technologies", covering industrial programming, quality management and measurement, and project-based laboratories (Project Work).

The programme offers two pathways: one at the Politecnico di Torino main campus and one at the Technological Innovation Hub in Mondovì. The two pathways are primarily differentiated by the laboratories used for practical activities, all centred on a learning-by-doing approach.

The Torino pathway aims to develop competencies oriented towards a broad manufacturing industry. Within the elective courses, students can specialise in the use of digital technologies in product and process design, the integration of mechatronics in production lines, management of technological innovation in the digital transition, and aspects of sustainability of products, processes, and packaging.

The Mondovì pathway prioritises the industrial fabric of the Province of Cuneo, allowing students to deepen their knowledge of technologies for the agri-food industry or advanced manufacturing techniques using CNC machines, robots, and additive manufacturing (3D printing).

The Practical Evaluative Internship (TPV) is spread throughout the programme, allowing students to understand the operational rules within an industrial context. In the final year, the internship adopts a problem-solving approach, where students are assigned a problem and propose an innovative technical solution. Preparation for this phase also includes a Project Work laboratory aimed at developing the integration, decision-making, and problem-solving skills needed to apply the competencies acquired during the programme to concrete case studies, either in the chosen production sector or in the design of mechanical components or thermotechnical systems for freelance practice as registered Industrial Technicians in Mechanical and Energy Efficiency.

Upon completion of the TPV, students undertake a Practical Evaluative Test (PPV) designed to verify the acquisition of the knowledge, competencies, and skills developed during the programme and internship. This includes professional ethics, as well as activities in design, management, execution, verification, testing, and estimation within the technological domain corresponding to the student's area of specialisation in Mechanical Technologies and Energy Efficiency.

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
Technician for the Management of Industry 4.0 Production Processes	FUNCTIONS: This professional manages production processes according to lean and flexible logics through an interconnected and digital configuration. In companies operating in the mechatronic, agri-food, and mechanical sectors, these professional analyses production processes and reorganises them following a continuous improvement approach, exploiting the latest technological innovations in digitalisation and IoT, while also applying lean production management principles. COMPETENCIES: To perform the functions described above, specific technical and managerial knowledge, skills, and abilities are required. Specifically, the competencies associated with this professional profile include: • Knowledge of lean production management methodologies; • Knowledge of processing technologies and production systems; • Knowledge of tools for managing and monitoring the supply chain; • Knowledge of methods, tools, and regulations for plant management according to occupational safety standards; • Knowledge of business economics and organisation; • Knowledge of quality control standards and methodologies; • Ability to understand and produce technical documentation; • Ability to develop production cycles based on project documentation; • Knowledge of management control methodologies and related business models; • Technological and methodological knowledge for managing company information systems; • Knowledge of methodologies for assessing the environmental sustainability of products and processes; • Basic concepts of industrial automation and sensor technology; • Basic understanding of machine component mechanisms and their sizing; • Ability to design mechanical systems or thermotechnical plants of limited complexity; • Capacity for self-learning and continuous updating, with adequate transversal communication and relational skills, problem-solving attitude, and knowledge of industrial contexts. POTENTIAL EMPLOYERS: Manufacturing companies in the mechanical, mechatronic, plastics, and agri-food sectors, professional offices, and public or private entities supporting the manufacturing industry. According to Article 3, paragraph 7, of Interministerial Decree 684 of 24 May 2023, passing the final examination makes the degree professionally qualifying and allows direct registration in the Professional Register of Industrial Graduates in the section corresponding to the "Mechanical and Energy Efficiency" specialisation. Continuing studies in master's programmes is not a natural career pathway for graduates of this course.

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
3.1.5.3.0	Tecnici della produzione manifatturiera
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 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.

Only the applicants who achieve a minimum score greater than zero (0) in the admission test are eligible for enrolment in this professionalising degree programme.

Enrolment will follow the ranking order, until all available places are filled and in any case within the deadlines established in the official announcement. Candidates may take the TIL-I test up to a maximum of three times, and in the case of multiple attempts, the best result obtained 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

To achieve these educational objectives, the professional-oriented Bachelor's degree programme in Technologies for the Manufacturing Industry provides its graduates with:

- Broad-spectrum preparation in subjects related to mechanical and information technologies, with particular attention to the integration of these two areas. Specifically, graduates acquire fundamental knowledge and skills in core disciplines such as Industrial Automation, Production Systems, Manufacturing Technologies, Industrial Plants, New Digital Technologies, and Economic-Managerial Aspects.
- Adequate preparation in mathematical disciplines and other basic sciences, which constitute essential tools to interpret, describe, and solve engineering problems.
- Adequate preparation in related engineering disciplines, such as mechanics and technical drawing, which are necessary to understand available technological solutions.
- A set of knowledge and a professional mindset enabling graduates to autonomously organise the continuous updating of their professional competencies, in line with the principles of Lifelong Learning.
- A series of seminars within the courses, and particularly within the Project Work laboratory module, to deepen understanding of ethical issues and other aspects related to professional practice as a Chartered Industrial Expert (Perito Industriale Laureato).

Continuing studies in Master's degree programmes is not a typical pathway for graduates of this programme.

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=38&p_cds=577

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=38577&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 for the award of the professional bachelor's degree includes a Practical Assessment Test (Prova Pratico Valutativa – PPV), which takes place before the discussion of the final project. Pursuant to Law No. 168 of 8 November 2021 and Interministerial Decree No. 684 of 24 May 2023, students may access the final project discussion only after passing the PPV.

The final examination includes the preparation and presentation of a short written report (Final Project). This dissertation must document the methodologies and results achieved by the student in addressing a specific problem tackled during the internship activities, and must demonstrate the student's ability to apply the knowledge and skills acquired during the programme, under the supervision of one or more internal academic supervisors, with the possible additional support of a freelance professional tutor or a company tutor.

Pursuant to Article 3, paragraph 7, of Interministerial Decree No. 684 of 24 May 2023, successful completion of the final examination grants professional qualification and enables direct enrolment in the register of Chartered Industrial Experts (Periti Industriali Laureati), in the section corresponding to the specialisation "Mechanics and Energy Efficiency."

The PPV is designed to verify the acquisition of the knowledge, competencies, and skills developed during the Practical Vocational Training (TPV) period, as well as the knowledge, competencies, skills, and operational autonomy required to practise the profession. The PPV consists of an examination on the professional discipline and the resolution of one or more practical problems consistent with those addressed during the TPV.

The examining committee for the PPV has a parity-based composition and is made up of at least four members. Half of them are university lecturers, one of whom serves as Chair, appointed by the University, and the other half are experienced graduates appointed by the relevant Professional Order. A member designated by the Professional Order of Chartered Industrial Experts is invited to attend the graduation session, in compliance with the principles set out in Articles 42 and 43 of Royal Decree No. 1269 of 4 June 1938.

Students pass the PPV by obtaining a pass/fail assessment (judgement of suitability), which does not contribute to the final degree grade, and subsequently gain access to the bachelor's thesis discussion.

The workload for the preparation of the written dissertation (Final Project) is approximately 75 hours, corresponding to 3 ECTS credits. The final project is carried out under the supervision of a University lecturer and/or a company tutor. It must be submitted and approved through online procedures.

Students must submit their request online through a dedicated procedure available on their personal page on the educational portal in the section entitled "Graduation and Final Exam", respecting the deadlines for the intended session published in the Student Guide – Thematic Calendar Section.

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 12 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. The Committee may add to this average grade up to 5 points for:

- the evaluation of the Final Project;
- the time to graduation;
- the educational path carried out partially or totally in English;
- other information about the student's course of study (for instance, the number of exams passed with honours, experiences abroad, extra-curricular activities, etc.).

Honours (*cum laude)* may be awarded upon achieving a score of 110, 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.