Politecnico di Torino

ACADEMIC REGULATIONS

Bachelor's degree programme
in
COMPUTER 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 matter.

SUMMARY

Art. 1 - Specific learning objectives and career prospects

1.1 Specific Learning Objectives

Analysing, designing, and maintaining IT systems requires a broad scientific background in the main areas of information engineering (computer science, electronics, automation, telecommunications), combined with strong methodological and technological expertise in the key disciplines of computer science.

Moreover, computer engineers must have a scientific solid foundation in mathematics, physics and chemistry, disciplines that provide the tools and scientific methods necessary to approach engineering problems with rigour.

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
Hardware Systems Analyst and Designer	Functions: Mainly responsible for hardware systems and components (such as embedded systems, electronic computers, information system devices). The main functions performed by a computer engineer working on hardware systems are: • evaluating alternatives in the acquisition processes of IT goods and services, • defining inventories of IT systems, • designing processing units, • managing system component development activities. Competencies: Computer engineers integrate knowledge from various fields of computer engineering. In particular, they relate and combine knowledge of hardware systems and components, computer architecture, microprocessor system programming, hardware description languages, and operating system properties. This enables them to: • compare offers from different suppliers, evaluating them technically, • supervise the maintenance of an IT system, • supervise the programming of system firmware and component drivers, • design simple processing units for embedded systems. Potential Employers: IT departments of medium-to-large companies. IT consulting firms.
Application and System Software Analyst and Designer	Functions: Engineers working on software applications (e.g., databases, management applications, web applications, dashboards, etc.). The main functions performed by a computer engineer in this role are: • defining requirements specifications, • developing and testing applications, • deploying IT systems, • coordinating development activities. Competencies: Computer engineers apply knowledge of programming paradigms, object-oriented programming methodologies, algorithms and advanced data structures, database design and query languages, and operating system architecture in order to: • acquire specific expertise on an application program, • interact with clients to define software application and system project specifications, • collaborate with design managers to verify the adequacy of the application product

	against project specifications and suggest improvements if needed, • develop and test application and system software, • supervise the installation and maintenance of an application program, • coordinate programming technicians in the development of application and system software. Potential Employers: IT departments of medium-to-large companies. IT consulting firms and others. Software development companies.
Computer Network Systems Administrator	Functions: Engineers working on computer networks. Main functions include: • analysing/designing computer networks and network applications, • overseeing the implementation and maintenance of computer networks. Competencies: Computer engineers acting as a network systems administrator apply foundational knowledge from various fields of computer engineering, especially those specific to network technologies (architectures, protocols, languages, hardware and software), to: • analyse and design corporate IT networks, • analyse, develop, and design software systems operating on internet (or intranet) networks, • interact with clients to explain the technical characteristics of computer networks, • collaborate with design managers to verify the adequacy of computer networks against project specifications and suggest improvements, if necessary, • oversee the installation and maintenance of computer networks. Potential Employers: IT departments of medium-to-large companies. IT consulting firms.
Preparation for Continuing Studies	**Knowledge Required for Continuing Studies**
Knowledge required to enrol in the Master's degree programme in Computer Engineering or other Master's Degree programmes in the ICT field:	Students must have the foundational knowledge of computer engineering. They must be able to study more in depth the theoretical and methodological aspects of computer engineering disciplines. They must have the capacity to address innovative and highly methodological topics and carry out design activities. They must be able to analyse a wide range of situations and problems by applying general ICT knowledge. They must be capable of identifying missing information to solve specific problems and know the methods to get such information. They must be able to work autonomously and manage projects. They must be able to communicate, directly or through appropriate documents and tools, technical information even to people outside the ICT sector.

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
3.1.2.1.0	Tecnici programmatori
3.1.2.2.0	Tecnici esperti in applicazioni
3.1.2.5.0	Tecnici gestori di reti e di sistemi telematici

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.

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

Students who wish to attend programme (fully taught in English) 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 programme (fully taught in Italian) 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 Bachelor's degree programme features a single study track that provides students with basic engineering knowledge and in-depth understanding of the main characteristics of information processing systems, both in their hardware and software components. In particular, students develop solid computer science knowledge, covering the fundamental principles of computer and processing system architectures, the design and integration of hardware and software systems, operating systems, programming languages, software engineering techniques and methods, and the principles and technologies for modelling, designing, and managing databases.

Year 1, which is shared among all engineering programmes, focuses on fundamental subjects in mathematics, physics, chemistry, computer science, and includes English language training. Year 2 provides a shared foundation in information engineering, with subjects including electrical engineering, electronics, computer system architecture, advanced programming, database design and management, along with the continuation of basic training in physics, mathematics and statistics. Year 3 focuses on specialised topics in computer engineering, complemented by subjects in electronics, telecommunications and automation. The emphasis is placed on applied and advanced aspects of information processing systems, with courses covering operating systems, computer networks, and object-oriented programming.

The curriculum allows students to independently choose an optional course in the second semester of Year 3, to deepen their knowledge in specific areas related to the professional profiles the programme aims to train.

As part of the free-choice credits, students may independently choose to do an internship in companies, public or private institutions. Alternatively, they may choose elective courses in a broad engineering area. Furthermore, within the scope of free-choice credits, students can independently choose one of the courses listed in the "Big Challenges" catalogue. These courses are co-taught by two instructors—one with a technical background and the other from the field of humanities or social sciences—and address six highly relevant thematic areas: climate, mobility, digital, health, energy, and the intersection of technology and humanity. These courses are designed to enrich engineering education and are fully consistent with the educational goals of the programme, contributing to the development of the critical thinking skills that future engineers must possess.

Given the high number of international students, courses are offered in both Italian and English. In addition to a full study track in one of the two languages, students have the possibility to select individual courses taught in English.

Engineering competence goes beyond knowledge and includes the ability to apply that knowledge in practice. Many courses include laboratory activities involving experimental work using IT equipment, and some focus on the development of individual or group projects.

Alongside basic computer science laboratories, students have access to advanced labs dedicated to the understanding and management of major operating systems (both proprietary and open-source) and widely used application software. Upon obtaining the Bachelor's degree, graduates can enter the job market or continue their studies in a Master's degree programme.

The standard continuation of the Bachelor's degree in Computer Engineering is a Master's degree programme in the same class, in particular the Master's degree programmes in Computer Engineering, Data Science and Engineering, Cybersecurity, Cinema and Media Engineering, which offer opportunities to further specialise in advanced topics of computer science.

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 informatica: https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa_2019.vis?p_a_acc=2026&p_sdu=37&p_cds=560
- Computer Engineering: https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa_2019.vis?p_coorte=2026&p_sdu=37&p_cds=561

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=37560&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 credits and requires students to engage in the in-depth study, analysis, development or application of some topics covered in the courses of the degree programme, or other subjects consistent with the programme's learning objectives.

The aim of the final examination is to assess the student's individual ability to integrate the knowledge acquired throughout the programme, apply it in a practical context, critically analyse the results obtained, and effectively communicate the work carried out.

Students may take the final examination only after having earned at least 90 ECTS credits at the time of enrolment in the academic year. The final examination requires students to prepare a concise report on a topic of their choice, selected from among those proposed in the courses designated as reference for the final examination, as indicated in Table A4a (Programme-specific learning objectives and description of the educational path). The selected topic must be consistent with the programme's learning objectives. The written report must be submitted to the examination board of the course to which the topic refers.

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.

The workload required to complete the Final Examination is approximately 75 hours.
There is no public oral defence.
The final project may be written in English.

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

- 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 may be awarded upon achieving a final grade of 110,51 at the discretion of the Committee.

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.