



POLITECNICO
MILANO 1863

School of Industrial and Information Engineering

The training experience offered to the students of the Master's Degree in Electrical Engineering

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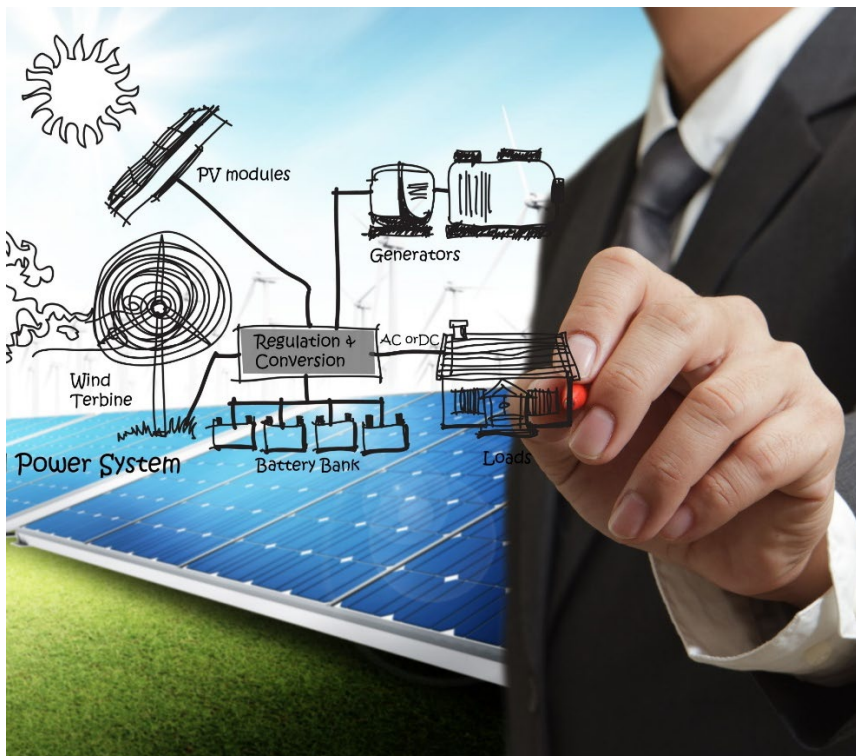


What does an electrical engineer do?

Electrical engineers study, design, and manage systems related to the production, transmission, distribution, and use of electricity. From generation using traditional and renewable sources to powering industrial, residential, and transportation systems, electrical engineers are key to ensuring energy efficiency, reliability, and sustainability.

The skills of an Electrical Engineer are essential to the energy transition, as electricity represents the primary driver for electrifying consumption and reducing emissions. Electrical engineers play a key role in the development and integration of renewable energy sources, smart grids, advanced storage systems, electric mobility (road, public transport, electric naval propulsion, and electric aviation), data centres, and the management of complex, highly efficient infrastructures.

Thanks to the transversal skills acquired, this professional figure is essential to address the technological and environmental challenges of the future, contributing directly to a more sustainable and digitalized society that is attentive to the conscious use of energy resources.





What do you study?

The **Degree Program** (*Manifesto degli Studi*), divided by academic years and semesters, is the set of educational activities (courses, laboratories, internships, final examinations), either compulsory or elective, that make up the educational offer of a Study Program (*Corso di Studi*).

The **Study Plan** (*Piano degli Studi*) is the list of educational activities that the student intends to undertake during each academic year. The Study Plan is normally compiled by selecting educational activities from the offer defined in the Degree Program (*Manifesto degli Studi*) of the student's own Study Program. In this case, the Study Plan is automatically approved.

Students may also request to include, for the purpose of obtaining their degree, courses/laboratories offered by Study Programs other than their own. In such cases, the request is subject to approval by a dedicated committee, which assesses its consistency with the educational objectives described in the Academic Regulations (*Regolamento*) of the Study Program.

The **Credito Formativo Universitario - CFU** (**University Educational Credit - ECTS**) is the unit of measurement of the workload required in terms of learning activities. One credit conventionally corresponds to 25 hours of work, including both self-study/individual work and assisted teaching activities, meaning all educational activities in which the student interacts with the instructor (lectures, group exercises, laboratory activities, etc.).

The Study Program in Electrical Engineering develops specific skills in the electrical energy field, not only with regard to the production, transmission, and distribution of electrical energy, but also in the multiple and varied reality of industrial, domestic, and hospital electrical applications, in the transport sector, in automation and home automation systems, in electromagnetic compatibility, and in measurement and diagnostic techniques for complex systems.

Students can opt for the main track, "Electrical Engineering" (track R2D), or for a track more focused on smart grids, "Sustainable Smart Grids for Energy Transition" (track R2E).

The educational offering (Degree Program) of the **main track "Electrical Engineering" (R2D)** is organized as follows.



1. First year

The first-year program includes theoretical courses aimed at building in-depth knowledge of advanced mathematical tools, fundamental measurement techniques for electrical systems, the fundamentals of electrical power systems, and the energy market. The second part includes in-depth studies in the field of power electronics and an introduction to the fundamentals of electromagnetic compatibility. The first-year program is rounded out with additional specialized courses chosen by the student from a range of courses that explore various application areas of electrical engineering; soft skills courses allow students to delve into specific enabling cross-disciplinary topics (e.g., those aimed at the digitalization of processes) and acquire skills aimed at personal/professional growth (e.g., communication skills, entrepreneurial and leadership skills, professional ethics, etc.).

2. Second year

The second-year curriculum includes courses aimed at further in-depth study in various areas of electrical engineering, including the design and construction of electrical machines, electrical systems for transport and electric propulsion, electrical power systems, reliability and quality control, measurement and diagnostic techniques, electrical drives, electrical energy production plants, the impact of renewable sources on the electrical grid and communication systems for electrical networks (smart grids).

Students can compose their second-year study plan by selecting courses from elective courses, which allow them to orient their study plan towards the following four areas of expertise:

- Energy and Renewable Sources
- Transport and Electric Mobility
- Design and Automation
- Smart Grids.

The Degree Program (Manifesto degli Studi) of the "**Sustainable Smart Grids for Energy Transition**" (**R2E**) track enables students to acquire more focused skills in the design, management, and operation of smart electricity grids. In addition to the core courses of the main program (R2D), the R2E track degree programme includes specific courses aimed at developing skills related to the transport and transformation of electricity, network management, and plant operation, including development and maintenance. Another important aspect is the regulation of electricity systems, which is necessary to establish infrastructure usage tariffs, ensure equal access, and promote grid investments, with particular reference to system adequacy, efficiency, and safety.

The "Sustainable Smart Grids for Energy Transition" track has limited places; the selection is carried out by a commission composed of members appointed by the Study Program. Further

information on the selection criteria is provided in the [Academic Regulations](#) of the "Electrical Engineering" Study Program.

Interdisciplinary Programs

▪ PoliMI Ambassador

The PoliMI Ambassador programs are four advanced university-level training paths designed to create new professional profiles in Green Technologies, Smart Infrastructures, Inclusivity Design, and Creative Thinking. The objective is to foster the acquisition of:

- skills in specific areas consistent with the selected educational path;
- enabling digital technologies relevant to the profile;
- interdisciplinary tools and methods, and a systemic vision mindset;
- the ability to work in interdisciplinary and multi-sectoral contexts, developed through exposure—also in team settings—to case studies and challenges.

For a detailed description of the objectives of each PoliMI Ambassador program, please refer to the [PoliMI Ambassador](#) webpage.

Each educational path is developed throughout the *Laurea Magistrale* (equivalent to Master of Science) and defines, within 130 *Crediti Formativi Universitari* (University Educational Credits – ECTS), of which at least 10 must be extra credits, the minimum number of credits required to obtain the selected *Laurea Magistrale* degree and, at the same time, to receive the PoliMI Ambassador certification in the selected field.

The student must acquire at least 30 *CFU* (ECTS) in educational activities relevant to the chosen PoliMI Ambassador profile, selected from two course tables listed in the *Regolamento Didattico del Corso di Studi* (Study Program Educational Rules) of their program. In particular, the student must obtain at least 10 *CFU* from the first table (Table A) and 20 *CFU* from the second (Table B), in accordance with the procedures described in the Study Program **Educational Rules**.

The "PoliMI Ambassador" certification will be included in the Diploma Supplement and will be officially recognized through the issuance of a specific digital badge.

Failure to earn the 10 extra *CFU* (ECTS) and the minimum 30 *CFU* (ECTS) in activities related to the Ambassador profile does not preclude the student from obtaining the *Laurea Magistrale* (Master of Science) degree.



For students in Electrical Engineering, **two Interdisciplinary Programmes are active** :

- PoliMI Ambassador in Green Technologies
- PoliMI Ambassador in Smart Infrastructures

Tables A and B are available in the [Educational Rules \(Regolamento\)](#) of the Electrical Engineering Study Program. Students must acquire at least 10 credits from Table A (effective credits) and 20 credits from Table B (of which 10 effective credits and 10 additional credits).

The **Honors Program Scientific Research in Information Technology (ESR-IT)** [Honors Program ESR-IT](#) is an honors extracurricular program available to students at the Politecnico di Milano, aimed at training MSc students in scientific research in the field of information technology. The program offers students a unique opportunity to explore scientific research by allowing them to join a research group and work on a research topic that could potentially lead to a scientific publication. The program combines research conducted in collaboration with research groups at the Politecnico di Milano with lectures and seminars specifically designed for the program. The program title will be officially listed in the student's transcript of records, along with a description of the activities conducted.

Electrical Engineering students can also participate in the Alta Scuola Politecnica (ASP), a multidisciplinary honors program in collaboration between Politecnico di Milano and Politecnico di Torino: [Home - ASP - Alta Scuola Politecnica](#)

What are the teaching methods?

Teaching and learning models

The educational model of the Politecnico di Milano includes five types of assisted teaching:

- Transmissive / Lecture-Based Teaching (Didattica trasmissiva/frontale - DT): the student listens to the delivery of content that will then be consolidated independently;
- Interactive / Participatory Teaching (Didattica interattiva/partecipativa - DI): the student, under guidance, is involved individually or in groups in carrying out or participating in an activity proposed by the instructor, also through the use of suitable digital tools;
- Laboratory-Based Teaching (Didattica laboratoriale - DL): the student is involved, individually or in groups, in a practical experience aimed at applying the concepts and methodologies presented by the instructor, typically with the aid of appropriate tools and equipment in computer or experimental laboratories;
- Project-Based Teaching (Didattica progettuale - DP): the student is involved, individually or in groups, in the development of a complex project or product, which is gradually enriched as awareness and the ability to use theoretical, technical, and metacognitive tools are acquired;
- Evaluation-Based Teaching (Didattica valutativa - DV): the student is directly involved in an evaluation or self-evaluation activity followed by appropriate feedback (quantitative or qualitative, and either named or anonymous).

The Study Program in Electrical Engineering offers a diverse mix of teaching methods that includes all the components envisaged by the university's educational model (see box). As with the BSc study program, lecture-based teaching (DT) continues to play a prominent role, especially in the first year, including elements of participatory teaching (DI) and evaluation-based teaching. However, laboratory-based teaching (DL) and project-based teaching (DP) are increasingly important.

In particular, within the study program, laboratory-based teaching (DL) plays a central role, with a training offering that includes approximately 600 hours of laboratory work, divided almost equally between experimental activities and computer laboratories.



As regards experimental laboratories, these are aimed at:

- carrying out tests on devices and machines for the purposes of their electrical characterisation;
- the creation and use of measurement chains for the acquisition of data and physical quantities on real systems;
- the implementation on microcontrollers of the control logic of electric machines and electronic converters, also aimed at the propulsion of electric vehicles.

Computer labs are often run in a coordinated and integrated manner with experimental labs. The main purposes of computer labs include:

- the simulation in a software environment of experimentally created physical systems (e.g. in Matlab/Simulink);
- the implementation via computer code of the control algorithms to be transferred to real devices (Matlab Coder, Assembly, C, LRSW);
- programming of the devices necessary for the correct sampling and display of the experimentally measured quantities (LabVIEW);
- design and optimization of EMI filters (SPICE), based on experimental characterization of the non-ideal behaviour of components (VNA measurements).

Several courses include computer labs, led by students individually or in groups, aimed at deepening the aspects covered in the theoretical lectures. These include, for example:

- Bayesian statistical analysis (R software);
- the construction and design of electrical machines and converters (Maxwell Ansoft SV9, MathCad Prime, FEMM)
- the design and planning of electrical networks and systems (DigSilent PowerFactory; QGIS);
- simulation of applications related to energy storage systems (Matlab/Simulink).

Also, several Project-Based Teaching (DP) and Interactive/Participatory Teaching (DI) initiatives are foreseen. These include, for example:

- carrying out projects where students are tasked with implementing optimal dispatching strategies for distributed energy resources for their participation in electricity markets;
- projects aimed at developing business models linked to entrepreneurial ideas within high-tech startups;
- activities based on the implementation of “challenges” between groups of students, aimed at solving specific problems covered in the courses;
- the involvement of students in simulated expert assessments in some typical cases that may arise in legal proceedings;



- Activities carried out in a “flipped classroom” mode with content transferred to students through independent study by the student of selected materials prepared by the teacher, and the application of these concepts in the classroom under the supervision of the teacher.

Application aspects are also developed through technical visits to industries and facilities pertinent to the study program, such as electricity generation and distribution plants, including those related to transportation/electrical mobility. For example, technical visits are conducted to:

- hydroelectric and thermoelectric power plants;
- renewable energy systems, also in virtual mode, with remote connection to the teacher on site;
- laboratories for the simulation of medium-voltage networks;
- railway network power substations;
- laboratories for testing electrical machinery and equipment;
- electrical devices and protection manufacturing plants.

In a significant number of courses (approximately half), traditional teaching activities are integrated with technical seminars, with the involvement of external experts from academia (46 hours in total), research institutions (5 hours) and industry (89 hours).

These seminars are designed to provide in-depth analysis of the theoretical concepts covered within the study program, focusing on a practical approach based on the application and implementation of concepts within real-world scenarios. In some cases, the seminars illustrate the use of computational software, for example, for network and system simulation and design. These initiatives also aim to provide students with an overview on how electrical engineering activities are organized within companies.

Finally, some courses include evaluation-based teaching (DV), for example with the optional possibility of completing exercises independently, which are then evaluated by the teacher.

With regards to the material supporting teaching activities, the following are used in the Study Program:

- slides (67% of the courses);
- handouts (41%);
- software (41%);
- textbooks (27%);
- material (14%);
- exercise books (8%).



What are the assessment methods?

Assessment methods and exam sessions

The assessment methods are described in the course syllabus (scheda dell'insegnamento) and are made available at the beginning of each academic year. By including a course in their Study Plan, students acknowledge and accept the related assessment methods.

Student performance is assessed through exam sessions held during the dedicated periods specified in the Academic Calendar (*Calendario Accademico*), and may also be evaluated through ongoing assessments (*valutazioni in itinere*) conducted during the semester in which the course is delivered.

For each academic year, there are five exam sessions scheduled for all courses. Specifically, two exam sessions take place at the end of the semester in which the course is taught, two at the end of the other semester, and one in September.

Ongoing assessment

Ongoing assessment may take place through various methods, such as: written and/or oral and/or laboratory tests, projects, reports, assignments, and other types of activities assigned by the instructor, carried out either in class or independently, also through the use of digital and online tools.

Ongoing assessment based on two partial exams. For courses that include an ongoing assessment based on two partial exams, the tests are generally held during the breaks in teaching activities specifically scheduled in the Academic Calendar. The date of the second exam coincides with that of the first exam session in the session immediately following the teaching semester. On that date, the student may take either the second partial exam or the regular *exam session*.

Other forms of ongoing assessment. Forms of ongoing assessment other than those described above may take place at any time during the teaching semester. For courses that include them, some assessed activities, clearly indicated in the course syllabus, may be mandatory or required in order to receive a full evaluation. Failure to participate in such activities may result in restrictions during the exam sessions, either in terms of grading or in the ability to take the exams.

Registration for exam sessions

In order to take part in an exam session, students must register via the Online Services within the specified deadlines. Exam registration is permitted only if the student is up to date with tuition fee payments and the course is included in his/her Study Plan. If the regular registration deadline is missed, it is still possible to register until 11:59 PM on the day of the exam, subject to approval by the professor. Students who decide not to take the exam must cancel their



registration no later than the day before the exam, except in cases of unforeseeable last-minute impediments.

The assessment methods for the courses in the MSc Study Program in Electrical Engineering almost always involves a written exam. However, a significant number of assessment methods are also available that involve greater interaction with the instructor, such as mandatory or optional oral exams and the submission of projects and reports, possibly discussed in front of the instructor during the exam.

The details of the examination methods adopted in the study program are as follows:

- Written test (70%)
- Oral – mandatory (41%)
- Oral – optional (19%)
- Submission of a project/report – mandatory (27%)
- Submission of a project/report – optional (24%)
- Other examination methods (22%), such as the evaluation of group work and the discussion of projects/reports prepared in the classroom or at home.

For a detailed description of the assessment methods adopted by each course, students can refer to the specific course syllabus.



What does the final exam consist of?

On the website of the School of Industrial and Information Engineering, under the section [Bachelor's and Master's Degree Exams](#), the following resources are available:

- The regulations for Bachelor's and Master's degree exams, along with the *Regolamenti Integrativi* (supplementary regulations) for each *Corso di Studio* (Study Program);
- Information on how the examination sessions are conducted, key deadlines, and the procedures for submitting the thesis;
- Thesis templates: formats for traditional and article-style theses, as well as the executive summary template, which must be submitted together with the thesis in case a *Controrelatore* (Examiner) is required.

The final exam consists of the presentation and discussion of the final thesis, a final project that demonstrates the skills acquired by the student throughout their studies. Through the analysis and resolution of a problem of interest in one of the areas of Electrical Engineering, the thesis may have a theoretical, experimental, or design approach, and represents an opportunity to independently apply practical and theoretical knowledge, often in research or innovation contexts.

In developing the thesis, the student is supported by an academic supervisor (chosen by the student), who proposes the topics to be addressed and evaluates the student's proposed solutions. Depending on the complexity of the work, the supervisor decides whether or not to request an examiner to thoroughly evaluate the thesis.

In the case of theses with examiner (contro-relatore), writing the "Executive Summary" is also mandatory. For theses with examiner, in addition to the thesis in traditional format, the writing of the thesis in the "article-style" format ("journal paper") is also permitted. Writing the thesis in this format is granted upon proposal of the supervisor, and it is subject to the favorable opinion of the Study Program Coordinator.

To choose a thesis topic, students can contact their professors directly or consult the thesis proposals posted on the "Bacheca Tesi" platform (accessible from the student personal webpage).

The Supplementary Regulations for the Final Exam for the MSc Study Program in the Electrical Engineering are available at the link: [Supplementary Regulations for LT and LM - Electrical Engineering](#).



Can I get help with my studies?

Tutoring

In order to guide and support students throughout their studies, particularly during the first three years, the School of Industrial and Information Engineering offers various tutoring opportunities, with the aim of providing each student with the most suitable support for their needs. The approach includes peer-to-peer tutoring services, activated on demand based on student requests, as well as more traditional tutoring services offered on fixed dates and times.

- **Learn how to Learn (Information and guidance tutoring)**

Targeted at first-year students who scored below 60 on the TOL, this is an optional program consisting of three thematic webinars designed to help students immediately identify effective strategies for managing typical university situations, such as attending lectures, studying independently, managing study time, and handling distractions.

To complement the live component, asynchronous activities are provided to deepen the topics addressed during the webinars.

The program is delivered in September (over the course of one week), before the start of classes. Interested students receive a notification email inviting them to participate.

- **Peer to Peer Tutoring**

In this form of tutoring, experienced student tutors provide support, either individually or in small groups of 3-4 students, on the core courses taught during the first two years of all *Corsi di Laurea Triennale* (Bachelor's Laurea Programs). Students may request tutoring for up to two courses per semester.

Those who wish to request a tutor must apply through the "Peer-to-Peer Tutoring" platform available on their Online Services.

For further information, please contact: tutorato-ingegneria@polimi.it.

- **Tutoring for first-year students**

For many of the first-year courses of the *Bachelor's degree program*, tutoring sessions are available and led by PhD students or experienced instructors.

The calendars are available on the School's website at the page: [Calendario Tutorato Matricole](#) (*First-Year Tutoring Calendar*).

- **Specific tutoring activities**

The School also promotes specific tutoring initiatives:

Equalization peer-to-peer tutoring: this service is intended for students coming from Bachelor's degrees not strictly aligned with the chosen *Master's degree program*, or for



international students. More experienced student tutors provide support, either individually or in small groups of 3–4 students, on courses within the Master's *Study Programs*.

Tutoring in support of specific courses: tutoring sessions held by PhD students and experienced instructors on selected courses from various study programs, also based on student feedback.

The schedule for these activities is available on the website at: *Calendario tutorato specifico (Specific Tutoring Calendar)*.

Polimi Open Knowledge (POK)

POK (Polimi Open Knowledge) is the first Italian university MOOC (Massive Open Online Courses) platform, offering free online courses open to everyone. The main objective of the platform is to support students, not only from Politecnico di Milano, throughout their university and professional journey: from high school to university, from the *Bachelor's degree* to the *Master's degree*, and from university to the job market.

In addition, many other courses are available for teachers, researchers, professionals, and the general public.

First-year students who wish to strengthen their foundational knowledge in mathematics and physics are encouraged to follow the modules: [Introduzione alla matematica per l'università: Pre-Calculus](#), [Introduction to Experimental Physics: Electromagnetism, Optics, Modern Physics](#).

Students enrolled in the MSc Study Program in Electrical Engineering can benefit from two different types of study assistance: equalization tutoring and specific tutoring. Equalization tutoring is offered for courses that require remediation (including review) of basic skills necessary for studying advanced mathematical analysis courses, such as Mathematical Analysis Tools for Engineering. In this case, this skill-building activity is conducted by an expert instructor.

Specific tutoring is offered for courses that include both experimental and computer-based laboratory activities. The purpose of tutoring is to assist students during classroom activities, making laboratory activities more effective and participatory, and facilitating their preparation of presentations when requested. These tutoring sessions are provided according to the calendar and timetable of the courses for which they are offered and are taught by external instructors, PhD students, and MSc students. The procedures for MSc students to apply to become tutors are explained in the following paragraphs.



Are there any extracurricular activities?

Passion in Action

"**Passion in Action**" is the catalogue of open-participation educational activities offered by Politecnico di Milano to its students, aimed at fostering the development of transversal skills, soft and social skills, and at encouraging/facilitating a personalized enrichment of each student's personal, cultural, and professional background.

Those who are interested can take advantage of this opportunity and choose which activities to attend, exploring different subjects according to their interests and personal inclinations.

Students who participate in *Passion in Action* may register for any activity in the catalogue, regardless of its thematic relevance to their *study plan*, provided that any specific prerequisites for individual activities are met.

The skills and competencies acquired are recognized through the awarding of a digital badge and will be reported in the *Diploma Supplement*.

The catalogue is updated regularly. Since the educational modules are activated asynchronously with respect to the semesters, interested students are advised to check the [Passion in Action](#) page periodically.

Student Associations

Student associations are organizations formed by students with the aim of promoting cultural, technical, social, and recreational activities, and creating opportunities for personal and professional growth within the academic environment.

Participating in a student association allows for greater engagement in university life, making the academic experience more dynamic and stimulating. It also fosters the development of transversal skills such as leadership and teamwork, as well as the expansion of one's network, valuable both during university and in professional life.

At Politecnico di Milano, several student associations are active, each with different goals and areas of interest. The full list is available at: [Student Associations](#).

The Study Program offers several "Passion in Action" modules of particular relevance for Electrical Engineering students (especially MSc students), including:

- Signal and Power Integrity of High-Speed Printed Circuit Boards (indicatively held in the second mid of May)



- Student competition: Control to maximize the vehicle range of electric vehicles (indicatively held in the March-May timeframe)
- Critical Challenges for the Energy Transition: Power Cable technologies, processes and materials

Among other extracurricular activities, it is worth to highlight:

- Orientation events organized by the University Career Service.
- Seminars and workshops organized in collaboration with companies in the Electrical Engineering sector, which are typically communicated to students via the Study Program WeBeeP channel.

The Electrical Engineering Program hosts and disseminates the activities of the [IEEE Student Branch of the Politecnico di Milano](#). Joint activities include the organization of seminars and contests for both undergraduate and graduate students.

Also, students of the Electrical Engineering Study Program are involved as members in student teams participating in various [student competitions](#) (e.g., Formula Student, Moto Student).

Can I go and study abroad for a period?

Students who wish to take part in an exchange experience must apply through one of the two international mobility calls, which are published in November and April. The University's Mobility Call covers various types of international experiences: simple exchange (1 or 2 semesters) in EU and non-EU countries, Double Degree programs, and Special Programs for students enrolled in specific Study Programs (e.g. Alliance4Tech).

Due to procedural timelines, interested students must apply the year before the planned mobility period.

The choice of possible exchange destinations must be made at the same time as submitting the application to the mobility call. Students are therefore encouraged to gather all the necessary information about each selected destination, out of respect for all applicants.

In fact, declining an assigned destination due to inadequate research into the educational offer results in a lost opportunity, not only for the student who withdraws, but also for other students who could have taken advantage of that placement.

Once they have applied to the call, candidates must carefully follow the deadlines, monitor the rankings, and confirm or decline their interest in the assigned destination, if any. Dates vary for each call, but this phase of the process generally takes place between January and March for the first call, and between May and July for the second call.

Only after the candidate has confirmed the assigned destination, the International Mobility Unit will proceed with the official nomination of each student to the selected host institution. Delays in confirming the destination will result in exclusion from the exchange program.

To view the list of available destinations, students can refer to:

- the section of the Polimi website dedicated to the mapping of all partner universities. By filtering by School and Study Program, students can access useful information about each destination;
- the Exchange your Mind section of the Polimi website, which collects testimonials, useful information, presentations, and in-depth materials on the topic.

An international experience is valuable in its entirety, it allows students to discover new countries, cultures, people, and languages. These aspects should be taken into account when choosing a destination.

At the same time, it is important to remember that it is not always possible to obtain one of the top-listed choices; therefore, each option included in the list of preferred destinations should be selected carefully and thoughtfully.



Students who independently organize their period of study abroad are referred to as “*Free Movers*.” This type of mobility is not part of any structured exchange program organized by Politecnico di Milano, such as Erasmus.

Since it is not a structured and formal program, *Free Mover* candidates must take care of all aspects of their stay abroad on their own (contact with the host university, meals, accommodation, health insurance, etc.), and no financial support is provided for expenses related to the mobility period.

The activities eligible for recognition within a *Free Mover* experience include course attendance or thesis work, with different requirements applying to the application and approval process by the Study Program/thesis supervisor.

The application for a *Free Mover* mobility may be approved by the student’s *Corso di Studi* (Study Program) only if certain criteria are met. These include an evaluation of the student’s CV and an assessment of the reputation of the host institution where the mobility is intended to take place. The specific criteria are detailed below:

- The host institution for the mobility cannot be one for which there are existing exchange agreements with Politecnico di Milano for the School to which the student is enrolled;
- The host institution must be recognized as a quality institution within the student’s Study Program, and applicants must describe and demonstrate the validity of the proposed institution (a high ranking position in international university rankings can be one criterion, although not the only one);
- The *Free Mover* candidate must have a specific weighted average exam grade of at least 24 out of 30.

Students enrolled in a Degree Program who have already earned at least 60 University Educational Credits (ECTS) in their academic record may apply for a *Free Mover* mobility.

Similarly to the institutional mobility organized by Politecnico di Milano, *Free Mover* mobility is not permitted during the first semester of the Master’s degree. However, students may submit their application during their first semester for mobility periods in subsequent semesters.

For students of the Study Program in Electrical Engineering there are numerous opportunities for international study exchange and mobility experiences, including short-term mobility programmes (Erasmus) and double degrees.

It is also possible to spend a period abroad for thesis research, either at partner institutions or as a free mover. Before departure, it is the student’s responsibility to contact an academic supervisor at the Politecnico di Milano, who will co-supervise the research activity, in order to agree with the foreign supervisor on the thesis objectives, timeframe, and methods.

Students interested in an experience abroad can consult the list of partner universities with Erasmus agreements with the Study Program at the link Map of partner locations [Map of partner](#)

[locations](#) by selecting: School of “Industrial and Information Engineering”, the Type of agreement (Erasmus, EU Double Degree, Extra-EU Double Degree, Extra-EU Bilateral Agreements), and “Electrical Engineering” as Study Program.

Before applying, interested students are advised to visit the partner institution's website and verify that the institution offers a sufficient number of courses available, and delivered in English, in the chosen semester and that they are compatible in terms of content and credits with the courses in the degree program in Electrical Engineering at the Politecnico di Milano. If in doubt, students can contact the relevant professor for the study program (see Contacts section) for advice.

Among the non-EU Double Degrees, the Double Master's Degree projects in Electrical Engineering with the Chinese universities of Xi'an, Xi'an Jiaotong University (XJTU), and Beijing, Beihang University (BUAA), are particularly noteworthy. These projects allow bright and motivated students to study in an extremely culturally stimulating international context, particularly promising in terms of educational objectives and career opportunities. This challenging but rewarding experience provides MSc students with significant added value in terms of professional and cultural growth, as well as marketability in the job market. The official language of the courses is English, both in Italy and in China. Italian students also have the opportunity to take basic Chinese courses to better immerse themselves into the culture of the host country.

For both projects, mobility begins in the second year of the MSc study program. Interested students apply for the mobility program during their first year of the MSc study program (first call). The mobility program is organized as a pre-approved study plan. In the first year, the courses to be taken at the Politecnico di Milano are those included in the “Electrical Engineering - R2D” degree program. For the second year, at the partner institution, students can choose (with guaranteed credit validation) from a selection of courses offered by the partner institution as specified in the Agreement. Interested students may contact the reference professor (see “Contacts” Section) for further information.

Both dual degree programs are part of the overall TIME (Top Industrial Managers in Engineering) program framework.



Can I do an internship ?

The stage, also referred to as internship (*tirocinio*), is an educational experience in the professional world, allowing students to put into practice the skills acquired during their academic path, and to guide them toward making informed future career choices.

It can take place either in Italy or abroad, in companies, professional firms, foreign universities, or public and private research institutions.

The stage is considered as **curricular** when it is aimed at students. Specifically, it can be:

- *curriculare obbligatorio* (compulsory curricular), linked to the acquisition of University Educational Credits (ECTS) and included in the Study Plan;
- *curriculare opzionale* (elective curricular), linked to the acquisition of University Educational Credits (ECTS) and included in the Study Plan at the student's discretion;
- *curriculare facoltativo* (curricular but voluntary), not involving the acquisition of ECTS and not included in the Study Plan, with a maximum duration of 12 months, to be completed before the thesis defense.

The extracurricular stage is instead intended for recent graduates who are not enrolled in any other university Study Program, and may last up to a maximum of 6 months.

More information: *Stage per laureati* ([Internships for graduates](#)).

Students interested in a curricular stage, whether *obbligatorio*, *opzionale* or *facoltativo*, can visit the [Stage curricolari](#) (Curricular Internships) webpage for more information about:

- how to find internship opportunities (which is the responsibility of the student);
- the documents that the host organization must request from Politecnico di Milano (*Convenzione di Tirocinio* - Internship Agreement and *Progetto Formativo* - SAT - Internship Academic Structure).

Internship and Master's Degree Thesis

The optional curricular internship and the *Laurea Magistrale* (Master of Science) thesis are two separate activities. The first is optional and does not allow for the acquisition of University Educational Credits (ECTS), while the second is mandatory and involves the acquisition of credits.

It is not excluded that the activity carried out during an optional curricular internship could lead to a Master's Degree thesis. However, for this to be possible, the research activity at an external organization must be carried out under the supervision of an academic advisor from Politecnico di Milano, who must agree from the beginning of the internship on the research objectives and methodologies, and must supervise the activities throughout their execution. It is the student's responsibility to contact an academic advisor before the internship begins.



Students in the MSc study program in Electrical Engineering can enrich their educational path with a voluntary curricular (*curricolare facoltativo*) internship, which does not involve the acquisition of university credits and cannot be included in the study plan.

It is the student's responsibility to:

- find internship opportunities;
- inform the host institution of the need to request the necessary documents from the Politecnico di Milano.

Interested students may refer to the [Career Service](#) and to the professors in charge of the internships listed in the "Contacts" section of this document.

How can I express my opinion?

Students' opinions are important, and Politecnico di Milano provides several tools through which students can express their views.

OPIS Questionnaire

The *OPIS questionnaire* is the official tool used to collect students' opinions on teaching. The questionnaires are anonymous and results are processed in aggregate form.

The outcomes of these questionnaires are essential for instructors and *the* Study Programs Councils, as they offer insight into students' thoughtful and honest feedback, helping to improve both the educational offer and teaching methods. Once a year, every Study Program Council is required to reflect on its educational path, starting also from the results of these questionnaires. Student Representatives are involved in this process, collaborating in the definition of possible improvement actions.

For this reason, it is important that students express their opinions responsibly, in the interest of the entire academic community of students and faculty.

Students are asked to give their opinion on every course they attended during the semester, by answering a questionnaire that gives students the opportunity to directly contribute to the improvement of the quality of education. For each course, the questionnaire becomes available approximately two-thirds into each semester, and its completion is mandatory before registering for exam sessions for the first time.

Graduating Students' Questionnaire

During the final year of the Study Program, students are also required to give their opinion on the entire educational path. Completing the questionnaire is mandatory in order to register for the Bachelor's/Master's Degree graduation session (Graduating Students' Questionnaire). In this survey, students are asked to provide feedback on several aspects, including the organization of teaching, specific course content, facilities, internships, international mobility opportunities, and the final examination.

Student Services Satisfaction Questionnaire

This questionnaire is mandatory for registration to the first exam session of the academic year and is intended only for regular students in the final year of their Study Program. The questions concern the services offered to students, including, for example: enrolment procedures, Study Plan submission, exam registration, tuition fees, student offices, ICT, libraries, dining services, and communication.

How can I contribute?

Role of Student Representatives

Student representatives play a key role in ensuring the proper and transparent functioning of the University's governing bodies, where they participate to bring the students' perspective. They are elected every two years and serve not only as points of reference for students in various aspects of university life, but also contribute concrete proposals to improve the student experience.

The **Senato Accademico** (*Academic Senate*) is the body responsible for guiding and planning the University's development, with particular focus on teaching and research, and oversees the overall proper functioning of the institution. The Consiglio di amministrazione (Board of Directors), on the other hand, defines the long-term financial planning based on the proposals and opinions of the Senate. Therefore, the student representatives in these bodies are involved in decisions that affect the entire University.

The Joint Student-Professor Committees (Commissione paritetica) of each of the four Schools (3I – Industrial and Information Engineering; ICAT – Civil, Environmental and Territorial Engineering; AUIC – Architecture, Urban Planning and Construction Engineering; Design) monitor the educational offer, the quality of teaching and student services, and make proposals to enhance them. Depending on the School, some or all of the representatives on the Joint Student-Professor Committee also sit on the School Council, which coordinates the study programs and provides general guidance to the School.

The members of the Academic Senate, the Board of Directors, and the Joint Student-Professor Committees form the **Student Council**, a body where discussions take place on topics addressed within the various governing bodies. At the beginning of their term, they also elect the student representatives to the *Nucleo di Valutazione* (*Evaluation Committee*), the *Comitato Unico di Garanzia* (*Guarantee Committee*), and the Sports Committee.

Each **Study Program** has a certain number of student representatives (the number varies depending on the number of enrolled students). Student representatives are full members of the **Study Program Council**, the body responsible for defining the Degree Program and Educational Rules for each Study Program. In this context, student representatives contribute to defining how teaching is delivered, analyzing the effectiveness of courses, organizing the study plan, and acting as spokespersons for their fellow students by reporting any issues related to teaching.

If you want to learn more about the role of representatives, as well as the different representation lists present at the Politecnico, we invite you to visit the page [Polimi – Rappresentanti e Associazioni](#).



Work with Us as a Tutor

Politecnico di Milano offers students the opportunity to carry out tutoring activities as part of paid collaborations within the University:

- If you are a Master's degree student, you can support teaching through tutoring activities.
- If you are a Bachelor's degree student, you can take part in *Peer-to-Peer* tutoring activities, assisting fellow students along their academic path.

These collaborations are assigned through specific calls for application and are reserved for students who meet certain academic and financial requirements. Compensation and the number of working hours vary depending on the assigned role.

For more details on requirements, application procedures, and deadlines, visit the page: [Polimi - Paid Collaborations](#).

What's next?

The [Career Service](#) is the professional guidance and placement service of the Politecnico di Milano. It works in collaboration with employers (both private and public companies) and with the Study Programs Councils to offer students, starting from their early academic years, a wide range of initiatives aimed at bringing them closer to the professional world. The goal is to broaden their perspective by presenting them with future opportunities in terms of promising sectors and the most in-demand roles and skills.

Among the services offered by the Career Service:

- **Personalised support programs** with a *Career Advisor*, providing tips for preparing an effective CV, simulating job interviews, and more. [Discover more in the video resources.](#)
- **Special orientation pathways** to explore professional roles in innovation ([Am I an Innovator?](#)) across a variety of settings, from roles in established companies to positions involved in launching new start-ups.
- **Support in identifying internship opportunities**, both before and after graduation ([Internships](#)), as well as assistance in setting them up and formalising them through an *Internship Advisor*.
- **Organisation of orientation and mentoring events** with Italian and international companies (e.g. roundtables, career talks, career competitions, company tours), regularly posted on the website: [[Career Service](#)].

To inform MSc students about the professional profile and career opportunities of Electrical Engineers, the study program organizes and hosts seminars and roundtables within some courses, encouraging students to engage with the industry. These activities aim to raise students' awareness of the challenges and objectives of companies operating in sectors where electrical engineers are in demand.

Additionally, professors in the Study Program often organize workshops and in-depth seminars featuring industry and academic experts, open to all students enrolled in the study program. These events take place outside of class hours, and students are informed via the study program WeBeeP channel.

Over the years, the study program has also activated various communication channels. The content, specifically created or selected for the information provided, is intended to provide guidance and food for thought to support orientation activities:



- Study Programme Website : <https://www.elettrica.polimi.it/>
- YouTube Channel: <https://www.youtube.com/channel/UCjcLSORL83yHLbgV1-NG7Pw>
- Instagram Channel: https://www.instagram.com/ing_elettrica_polimi/

Orientation towards the PhD program is primarily entrusted to the professors of the Study Program, who present and promote this opportunity to students during the development of their final thesis.

Participation in the honour program ESR **-IT Honours Programme Scientific Research in Information Technology (ESR-IT)** (see Section “Are there extracurricular activities?”) offers MSc students in Electrical Engineering the opportunity to explore the world of scientific research and have an educational experience that can also be useful in evaluating the possibility of continuing their studies with a PhD.

Contacts

Coordinator/President of the Course of Study: Prof. Flavia Grassi (flavia.grassi@polimi.it)

Study Plans: Prof. Gabrio Superti Furga (gabrio.supertifurga@polimi.it)

Admissions: Prof. Antonino Di Gerlando (antonino.digerlando@polimi.it)

Graduation/Final Exam: Prof. Francesco Castelli Dezza (francesco.castellidezza@polimi.it), Prof. Simona Salicone (simona.salicone@polimi.it)

Transfers and programme changes: Prof. Antonino Di Gerlando (antonino.digerlando@polimi.it), Prof. Loredana Cristaldi (loredana.cristaldi@polimi.it)

International Mobility:

- Short-term mobility (Erasmus): Prof. Roberto Perini (roberto.perini@polimi.it)
- Double Degrees (excluding Chinese universities): Prof. Giordano Spadacini (giordano.spadacini@polimi.it)
- Double Degrees and Short-Term Mobility with Chinese Universities: Prof. Xinglong Wu (xinglong.wu@polimi.it)

Orientation: Prof. Loredana Cristaldi (loredana.cristaldi@polimi.it)

Tutoring: Prof. Stefania Carmeli (stefania.carmeli@polimi.it)

Internship: Prof. Giovanni Maria Foglia (gianmaria.foglia@polimi.it); Prof. Giordano Spadacini (giordano.spadacini@polimi.it)

Student Representatives: rappresentativestudenti-ccseletrica@polimi.it

Teaching Secretariat: didattica-deib@polimi.it

Useful links

Website of the [School of Industrial and Information Engineering](#)

Study Programme Website : <https://www.elettrica.polimi.it/>

YouTube Channel: <https://www.youtube.com/channel/UCjcLSORL83yHLbgV1-NG7Pw>



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Instagram Channel: https://www.instagram.com/ing_elettrica_polimi/

Student Office: [Online counter](#)

Campus and Services: [Equal Opportunities and Inclusion](#), [Psychological Well-being](#)