



POLITECNICO
MILANO 1863

School of Industrial and Information Engineering

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

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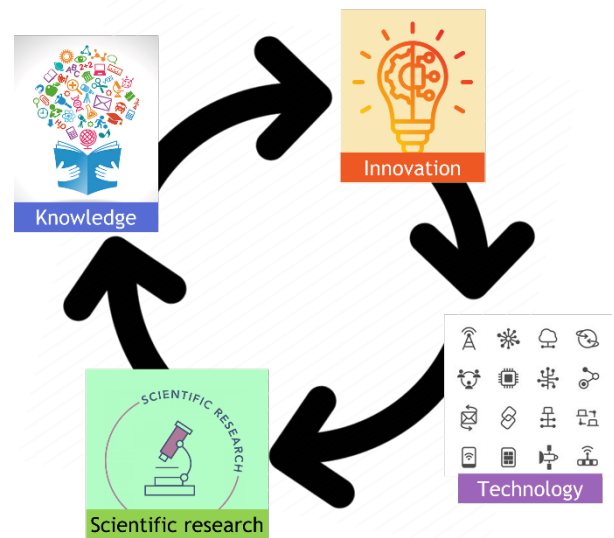
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What does a physical engineer do?

The MSc Study Program in Engineering Physics is equipped with a broad engineering culture and in-depth training in modern applied physics. Engineers are trained to generate industrial innovation and new knowledge through basic research, particularly in the fields of physics and quantum technologies, nanotechnology, and photonics. Engineers are equipped to play key roles in the innovation cycle that underpins modern society, where scientific research produces knowledge that leads to inventions and technical innovations that underpin new technologies.

Graduates are able to pursue a wide variety of career paths, both in academia and in business and industry. More than a third of the graduates continue their education with a PhD in Physics or a related field, either at Politecnico di Milano or abroad. Those who enter the corporate world hold roles requiring a broad range of knowledge and skills, in design, production, quality control, organization, and relationships between industrial customers and suppliers of specialized products. Over 95% of Physics Engineering graduates are employed within six months of graduation, in a wide variety of sectors, including semiconductors, electronics, optics and lasers, and high-level business consulting.





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.).

Admission criteria

To be admitted to the Master's Degree in Engineering Physics, you must submit an application according to the procedures described [here](#). Bachelor's degrees in Engineering Physics, Electronic Engineering, Materials and Nanotechnology Engineering, Physics, and Materials Science are the most suitable for this study program. However, all applications from students with a three-year STEM education, even those other than those listed, are admitted to the evaluation phase. A dedicated Admissions Committee evaluates all applications. Until academic year 2026/27, admission is granted automatically to graduates with a three-year degree in Engineering Physics from Politecnico di Milano who meet the criteria (average grades in three-year exams) detailed in the [Educational Rules of the Study Program in Engineering Physics](#). In



some cases, educational gaps may be assigned that must be filled before enrolling in the MSc Study Program by passing the exams indicated by the committee at Politecnico in each specific case. Rules will change after 2027/28.

English language proficiency at a level no lower than B2 of the Common European Framework of Reference for Languages is required. This level must be certified upon application by achieving minimum scores on tests recognized by the University.

General description

The training common to all MSc courses in Engineering Physics provides skills in engineering and physics of matter, and a wide range of elective courses allow students to delve into topics from various theoretical or applied fields, such as advanced optics and photonics (quantum optics, integrated photonics and meta-photonics), nanoscience and nanotechnologies (low-dimensional systems, spintronics, quantum materials, semiconductor quantum devices) and the theoretical and modeling aspects of the systems underlying emerging quantum technologies.

Four training paths are suggested (Previously Approved Study Plans - PSPA).

- ***Photonic and Quantum Technologies:*** Specialization in the applications of photonics and optics in various fields of research and technology: from quantum optics, to integrated photonics and meta-photonics, with applications to electro-optical microtechnologies, nanobiotechnologies and nanomedicine, environmental protection, and telecommunications.

- ***Quantum Materials and Nanophysics:*** Specialization in the fields of thin-film, surface and magnetic materials technologies, and in the growth of nanostructured materials for the production of special components and devices for electronics, micromechanics and other frontier applications.

- ***Micro- and Nano-systems:*** Specialization in industrial micro- and nano-systems technologies, at the intersection of fundamental physics, materials science and micro- and nano-fabrication techniques, used for example in the microelectronics and semiconductor industries.

- ***Mathematics and Physics for Quantum Engineering:*** Specialization in the physical-mathematical modelling of quantum systems, with advanced theoretical teaching, also useful for applications to quantum technologies.

The general structure of the Degree Program is summarized in the following table, which identifies the mandatory courses (40-50 credits), those chosen from a specific list (Mathematics, Computer Science, Physics; 25-35 credits depending on the PSPA), and those

chosen from much broader lists (Tables ENG, PHYS-1, PHYS-2, MATH, MAN, SOFT, INT; 20-30 credits). The total credits required are 120 credits, including 15 credits for the thesis work.

CFU	Year	Photonic and Quantum Technologies	Quantum Materials and Nanophysics	Micro- and Nano-Systems	Mathematics and Physics for Quantum Engineering
5	1	Semiconductor Photonics			
5	1	Photonics and Radiometry			
10	1	Solid State Physics			
10	1	Electronics			
10	1	<i>At choice (*) -- Topics in Information Science</i>			
5	1	<i>At choice (*) -- Topics in Advanced Mathematics</i>	<i>At choice (*) -- Topics in Advanced Mathematics</i>	Numerical Methods for Engineering	Analytical Mechanics
10	1	Integrated and Metaphotonics	Quantum phenomena in low dimensional systems + Statistical physics of complex systems	<i>At choice (*) -- Industrial Engineering topics</i>	Group Theory + Operator Theory
20	1, 2	<i>At choice (*) - Topics in Advanced Physics</i>			
30	1, 2	<i>At choice (*) - Topics in Physics, Engineering, Mathematics, Management, Soft skills...</i>			
15	2	Master Thesis			

**) The updated list can be consulted in the Study Manifesto.*

Organization of the Study Plan

First year

The curriculum offered at all PSPA programs is structured to ensure a solid foundation in the disciplines of Engineering and the Physics of Matter that underlie advanced technologies, now considered enabling by major international research and development programs. For this reason, the first year includes several mandatory common courses (Semiconductor Photonics, Photonics and Radiometry, Solid State Physics, Electronics).

Second year

Starting from the 2nd semester of the 1st year and throughout the 2nd year, students can delve deeper into topics of greatest personal interest by following the courses characterizing each PSPA and selecting others from a large list of elective courses.



Common indications

The LM-44 degree program requirements must be met, including, for example, the requirement to acquire no fewer than 45 credits (CFU) of courses in the core scientific-disciplinary sectors (SSD) listed in the law, including at least 15 credits in engineering subjects. For full details on the proposed courses, PSPA, and the rules to be followed when compiling the study plan, it is advisable to consult the most up-to-date version of the Degree Program [Manifesto](#) and [Educational Rules](#).

The courses listed in each PSPA can be taken in the first or second year, but it is strongly recommended to follow the indications in the Degree Program for each PSPA. There are no mandatory or strongly recommended priorities: the student is responsible for acquiring the knowledge deemed essential beforehand. It is sufficient to include the courses or training activities only once in the Study Plan. Even if the exam is failed, they remain in place for subsequent years without needing to be reinserted. Students are required to submit the study plan each year until they have earned the minimum 120 credits required to obtain the degree; in any subsequent years, they are exempt from submitting the study plan unless they wish to make changes.

The Study Program Council, through one or more delegated professors, examines and approves autonomous study plans, i.e. those submitted by the student in deviation from the suggested PSPAs. The autonomous study plans must in any case satisfy all legal requirements for the LM-44 degree class. Students interested in availing themselves of this possibility are invited to contact the teachers in charge of the study plan in advance, as indicated on the contact page of the Study Program website.

Interdisciplinary program

- **Smart Wearable Technologies**

The Politecnico di Milano, in collaboration with EssilorLuxottica, has launched a new interdisciplinary program for eight different Study Programs on the topic of Smart Wearable Technologies. Within the Engineering Physics program, the program aims to foster the acquisition of specific skills in photonics and advanced materials to address the technological challenges of smart wearable devices. This includes specific electronic and information technologies, interdisciplinary tools and methods, and the ability to take a systemic view and operate in interdisciplinary and multisectoral contexts. For a detailed description, please see the dedicated page: [Interdisciplinary SWT Program](#).



The SWT training path within the Engineering Physics Study program consists of acquiring at least 30 CFU chosen from two specific tables of courses (15 CFU from Table A and 15 CFU from Table B), tables reported in the Educational Rules.

Proof of interdisciplinary training in "Smart Wearable Technologies" will be included in the *Diploma Supplement* and will be recognized through the issuance of a specific digital badge.



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).

Detailed information on each course, instructor, learning objectives, content, teaching methods, and assessment methods can be found on the Politecnico website. Teaching activities consist primarily of lectures and classroom exercises (DT) and laboratory activities (DL), usually held at the Città Studi campus in Milan (Campus Leonardo).

Some courses are also taught through interactive/participatory teaching (DI), including the preparation of in-depth papers and presentations on specific topics in certain courses, or through project-based teaching (DP), such as the development of computer codes. These activities offer opportunities to improve mastery of the concepts learned during classroom lectures, allowing students to explore the topics in a different way. For example, the *Digital Systems Design course* (possible choice in the first semester, first year) involves the practical use of *embedded systems* and related development environments. The exam requires the preparation of a paper in article format and the development of a prototype. The *Nanomagnetism*



and *Spintronics course* (possible choice in the first semester, second year) offers the option of choosing a project in lieu of the exam. The project, to be completed individually or in groups of two, allows students to experiment with *Ubermag*, a *Python* package for micromagnetism simulations.

Teaching activities and exams are conducted in English: experience has shown that any language difficulties are not a significant obstacle for students in Engineering Physics. The topics covered in the Study Program are typically very broad and varied, so it's important to study not only from lecture notes but also from recommended books and any handouts provided by the instructor.

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.

Assessment methods vary depending on the course. They may consist of a written exam, an oral exam, the completion and discussion of a project, an individual presentation to the instructor or the class, or a combination of these methods. The availability of different exam formats allows students, over the course of the two-year Study Program, to test various *soft skills* in written and oral communication, essential for later professional development. Several courses offer the opportunity to complete group or individual projects, either as a full or partial replacement for the more traditional exam.

When preparing for the exam, it's important to gather all the materials provided by the instructors. One (or more) books that cover the course topics are almost always recommended, often in more depth than those required for the exam, but useful for supplementing, expanding upon, and reviewing the notes taken during lectures. Additionally, other learning materials, such as scientific articles and presentations, are usually provided and uploaded to the WeBeep platform for those enrolled in the relevant course.

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.

Characteristics of the final exam

The study program concludes with the preparation, presentation, and discussion of a final Thesis, carried out independently under the guidance of a supervisor. The supervisor must be a faculty member of the Politecnico di Milano and may be supported by one or more co-supervisors, external or internal to the Politecnico. The thesis project consists of an experimental, theoretical, or computational activity, carried out in an academic or business setting, in Italy or abroad. The duration of the activity is about six months. The thesis work represents a particularly useful training opportunity for the student, in preparation for professional entry or further study with a PhD.

The work carried out and the results obtained are described in the final Thesis and its Extended Summary (*Executive Summary*), both written in English. The final thesis work is evaluated based on its completeness and coherence, the validity of the methodologies adopted, the relevance of the topics covered, the methodological and scientific rigor, the technical skills and critical thinking demonstrated, as well as, of course, the commitment expended and the clarity and completeness of the presentation. The Supervisor may request that the thesis be evaluated by another expert, called Examiner. This expert is a professor or other expert in the field, proposed by the Supervisor, who contributes to the evaluation of the thesis work and may also participate in the discussion during the final exam. The final exam consists of the presentation and discussion of the work described in the thesis with the graduation Committee and the Examiner. The Commission, after hearing the opinions of the Supervisor and of the Examiner, assigns a



score (up to 7 points) that increases the average of the grades obtained in the two-year exams for determining the degree grade, expressed out of a total of 110 points, with possible honors.

Directions and suggestions

To choose a thesis, it is helpful to consult the dedicated section of the Politecnico di Milano Department of Physics website: <https://www.fisi.polimi.it/it/tesi>. A presentation of the master's thesis projects proposed by the Physics Department is usually held at the beginning of the second year of the program.

The possibility of completing a thesis in a company or at another university, in Italy or abroad, offers an opportunity to test oneself in a new study and work environment. Students interested in this opportunity must ensure they have both a tutor at the host institution, who will be the scientific director of the thesis project, and an internal supervisor, a professor of Politecnico di Milano. It is necessary to formalize the work abroad or in a company in advance by completing the Free Mover program form on your personal page and contacting the Internship Coordinator of the Study Program for other procedures through the Politecnico Career Service. See the dedicated section on organizing periods abroad.



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](#).

Time management strategies... tips from students for students

The following tips were written by students who attended the study program in Engineering Physics.

The Study Program in Engineering Physics (Engineering Physics) comprises dense courses, covering a wide variety of physics fields and mathematical concepts, some of which involve a high degree of abstraction. This means that students may experience a heavy study load. A good time management strategy is essential to ensure a solid understanding of the topics covered. The following suggestions may be helpful:

Attendance at lectures and tutorials: attending lectures, seminars, and tutorials (even remotely, if possible) and taking notes significantly reduces your individual study load.

Using videorecording: Recordings of lectures and exercises are excellent tools for grasping concepts that were missed in class. Besides being useful if you're unable to attend in real time, they're also very useful if you have gaps in your notes. However, it's best not to overuse this option: knowing that you can re-watch recorded lectures and exercises could deter students from attending classes regularly and from time to time, potentially



resulting in them being overwhelmed with recorded lectures to rewatch. Recordings are useful for resolving doubts that may arise during individual study, or for filling in gaps in your notes, but they cannot replace consistent study of the subject.

Study Time: Unlike the BSc study program, where most of the courses included in the Study Plan are set by the Educational Rules, and the resulting timetable is shared by most students, the MSc Degree program's timetable is largely determined by the elective courses. Occasionally, classes may overlap, as elective courses may also be selected by students from other study programs. If there are long gaps between classes, it may be helpful to take advantage of the opportunity to study together with colleagues, reserving a space in the Library's reading room or searching for a free classroom using the dedicated online app. Group study stimulates learning, including raising questions and seeking a shared explanation.

Exam planning: Teachers often provide information about exam dates on the first day of class. Since after a couple of months, you'll understand which exams you personally find most difficult, planning them properly in your calendar allows you to better organize your study.



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 in Engineering Physics offers a variety of extracurricular activities, which allow students to gain insights into and understand new aspects of the topics covered in class. These include, for example, laboratory visits, where students can see advanced applications of the concepts learned in class. Seminars and in-depth lectures led by Politecnico faculty or external experts are also offered, exploring topics related to the Engineering Physics program and the new frontiers of scientific research. Events are also organized in collaboration with student associations (see below), inviting guests from various fields of work and research. These opportunities provide students not only with additional perspectives on their future, but also the opportunity to discuss and discuss their interests and passions with new people.

The university experience isn't limited to attending classes and passing exams; it's enriched by numerous human and social aspects. Student associations offer an invaluable opportunity to build relationships, expand your network, and explore specific personal interests. Furthermore, they provide a platform for experiences beyond the university. The complete list of student associations at the Polytechnic—with any entry requirements—can be found [here](#).

EPAS (Engineering Physics Alumni and Students) EPAS is an association dedicated exclusively to students and alumni of *Engineering Physics* and *Engineering Physics* at the Politecnico di Milano. The goal is to create a strong community for the niche field of engineering physics, promoting collaboration between academia and industry. Through seminars, workshops, technical courses, and networking events, EPAS offers a platform for knowledge exchange, professional growth, and meaningful connections. Whether exploring cutting-edge topics or building relationships, EPAS represents a unique space for those passionate about physics and new technologies, bridging the gap between the university life of a physical engineer and the real world.



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.

The international mobility offering is very rich, from short-term exchanges lasting one semester (Erasmus), to two-year double degree programs, and to international theses such as *Free Movers*. Approximately 20% of master's students in Engineering Physics undertake a study abroad experience. A list of exchange agreements with universities around the world can be found on the dedicated website. The most popular exchanges are in France, Germany, and Spain, but approximately 10% of exchanges are held outside Europe.

Management of short-term mobility is entrusted to the Study program Mobility Representatives, who assist students throughout all phases of the process, from presenting exchange opportunities to completing the Learning Agreement (the document that defines the exams to be taken abroad) to registering exams passed abroad. The call for applications for international



mobility is published annually by the Politecnico di Milano, with a deadline in early January. The representatives organize an introductory meeting every November/December, in collaboration with the *exchange offices* of the Politecnico di Milano. After the selection process, the representatives assist outgoing students in choosing courses, while the bureaucratic issues (scholarships, deadlines, scholarship renunciation, accommodation, language certifications) are handled by the Mobility Office (exchange-leonardo@polimi.it) or the Double Degree Office (doubleddegrees@polimi.it). At the end of the period abroad, students receive the *Transcript of Records document* from the foreign institution, which certifies the exams taken and the referents record the corresponding grades at Politecnico.

The thesis project, usually lasting about six months, is recognized with 15 credits and a significant increase in the final grade. It is an excellent opportunity to gain experience outside of institutional teaching. Free Mover mobility allows students to spend a period abroad at any location, even without an agreement with the Politecnico di Milano. This opportunity is mainly dedicated to carrying out master's theses or internships abroad.

More info on mobility grants, as well as on the procedures for studying abroad for part of your degree programme, are available on the Engineering Physics website.



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.



The Study Program in Engineering Physics does not include mandatory internships (*stage*) or traineeships (*tirocini*). However, students may undertake several-week internships in international laboratories or in companies, an experience recognized in the Diploma Supplement. A company experience can also provide the basis for a thesis, if appropriately coordinated with an internal supervisor.

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.



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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](#)].

In addition to the numerous services offered to all Politecnico students by the Career Service, such as *Career Days*, meetings with companies, assistance with internships, assistance in preparing your CV and choosing job searches, and uploading your profile to a noticeboard visible to companies, several orientation events specifically for Physics Engineering students are offered.

Specifically, the program offers meetings with *alumni* currently working in companies or research, roundtable discussions with companies specifically interested in physics engineering graduates, speed dates with PhD students and undergraduates from the Physics Department, and visits to Politecnico laboratories and research centers in Italy and abroad, all of which are useful for choosing a thesis and a possible continuation of studies with a PhD.



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Useful links

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

Website of the [Study Programme in Engineering Physics](#)

[WeBeeP](#) Channel

Student Office: [Online counter](#)

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