



**Politecnico
di Torino**

**Regulations for the Ph.D. course in
Electrical, Electronics and Communications
Engineering**

Art. 1 – Subject of the Regulation

1. In full compliance with the current legislation and regulations regarding Doctoral Programs (hereinafter referred to as University Regulations), this Regulation governs the organizational and educational aspects of the Doctoral Program in Electrical, Electronics and Communications Engineering (hereinafter referred to as the Program).

Art. 2 – Course Description and Educational Objectives

1. The description of the Doctoral Program in [insert field] along with the definition of the educational objectives is subject to discussion and possible updates by the Academic Board annually, following consultation with the Consultation Committee, typically in conjunction with the accreditation practice of each Cycle.
2. The description of the Program and its educational objectives, as recorded in the Academic Board minutes, is posted on the dedicated website.
3. The administrative headquarters of the Program is located at the Department of [insert department name].
4. The official languages of the Program are Italian and English. General communications, events organized by the Program, teachings, and related examinations are generally conducted in English. The doctoral thesis and its final defense are in English.

Art. 3 – Research Macro-Areas

1. The Program's macro-areas mainly refer to those pertaining to the following Scientific-Disciplinary Sectors:
 - PHYS-03/A – EXPERIMENTAL PHYSICS OF MATTER AND APPLICATIONS
 - IIET-01/A – ELECTRICAL ENGINEERING
 - IIND-08/A – POWER ELECTRONIC CONVERTERS, ELECTRICAL MACHINES AND DRIVES
 - IIND-08/B – ELECTRICAL POWER SYSTEMS
 - IINF-01/A - ELECTRONICS
 - IINF-02/A – ELECTROMAGNETIC FIELDS
 - IINF-03/A - TELECOMMUNICATIONS
 - IINF-04/A – SYSTEMS AND CONTROL ENGINEERING
 - IMIS-01/B – ELECTRIC AND ELECTRONIC MEASUREMENTSas well as interdisciplinary and multidisciplinary themes related to them.
2. The Academic Board approves and updates, when necessary, the research topics that are the subject of the Training Projects of the doctoral candidates. The description of the research topics is posted on the dedicated website of the Program.

Art. 4 – Renewal of the Doctoral Program

1. The Coordinator convenes, within the month of October of each year, a meeting of the Academic Board to discuss the renewal of the Program or the possible new accreditation in the event that the cases referred to in Article 5 of DM 226/2021 occur (change in the name of the Program, change in the composition of the Academic Board by more than twenty-five percent compared to the initial

- composition of the reference cycle, or change in the coordinator of the Program, while ensuring compliance with the requirements stipulated in Article 4 for each member of the Academic Board).
2. Within the same timeframe, the opinion of the Department of Electronics and Telecommunications (DET), the administrative headquarters of the Program, must be obtained.
 3. The Coordinator then presents the proposal to the Doctoral School Board.

Art. 5 – Course Catalogue

1. Each year, according to the deadlines indicated by the Doctoral School, internal professors of the University can submit proposals for technical-specialist and/or cross-disciplinary teaching through the uploading of the form in the "third-level educational offer" procedure, for review by the Academic Board. Simultaneously, the Coordinator solicits proposals for new courses on topics deemed appropriate by the Consultation Committees.
2. Upon obtaining a favorable opinion from the Academic Board, the Coordinator forwards the final proposal adopted by the Academic Board for approval by the bodies of the Doctoral School, also based on any indications from the Consultation Committee.
3. The catalog of courses approved for the academic year is published on the Doctoral School's website. In the case of courses offered every other year, in order to allow doctoral candidates to have as complete a picture as possible of the catalog available for their study path, a biennial schedule is also published.
4. The catalogue is organized according to a schedule published on the University's website. To ensure that the publication can take place well in advance, instructors of "hard skills" courses communicate the dates by the deadlines set by the Doctoral School.
5. Regarding invited lectures (guest lectures), as per Article 11, clause 1 of the University Regulations, proposals - indicating the names and CVs of the proposed instructors - are submitted to the Coordinator of the Doctoral Program at least 15 days before the deadlines set annually by the Doctoral School for appropriate deliberations. The Coordinator, before transmitting the proposals to the School, obtains approval from the Department Director to which the initiative belongs, and assigns an order of priority in the case of multiple proposals.

Art. 6 – Organization of the Doctoral Program

6.1. Bodies of the Doctoral Program

The bodies of the Doctoral Research Program are:

- a) The Academic Board
- b) The Coordinator
- c) The Vice-Coordinator(s)

6.1.1 The Academic Board

Composition

1. The composition, functions, and eligibility requirements of the Academic Board members are established in Article 9 of the Regulations on Doctoral Research.
2. The procedures for defining the members of the Academic Board are as follows:
 - The Coordinator, in advance of ministerial accreditation deadlines, consults groups and departments through their representatives.
 - Individuals eligible to be part of the Academic Board, as indicated in point 1, submit a request to participate in the Academic Board through their representative in the Executive Board, accompanied by:

- a. Confirmation of meeting the minimum requirements specified in Article 9 of the Regulations on Doctoral Research, and the relevant indices for accreditation of the Program,
 - b. Declaration of willingness to carry out activities at the Doctoral Program as a Supervisor or co-Supervisor and/or member of Program committees,
 - c. Declaration of non-membership/membership in Doctoral Committees at other Universities and, in the case of professors and university researchers belonging to another university, also a clearance issued by the home university.
3. The Academic Board evaluates the membership proposals considering the scientific qualification requirements specified by current regulations, as well as any additional constraints related to the diversity and balance of the cultural components characterizing the Program. In particular, the representation of each Department (DET, DENERG, and DISAT) and of each Scientific-Disciplinary Sector (see Art. 3, paragraph 1) involved in the PhD Program must be ensured, seeking to maintain a proportional relationship between the number of PhD candidates and the number of representatives from each sector. The Board may also include representatives from national and/or international research institutions, possibly affiliated with the PhD Program.
 4. Prolonged and unjustified absence from Academic Board meetings during the year may be grounds for exclusion from the Board itself during the annual renewal phase of the composition as per point 6 of this article. Academic Board members who, without justified reason, are absent from meetings three times in a row lose their position.
 5. The Academic Board presents to the Department Council, for its deliberation, the proposal for its composition.
 6. The composition of the Academic Board is decided once a year, usually in anticipation of the accreditation renewal phase.
 7. The Academic Board includes, for discussion of educational and organizational issues, two representatives of the doctoral students elected by the enrolled students in accordance with the Regulations for the election of student representatives in governing bodies and other collegiate bodies. These student representatives do not participate in discussions and deliberations regarding the annual evaluation of enrolled students and the organization of the final examination.
 8. Supervisors and co-Supervisors not belonging to the Academic Board are also invited, without voting rights.
 9. The list of Academic Board members is published on the Doctoral Program website and promptly updated in case of changes.

Functioning

1. The Academic Board is convened by the Coordinator at least twice a year and whenever the Coordinator deems it necessary to carry out its tasks in a timely manner.
2. The invitation is sent via email at least five working days before the meeting and includes the agenda. The notice period may be shortened, in case of urgent need, to two days.

3. The Academic Board may also be convened upon request of at least 1/3 of its members, who must specify the topic to be included in the agenda. In this case, the convocation must take place within ten days of the submission of the request.
4. Academic Board meetings may be held remotely or via teleconference as provided for in the Regulations for the conduct of collegiate body meetings via teleconference and using video conferencing systems.
5. Meetings of the Academic Board are chaired by the Coordinator and are valid if the majority of eligible members are present, deducting justified absences. In any case, the presence of at least one third of the members with voting rights is required for validity.
6. Academic Board members commit to regularly attend meetings and, in case of impossibility, provide written notice by email to the Coordinator before the start of the meeting.
7. Resolutions are adopted with the favorable vote of the majority of those present and are immediately enforceable.
8. The functions of Secretary, responsible for drafting the minutes, are assigned at the beginning of the meeting to one of those present.
9. For matters not covered by these regulations concerning the functioning of Academic Board meetings, reference is made to the University's General Regulations in force.

6.1.2. The Coordinator

1. The requirements and functions of the Coordinator are governed by Article 9.1 of the Regulations on Doctoral Research.
2. The Coordinator is delegated by the Academic Board to approve:
 - the evaluators of the final theses;
 - the examination committees for the final exam;
 - the teaching collaborations of the PhD students;
 - changes in collaborators and modifications to the distribution of teaching hours assigned to the course instructor and to each collaborator for third-level courses.The Coordinator is also delegated to assign co-supervisors to the PhD students.

6.1.3. The Vice-Coordinator

1. The Coordinator proposes to the Academic Board two Vice-Coordinators who can replace the Coordinator in their functions in case of absence or impediment. The Vice-Coordinators are delegated to approve external training activities and off-site research activities

6.2. Other Roles in the Doctoral Program Contributing to the functioning of the Doctoral Program are:

6.2.1 Consultation Committee

1. The Consultation Committee is appointed by the Academic Board and is composed of external stakeholders from Italian and international companies, universities, and research institutions.

2. The Committee meets at least once a year to assess the progress of the Program, develop proposals for defining and designing the educational offer and learning objectives, providing guidelines for continuous updating and improvement.

6.2.2 Supervisors and co-Supervisors

1. At the start of each doctoral cycle, the Coordinator, or a delegate, conducts an investigation, taking into account the curriculum of the doctoral student, the research topics of interest to the student, the research macro-areas of the Doctoral Program as per the preceding Article 3, any themes of the assigned scholarship, and the availability of one or more professors to assume the role of Supervisor.
2. In the first meeting following the start of the doctoral paths, to be convened within two months, the Coordinator reports the results of the investigation to the Academic Board, which assigns each doctoral student a Supervisor and at least one co-Supervisor. Normally, in the case of scholarships with a specified theme, the Supervisor identified during the scholarship publication phase within the admission notice is confirmed.
3. The profile and main functions and responsibilities of Supervisors and co-Supervisors are outlined in the University Regulations.
4. If deemed necessary, and with the agreement of the doctoral student, the Academic Board may replace, by motivated resolution, the Supervisor and/or co-Supervisor at any stage of the doctoral student's training cycle.

6.2.3 The Executive Board

1. The Executive Board supports the Coordinator in strategic activities that require complex instructional practices before their discussion and approval by the Academic Board.

6.2.4 Committees

1. For managing the activities of the Program, the Academic Board has full autonomy to activate Committees for specific subjects under the coordination of a responsible member. The role of the Committees, their composition, any duration and/or renewal modalities, approved by the Academic Board, are published on the Program's website.

Art. 7 – Training Project and Declaration of Intent

1. Within one month from the assignment of the Supervisor, each doctoral candidate submits their Training Project through doctoral student web sheets on the dashboard, outlining the study and research objectives they aim to achieve and the program of activities.
2. The Training Project is approved by the Supervisor, upon delegation by the Academic Board, within one month of submission, and serves as a reference for the annual verification of the fulfillment of the doctoral candidates' training obligations.
3. During the transition to the next academic year, the Training Project is presented to the Academic Board, which may request any adjustments it deems necessary.

4. The Board may, in agreement with the doctoral candidate, revise the Training Project during the course of study in consideration of emerging factors that may affect its feasibility.
5. The Training Project includes: a) the research program to be developed by the doctoral candidate under the guidance of the Supervisor and co-Supervisor(s), including any off-site research activities; b) the plan for complementary educational activities related to the research, including any pre-planned external activities. With the Supervisor's authorization, the Training Project may include Level I or II courses if the doctoral candidate has not previously taken them or if they are not part of their academic workload in the case of simultaneous enrollment in another study program.
6. For the enhancement of external educational activities and research activities, refer to the Operational Procedures.
7. Within three months from the assignment of the Supervisor, the Supervisor and the doctoral candidate compile and sign the Declaration of Intent, which may be confirmed/updated at least once a year.

Art. 8 – Admission to Subsequent Years and Final Examination

1. In accordance with the University Regulations on Doctoral Studies and the related Operational Procedures, the Academic Board, nearing the end of each academic year, evaluates the progress of the educational and research path and decides on admissions to the following year and the final examination.

The admission procedure includes:

- a. Verification of quantitative criteria as outlined in paragraphs 3, and 4 (, based on the indicators defined in the Operational Procedures,
 - b. Obtaining the opinion of the Supervisors,
 - c. Verification of the progress of research activities and their consistency with the Training Project, as indicated in paragraph 5.
2. Any critical cases are discussed, gathering input from the Supervisors. At the end of the discussion, the Academic Board deliberates on admissions and documents the decisions. If some PhD students do not meet the minimum criteria for admission to the following year, the Academic Board may grant admission by exception if it is determined that the issues can be resolved. If the minimum criteria for admission to the final examination are not met (particularly regarding publications, which may still be under review with outcomes subject to uncertain timelines), the procedure for granting extensions, as provided by the Operational Guidelines, is applied. Such extensions are generally granted within the limits established by the current regulations.

Admission to the Second and Third Year

3. In accordance with the requirements specified in the Regulations on Doctoral Studies and the Operational Procedures, for admission to the second/third year, doctoral candidates must meet the following quantitative criteria:

- a. Admission to second year: $T = R + R_e + D_s + D_h \geq 100$
- b. Admission to third year: $T = R + R_e + D_s + D_h \geq 220$

where:

- R : cumulative publication indicator, as defined in the Operational Procedures of the Regulations on Doctoral Research (with $\alpha = 60$)
- $R_e = d/5$, where d number of days spent abroad
- D_s : points for TRANSVERSAL CHARACTER (SOFT SKILLS) courses
- D_h : points for TECHNICAL-SPECIALIZED (HARD SKILLS) courses

Admission to the Final Examination

4. In accordance with the requirements specified in the Regulations on Doctoral Studies and the Operational Procedures, for admission to the final examination, doctoral candidates must meet the following quantitative criteria:

- a. For educational activities:
 - at least 40 hours of TRANSVERSAL CHARACTER (SOFT SKILLS) courses
 - at least 200 points for TECHNICAL-SPECIALIZED (HARD SKILLS) courses
- b. For research activities
 - At least one exclusive publication per doctoral candidate as defined in the Operational Procedures of the Regulations on Doctoral Research.
 - Research activity indicator: $R \geq 100$

Poster Day

5. The verification of the progress of research activities and their consistency with the Training Project is carried out through the preparation of a poster by each PhD student and its presentation during the "Poster Day," the main event of the IEEC Doctoral Program, held annually. Each student prepares a poster and discusses it at the event with peers, faculty members, and invited guests, in a friendly and collaborative atmosphere. The poster is evaluated by anonymous reviewers, and the results of this evaluation are considered among the elements used to determine admission to the following academic year or to the final examination. In cases where the student or the reviewers are unable to attend the event in person for documented reasons, the poster discussion may take place remotely. Since 2020, all contributions have been collected on a dedicated website, which can be considered an Annual Report for the IEEC Doctoral Program.

Art. 9 – Criteria for Distribution of Resources

1. The Course annually transposes the University's resources in terms of funded and/or co-funded grants, as well as the list of thematic grants funded and/or co-funded from departmental and/or external resources.
2. The Teachers' Board defines in which sessions of the call for admission to publish the grants, using the appropriate application made available by the University.

3. The Selection Committee appointed by the Rector according to the Regulations on Doctoral Programmes shall allocate the available scholarships to the winners taking into account the final ranking, judgment of eligibility and preferences of the winners.

Art. 10 – Amendment of the Internal Regulations of the Doctoral Program

1. Any amendment to these Regulations must be approved by the Academic Board and submitted for review to the Doctoral School and approval by the Academic Senate, subject to the opinion of the Board of Directors.

Art. 11 – Final and Referral Provisions

1. These Regulations supplement, to the extent expressly provided therein, the provisions established by the current national legislation and the University Regulations regarding Doctoral Research, which are fully and directly applicable in any case.
2. These Regulations apply to students of the 38th cycle and subsequent cycles, except where these regulations impose stricter constraints or requirements.