

***Regulation of the Doctoral course in Industrial and Information Engineering
(pursuant to art. 20 of the University Regulations for Research Doctorates)***

The PhD in Industrial and Information Engineering is aimed at training high-level researchers capable of governing the digital, ecological, energy and infrastructural transition that the country has undertaken with the strategic missions of the PNRR. In line with the UN 2030 Agenda, and specifically within the objectives of the ecological transition and digital transition, the Doctoral Course will aim at training professional figures who pursue a sustainable development in their scientific and technological research projects.

In particular, the common objective of the five curricula is to train, through a transversal methodological approach, new professional figures capable of developing and implement general and innovative solutions, which can be used in different application contexts. In this way the professional figure will be able to investigate innovative research and development lines with rigorous and in-depth, well-founded methodologies on the highly qualified theoretical study addressed in the Course, and on the research activity applied in the Department's laboratories and at industrial partners, academics and research of the various groups involved in the Course.

In detail, the Electronic Engineering curriculum provides the skills required to model and design: electronic and photonic devices, components and sensors; radio communication systems, information processing systems and radio frequency and microwave radar sensors; photonic biochips for the creation of point-of-care devices.

The Computer Engineering curriculum is aimed at providing a high qualification in the modeling and design of: embedded, distributed and cloud systems; software engineering models and methodologies; evaluation of the security and performance of computing systems; Artificial Intelligence models and techniques; advanced modeling and control of mechatronic and robotic systems, including automatic and connected vehicles, process control and automation systems.

The Energy Conversion curriculum aims to train a competent figure in the energy sector, aimed at methodologies and technologies for the use of renewable sources, energy saving and the optimization of energy systems. The new challenges to be faced are associated with the conversion and widespread distribution/generation of electrical and thermal energy.

The Aerospace Engineering curriculum aims to create figures with skills in flight mechanics, aeronautical structures and constructions, aerospace systems, aerodynamics and thermo-fluid dynamics, aerospace propulsion.

Finally, the Mechanical Engineering curriculum aims to transfer to students the knowledge and skills necessary for the modeling and design of mechanical structures, machines and systems, focusing its attention on more specific topics such as advanced numerical simulation and optimization of mechanical and thermo-fluid dynamic systems, consolidating their theoretical analysis and experimental verification.

The PhD in Industrial and Information Engineering, which is part of the Polytechnic and Basic Sciences Doctorate School of the University of Campania “Luigi Vanvitelli”, is divided into five curricula:

- Electronic Engineering.
- Computer Engineering.
- Energy Conversion.
- Aerospace Engineering.
- Mechanical Engineering.

ART. 2 – EDUCATIONAL-SCIENTIFIC TRAINING PROGRAM

1. The training program is approved by the Board of Professors, usually within the month of October, with an indication of the teaching modules and seminar cycles, of their program and corresponding training credits.
2. At the beginning of the first year of the PhD Course and in any case within the month of December, each doctoral student formulates a proposal concerning the training program and the scientific activities, according to the guidelines of the PhD Course. Based on this proposal, the Board of Professors assigns to each doctoral student the educational program within the activities defined by the Manifesto, a supervisor, and a co-supervisor, who can also be chosen among professors and external experts, provided they have proven scientific qualification in coherent macro-sectors with the aims of the Doctorate.
3. As an integral part of the training project, upon request of the doctoral student, the Board of Professors can entrust tutoring activities (starting from the 1st year) and supplementary teaching (starting from the 2nd year) within the teaching modules of the bachelor’s and master’s degree courses. The request for assignment must indicate the teaching modules and hours which will be covered, within the limits established by law.

ART. 3 – ADMISSION TO SUBSEQUENT YEARS AND FINAL EXAM

1. Each doctoral student must submit a report on the overall activity to the Board by mid-October. The Board, by the month of October, decides on admission to the following year based on the end-of-year report and an oral presentation of the educational and scientific activities carried out.
2. Doctoral students who must take the final exam, in addition to what is provided for in paragraph 1, must present a summary of the doctoral thesis with an indication of the scientific publications produced and the training activities carried out during the doctoral course, with reference to those carried out at other locations, as provided for in the following art. 4. The Board decides on admission to the final exam by the month of October also based on the evaluation provided by two external evaluators.

ART. 4 – TRAINING PERIOD AT OTHER UNIVERSITIES OR RESEARCH INSTITUTIONS

Each doctoral student can request to carry out training periods abroad or in Italy, lasting no more than 18 months. The training periods could be carried out at

universities or public and private research institutes, even those not supervised by the Ministry of University and Research. The supervisor communicates in advance to the Coordinator the methods and times for carrying out this activity, with an indication of the coverage of expenses, even partial ones. The Coordinator submits the training plan for approval to the Board, also electronically, to grant authorization for the training period abroad. The Board of Professors approves it at the first meeting following its conclusion.

ART. 5 – COMMUNITY LANGUAGE REQUIRED FOR ADMISSION

The community language required for admission to the doctoral course is English.

ART. 6 – TEACHING STAFF

By the month of May, and in any case in time for the submission of the application for the accreditation of the Doctorate, the Board of Professors may decide to modify the composition of the Board of Professors, including the addition of other members in possession of the scientific qualification required by the accreditation procedure of the doctoral course.

ART. 7 – SELF-EVALUATION AND QUALITY ASSURANCE COMMISSION

1. At the beginning of the doctoral cycle, the Coordinator appoints a Self-Evaluation and Quality Assurance Commission, composed of a representative of the students of the doctoral cycle elected from among all those enrolled in the cycle and of two teachers belonging to the Teaching Body, among in which a Contact Person for Quality Assurance of the Doctoral Course is identified.
2. The Commission carries out periodic self-evaluation of the doctoral course as well as manages the quality assurance system for the planning and management of doctoral training in accordance with the Standards for quality assurance in the European Higher Education Area (EHEA).
3. In initial application, the self-assessment and quality assurance activities will be regulated by specific guidelines that the Commission will prepare within three months of appointment. They must at least include the drafting of course evaluation questionnaires by students and teachers.

ART. 8 – STEERING COMMITTEE

1. The Steering Committee aims to bring the interest of the productive world, the Public Administration and research institutions into the Course, proposing objectives and training activities linked to scientific and applied research topics not included in the activities of the Department.
2. The Committee, composed of two members chosen from among representatives of the world of industry, public administration, experts and researchers from research institutions in sectors of interest to the Doctoral Course and with appropriate scientific and/or professional qualifications, two members of the Teaching Board and the Coordinator, is appointed by the Teaching Board and remains in office for a doctoral cycle. The Committee meets at least once a year, suggesting to the Teaching Board

changes and/or additions to the training and scientific activities envisaged by the Course.

ART. 9 – COORDINATION GROUP

The Coordination Group is made up of five members of the Board, one per curriculum, appointed by the Teaching Board and by the Coordinator. The Coordination Group assists the Coordinator in managing the careers of doctoral students together with the Secretary of the College, appointed by the Coordinator.