

PhD in Physics @Polito

Student regulations from 1st November 2019

Supervisor -- The Supervisor of each new PhD student is appointed in the first two months of the cycle by the PhD Academic Board. The Supervisor is chosen among the members of the Board or among the researchers in the area of Physics at Politecnico di Torino. For students on external fellowships a co-supervisor can be nominated even among researchers belonging to other Universities or Research Centers. Possible changes of the Supervisor are normally evaluated and approved by the PhD Academic Board by the beginning of the second year.

Training requirements -- The minimum training activity required for each student consists of **200 hours** of **hard skills** courses, and **40 hours** of **soft skills** courses.

Among the hard skills, at least **80 hours** must be chosen among the courses offered by the PhD programme in Physics and other **25** compulsory ones are associated with the seminar courses; the remaining **95** hours can be chosen among courses pertaining to the PhD programme in Physics or to other PhD programmes, Bachelor courses (1st level), Master degree courses (2nd level) ¹ or courses from national / international schools ².

At least 80 hours of courses must be attended within the first year and a further 80 hours within the second year. The training requirement must be evaluated on an individual basis for students following international / inter-university curricula.

Study plan – By the end of the first quarter of the 1st year, each student has to send her/his study plan (**Annex A**) by e-mail ³, for approval by the PhD Academic Board. The plan is prepared according to the following requirements:

1. It must include a minimum of **80 hours** of **hard skills** courses of the PhD in Physics of Politecnico di Torino, belonging to at least two different macro-areas⁴; **40 hours** of third-level transversal courses (**soft skills**), **25 hours** of seminar courses and **50 hours** of **hard skills** courses chosen by the student, also among the 1st level (i.e. Bachelor degree) and 2nd level (i.e. Master degree) courses⁵;
2. The remaining **45 hours** of third-level **hard skills** courses can be specified later, with the approval of the Supervisor;
3. At least **160 hours** of courses are to be attended within the first two years, and in particular at least **80 hours** in the first year; of these, at least 60 hours should be hard skills.

Any changes and additions to the study plan should be presented by the student for approval by the PhD Academic Board within the first quarter of each year.

Enrollment to subsequent years – By the end of each year the student is required to prepare a report (**Annex B**) on the activity she/he has carried out. A **necessary** requirement for the enrollment to the 3rd

¹ Up to a maximum of 50 equivalent hours (see paragraph “Study plan”)

² A maximum of 30 hours per course/school and a maximum of 6 hours a day are counted.

³ **For communications via e-mail use the following addresses:**

phd.physics@polito.it (Coordinator on behalf of the PhD Academic Board);

tiziana.marangoni@polito.it (Secretary of the PhD courses of the DISAT Department – for all administrative issues);

⁴ The macro-areas are: “Experimental Physics of Matter”; “Theoretical Physics of Matter”, “Physics of Complex Systems”; “High Energy Physics”

⁵ For 1st level and 2nd level courses, a conversion factor is applied according to Scudo regulations

year is to have produced, in the first two years, at least one article⁶ in a scientific journal belonging to the area of Physics⁷ in which the affiliation to the Department must be specified, and to complete the thesis project (see below).

The students will have to illustrate the presented material to the PhD Academic Board, during an interview. The PhD Academic Board - after prior verification of the fulfillment of the minimum training requirements and the favorable opinion of the Supervisor - decides on the admission of each student to the following year.

Thesis -- One month before the end of the 2nd year, the student must send by e-mail a thesis project to the PhD Academic Board, which she/he will then present for the admission to the third year.

One month before the end of the last year the student must send a first draft of the thesis by e-mail.

Enrollment to the 2nd year	By September, 30 of each year	Send to the Coordinator (phd.physics@polito.it) ANNEX B
Enrollment to the 3rd year	By September, 30 of each year	Send to the Coordinator (phd.physics@polito.it) ANNEX B and the filled TEMPLATE OF THESIS PROJECT
Admission to the final exam	By September, 30 of each year	Send to the Coordinator (phd.physics@polito.it) ANNEX C and a DRAFT OF THE THESIS

Off-site activities -- By the end of the 3rd year each student must spend **at least 70** certified mission days in Universities and Research Centers outside the Region⁸ of Piedmont; to this end, the participation to schools and international conferences for a minimum period of 3 consecutive days will be taken into account, as well as the participation to activities related to off-site research projects for at least 3 days in total, even if not consecutive.

N.B. the period spent for study or research purposes in other universities, research institutions, centers and laboratories, should not exceed 18 months.

Admission to the final exam – In order to be eligible for admission to the final exam at the end of the 3rd year, each student must fulfill the minimum training requirements specified above and, in addition, must be co-author of at least **2 articles**⁹ published or accepted¹⁰ in physics journals⁷ listed in the “Web of Science” or “SCOPUS” international databases. The articles must be produced during the three years of the PhD course and must specify the affiliation to the Department of Applied Science and Technology of Politecnico di Torino. In order to be evaluated for the admission to the final exam, students must send their dissertation and the final report (**Annex C**) to the PhD Academic Board. Each student then discusses his/her thesis before the PhD Academic Board which, after verifying the favorable opinion of the Supervisor (and co- Supervisor), decides on the admission.

Accounting of the doctoral students' activity – With respect to the regulations adopted by Politecnico di Torino for the activity accounting (an excerpt of which is reported in the Appendix), some further specifications have been introduced by the PhD Academic Board for PhD students in Physics.

⁶ The article can be a preprint submitted to a journal or to arxiv.org

⁷ In case the archive or the journal where the paper is submitted to does not belong to the area of physics, the Academic Board will evaluate the relevance of the proposed manuscript to the general subject of physics.

⁸ This requirement does not apply to foreign students and/or to students having a master degree attained abroad.

⁹ A pending patent counts as a publication.

¹⁰ A copy of the accepted, though not yet published paper, should be sent to the Academic Board, together with a copy of the acceptance letter.

In particular:

- As far as the training activities are concerned, the minimum requirement for **hard skills** is increased to **200 hours**, identified as above;
- In determining **R** only the articles published in WoS and / or Scopus journals count; we assume $N = 2$ for every $N > 2$; the alpha parameter is set to **100**;
- The minimum requirement for **R** is increased to **100**;
- As for the indicator of off-site activities, a minimum requirement is introduced, **Re = 14**, with the exceptions specified in footnote 8.

Quality award – Only the students who meet all the preliminary requirements on the indicators specified in the internal regulation (see attachment) are eligible for the quality prize. Among these, the prize (s) will be awarded upon proposal of the PhD Academic Board. This proposal is formulated on the basis of the scores gained on the items required by the same Regulation. The final decision will be up to the Board.

These Regulations are valid since **November 1st 2019** and apply to all students enrolled in the Doctoral Program.

For all the issues that are not dealt with in the present document, the student can refer to the regulations of the Doctoral School of Politecnico di Torino.

Appendix: extract from university requirements for the accounting of PhD students' activities starting from the XXIX cycle

Accounting system for the training activities

Training Activity Indicator: $D = D_{\text{soft}} + D_{\text{hard}}$

Technical and specialized training (Hard skills)

$$D_{\text{hard}} = \sum_{\text{courses}} [H_{h,i} E_i]$$

- $H_{h,i}$ = number of attended hours during the i^{th} course (for a 2nd level course $H = n \cdot \text{hours} / 2$, for a 1st level course $H = n \cdot \text{hours} / 3$)
- E_i = mark attained at the exam of the i^{th} course (E=1 for courses not offered by Politecnico, for which the student only needs a certificate of attendance; E=4/3 pass, E=5/3 pass with merit)

Transferable skills training (Soft skills)

$$D_{\text{soft}} = \sum_{\text{courses}} [H_{s,i} E_i]$$

- $H_{s,i}$ = number of attended hours during the i^{th} course
- E_i = mark attained at the exam of the i^{th} course (E=1 for courses not offered by Politecnico, for which the student only needs a certificate of attendance; E=4/3 pass, E=5/3 pass with merit)

Conversion rule for marks from 1st and 2nd level courses: 18-25 → pass; 26-30 → pass with merit

It is recommended that the Academic Boards define: an upper bound to the number of hours which can be cumulated from courses outside of the training offer by Politecnico; a maximum number of hours from courses with no exam

Accounting system for the research activity

$$\text{Research Activity Indicator: } R = 50 N + \alpha \sum_{\text{publications}} (P_i f_i)$$

- N = number of publications on journals belonging to the VQR list;
- P_i = weight or relevance of the article, depending on the impact factor of the publishing journal (according to the University system of bibliometric evaluation);
- f_i = degree of ownership of the publication (according to the University system of bibliometric evaluation);
- $\alpha \geq 10$ coefficient determined by each Academic Board.

Minimum requirements: $R = 100$

Conference papers and proceedings DO NOT count for the computation of N. If more than one PhD candidate appear as co-authors of a same publication, the publication can be used only by one of them for the fulfillment of the minimum requirements

Accounting system for external research activities

External research activity indicator: R_e

$$R_e = \frac{d}{5}$$

d = the number of days spent abroad

Minimum requirements: 70 certified mission-days; $R_e = 14$

TBN:

Max amount of time spent abroad: **18 months**