



A Practical Guide to the interuniversity PhD course in Industry 4.0

<http://dclab.poliba.it/industria40/>

Prof. Engr. Mariagrazia DOTOLI(mariagrazia.dotoli@poliba.it)

Full Professor in Automation

Department of Electrical and Information Engineering – Politecnico di Bari

Coordinator of the interuniversity PhD course in Industry 4.0 - Università degli Studi di Bari – PhD School of the Politecnico di Bari

Summary

- **PhD Regulations**
- **Rights and Duties of Doctoral Students**
- **Tutors**
- **Academic Board**
- **Activities carried out by the PhD student**
- **Validation of Activities**
- **Minimum Admission Requirements to the Final Exam**
- **PhD-programme Flowchart**
- **Incompatibilities**
- **Doctoral Scholarship**
- **Social Security Contributions**
- **Unemployment Benefits**
- **Tuition Fees**
- **Increase of Scholarship for Periods Abroad**
- **Additional Budget of 10%**
- **Pregnancy, Maternity Support Guidelines**
- **Suspension for illness**
- **Industrial PhD Scholarships**

The main references for the PhD regulations at national level are:

• <u>Regolamento recante norme in materia di Dottorato di ricerca</u>	<i>D.M. n. 224 30/04/1999</i>
• <u>Riforma ministeriale 2013 in materia di Dottorato di ricerca</u>	<i>D.M. n. 45 8/02/2013</i>
• <u>Decreto aumento importo borse Dottorato di Ricerca</u>	<i>D.M. 40 25/01/2018</i>

PhD Regulations (2/2)

The main references for the PhD regulations at Politecnico di Bari are:

• Regolamento dei corsi di Dottorato di Ricerca	<i>D.R. n. 286 01/07/2013</i>
• Regolamento Scuola di Dottorato del Politecnico di Bari	<i>D.R. n.254 25/02/2020</i>
• Regolamento didattico della Scuola di Dottorato del Politecnico di Bari	<i>Regulation of the SCUDO Board 23/04/2020</i>
• Circolare budget attività di ricerca	<i>Circ. Prot. n. 0011172 11/06/2018</i>
• Carta degli studenti di dottorato del Politecnico di Bari	<i>Post-Lauream office</i>

Any other information, form or regulation are available at the following link:

<http://www.poliba.it/it/dottorati-di-ricerca>

An useful guide for international PhD candidates in Italy can be found at the link:

<https://dottorato.it/content/guide-international-phd-candidates-italy-20162017>

Rights and Duties of Doctoral students (1/2)

At the national level, the rights and duties of PhD students are governed mainly by the **D.M. 45/2013**:

1. The admission to a PhD Programme involves, in compliance with the law, an **exclusive full-time commitment**.
2. **Authorized by the Academic Board**, PhD students can carry out **tutoring activities** for students of Bachelor's and Master's degree within the maximum limit of 40 hours per year, without affecting the doctoral scholarship. After the third year of the PhD Programme, this limit is abrogated.
3. PhD scholarships are subject to pay to the Italian National Social Insurance Agency (INPS) the social security contributions under separate management ("gestione separata"). PhD students can benefit from the related protections and rights.
4. Public employees admitted to PhD programmes are placed on a leave of absence period for the entire duration of the course or, for employees under public law, extraordinary leave for study reasons.
5. PhD students can take advantages of the rights settled by the D.L. 29 march 2012.
6. Female PhD students are entitled to maternity leave in accordance with the decree of the Ministry of Labour and Social Security of 12 July 2001, published in the Gazzetta Ufficiale no. 247 of 23 October 2007.

Rights and Duties of Doctoral students (2/2)

For PhD students of the Politecnico di Bari further rights and duties are regulated by the D.R. n. 286 01/07/2013:

The PhD student, as a student of the Politecnico di Bari, is bound by art. 42 of Title III of the Code of Ethics and Conduct (*Codice etico*). Therefore, **he will take care to check with reasonable frequency the notices, guides and any other documents for informational purposes** that the tutor, the Coordinator, the Director of the ScuDo and the Post-Lauream office share about, namely through the website <http://www.poliba.it/it/dottorati-di-ricerca> and the official e-mail account nome.cognome@poliba.it

- PhD students are required to respect the articles listed in the statutes and university regulations when applicable, to which each PhD student agrees when enrolled in the PhD programme, for the entire course until the achievement of the degree.
- **Doctoral students of Politecnico di Bari are required to be responsible for frequency and regular working (DM 45/2013).** Both responsibilities are verified by the Academic Board and contribute to admission for subsequent years as well as for the final exam.
- **The rights and duties of PhD students without scholarship, or with scholarship paid by an external organizations are identical to those of other PhD students.**

The Academic Board assigns one or more tutor to each PhD student. The tasks of the tutor(s) are to:

- facilitate the inclusion of the PhD student in the programme;
- contribute to PhD students' teaching and research plan;
- guide and orientate the PhD student in his/her academic and scientific learning path;
- guide in the preparation of the PhD thesis;
- monitor funds and equipment necessary to carry out the research project;
- report annual exams carried out by PhD student, validate the annual report for the Academic Board, including his/her activities;
- assist him in the choice of the foreign destination for a possible period of study abroad;
- report to the Coordinator on the unjustified absences.

The Academic Board has the following tasks:

- identify suitable forms of tutoring for one or more PhD students, selecting their tutors, also from outside of the Academic Board;
- identify, after meeting the PhD student and the tutor, the educational plan and the topic of the research thesis; evaluate the activity of PhD students with appropriate forms of monitoring, also for the admission to subsequent years;
- control the results of the research work and the frequency of the PhD student (DM 45/2013), assessing whether they are sufficient for the admission to subsequent years (also in terms of the frequency of university's facilities and laboratories);
- propose the exclusion of PhD students from the programme when some of these conditions are not satisfied;
- admit the PhD students to the final exam, after evaluating the PhD thesis and the entire three-year period (with possibly the fulfilment of the minimum requirements), and extend the duration of the programme to revise the thesis, after received the opinion of external referees.

In addition, the Academic Board:

- approves agreements of co-tutoring of thesis for PhD students when it concerns;
- decides, when requested by the PhD student, about the compatibility between the activities that the PhD student asks to carry out outside the training project and the commitment required by the PhD Programme;
- promotes collaborations with other Universities, Italian and foreign, and with public and private research institutions, as well as with companies;
- appoints referees for the thesis defence and proposes the members of the board for the final exam;
- any other fulfilment required by the regulations of the PhD programmes of the Politecnico di Bari and by the current regulations.

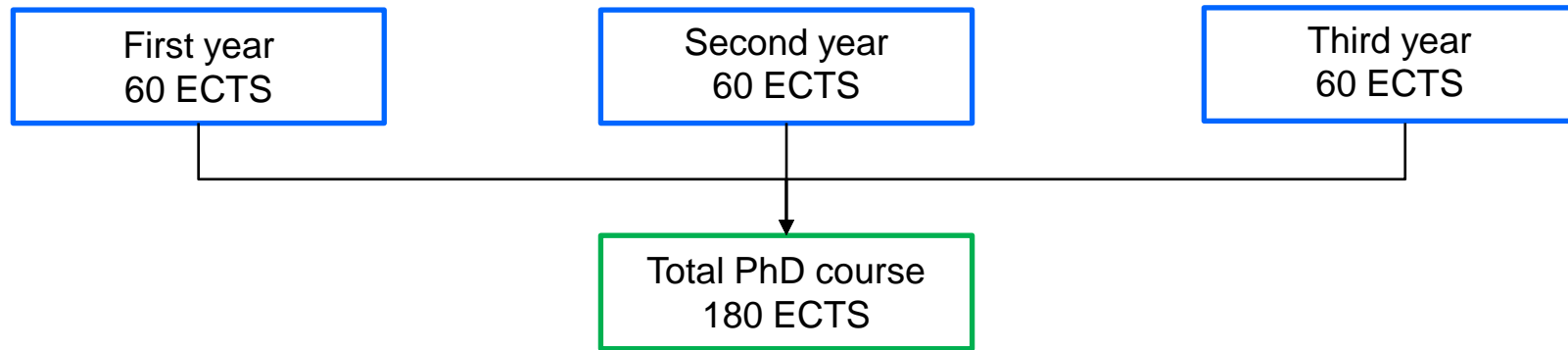
Activities carried out by the PhD student (1/3)

- The duration of the PhD programme cannot be less than three years (art.6 DM 45/2013).
- Even for innovative PhD programmes with industrial characterization, the duration is three years and includes periods of research abroad and internships with a company (art.1 D.D. n.1540/201

However, the normal duration of the PhD programme can be extended for:

- Suspension for illness;
- Suspension for maternity (5 months);
- Postponement of the admission to the final exam (maximum 6 months).

Activities carried out by the PhD student (2/3)



- The PhD student is required to carry out activities for an amount of 60 ECTS per year, for a total of 180 ECTS throughout the academic course.
- The PhD student and the tutor set the training activities and submit it to the prior approval of the Academic Board.
- At the beginning of the **first year**, the Academic Board requires a detailed plan of activities (**provisional plan**) that the PhD student intends to carry out in the three years.

Activities carried out by the PhD student (3/3)

The activities carried out by the PhD student are divided into:

- Didactic activities: min 36 – max 60 ECTS (of the total 180 ECTS)
 - Courses
 - Attendance of institutional university courses in order to integrate basic knowledge;
 - Attendance of third level courses to acquire specific knowledge;
 - PhD school courses;
 - Improvement of the knowledge of foreign languages;
 - Soft skills.
 - Participation at conferences, seminars, etc.
 - Participation at seminars, national and international conferences on topics of interest;
 - Contribution (poster, proceedings ...) to international congresses/workshops.
- Research activity: min 120 – max 144 ECTS (of the 180 total ECTS)
 - Activities with the supervision of the tutor
 - Training activities with the tutor.
 - Laboratory activities
 - Laboratory activities to acquire operative skills.
 - Research and individual study activities
 - Research and individual study activities on topics of interest.
 - Research activities abroad
 - Any possible internships abroad, as internships at companies, universities and institutions, to acquire specific technical skills.

Validation of Didactic activities (1/3)

Of the 180 ECTS required, the PhD student must carry out a **didactic activity** to receive a **minimum** of 36 ECTS and a **maximum** of 60 ECTS, preferably during the first two years of the course, in respect of the following criteria and constraints (*Regulation of the SCUDO Board 23/04/2020*).

- Maximum 18 ECTS can be received by graduate schools, Master's degree courses or single-cycle degree courses, provided that the selectable courses are not included in the list of courses attended by the PhD student during his second level training education. **ATTENTION:** the courses provided by the **Poliba SCUDO DO NOT** fall into this category. **Graduate School ≠ PhD School**
- For all courses attended in Italy and abroad, including the "Massive Open Online Courses (MOOC)", **a number of ECTS equal to 50% of the total course ECTS is recognised in case of the final exam is not completed.** The attendance of the course must be validated by a certificate signed by the tutor.
- For Politecnico SCUDO courses, the PhD student can receive (without completing the final exam) 50% of ECTS, if a certified attendance of 80% is provided. **The tutor's certificate is not enough for these courses.**

Validation of Didactic activities (2/3)

- **Maximum** 12 ECTS can be obtained by courses classified as "soft skills" with the opinion of the Academic Board or the SCUDO Board.
- **At least** 18 ECTS must be obtained by completing the final exam recorded by the teacher with score assigned.
- Participation at congresses, workshops and seminars is considered as a didactic activity. ECTS related to each participation is determined by following rules:
 - 5 hours of seminar (without final exam) = 1.5 ECTS
 - 1 international congress/workshop day = 1 ECTS
 - Presentation of a research product at an international congress/workshop = 2 ECTS

Examples:

- A 6-ECTS course given in a Master's degree course can be attended by the PhD student who can receive 3 ECTS if he/she does not complete the final exam (in this case the tutor must certify the attendance).
- Attending a 2-ECTS SCUDO course (20-hour of lessons), the PhD student can obtain 1 ECTS, only with the certification of the attendance of the course for at least 16 hours (80%). Otherwise, if the PhD student complete the final exam, 2 ECTS will be obtained and the certification of the attendance is not mandatory.
- If a PhD student attends a 5-day workshop with a contribution, he will obtain 5 ECTS for the participation (if certification of the attendance is presented) + 2 ECTS for the conference contribution.

Research activities

Each ECTS usually corresponds to 25 hours of research activity.

Research activities can then be classified as follows:

- activities with the supervision of the tutor;
- laboratory activities;
- research and individual study activities;
- research and study activities abroad;
- other.

Validation of Activities (1/2)

Validation of activities for admission to the second and third year:

- Politecnico di Bari does not currently require to compile a register.
- Only for “industrial” PhD students (PON/POC), a bi-monthly register of activities must be compiled as required by the MIUR (see last slide).
- At the end of the first and second year, each PhD student submits to the Academic Board a report on the activities carried out together with acquired ECTS.
- The tutor validates the activities.
- The activities are approved by the Academic Board, after verification of the quality and its consistency with the PhD student’s research path.
- Annual examinations are scheduled by the Academic Board. At the end of each year, PhD students present the results of activities (**with the acquired ECTS**) to the Academic Board. The Academic Board examines the presentations and gives a positive or negative opinion for admission to the subsequent year.

Validation of Activities (2/2)

Validation of the activities for admission to the final exam:

- At the end of the third year, PhD students submit to the Academic Board a report on activities carried out during the three years, the contents of the thesis and printed/submitted scientific papers/proceedings, all validated by the tutor.
- Each PhD student is required to submit to the Academic Board the thesis by the end of the third year. The Academic Board examines the activities carried out as well as evaluates the contents of the thesis.
- **After a positive opinion of the Academic Board**, the thesis is forwarded by the PhD student to two thesis evaluators (referees).
- The referees express their opinion on the thesis, and indicate, if necessary, additional time to finalize the results.
- Based on referees' opinions, the Academic Board admits the candidate to thesis defence (the final exam) or extends the Programme deadline up to max 6 months. The time extension may not be directly requested by referees, however the Academic Board may give it as a decision for negative opinion provided by referees.
- The time extension is **NOT** requested by the PhD student, but imposed by the Academic Board. During 6-month extension, the PhD scholarship is not extended.
- In any case, after 6-month extension, the candidate is admitted to thesis defence (even with a negative opinion both by referees and the Academic Board).
- After defence, the thesis is approved or rejected writing the reasons for their decision.

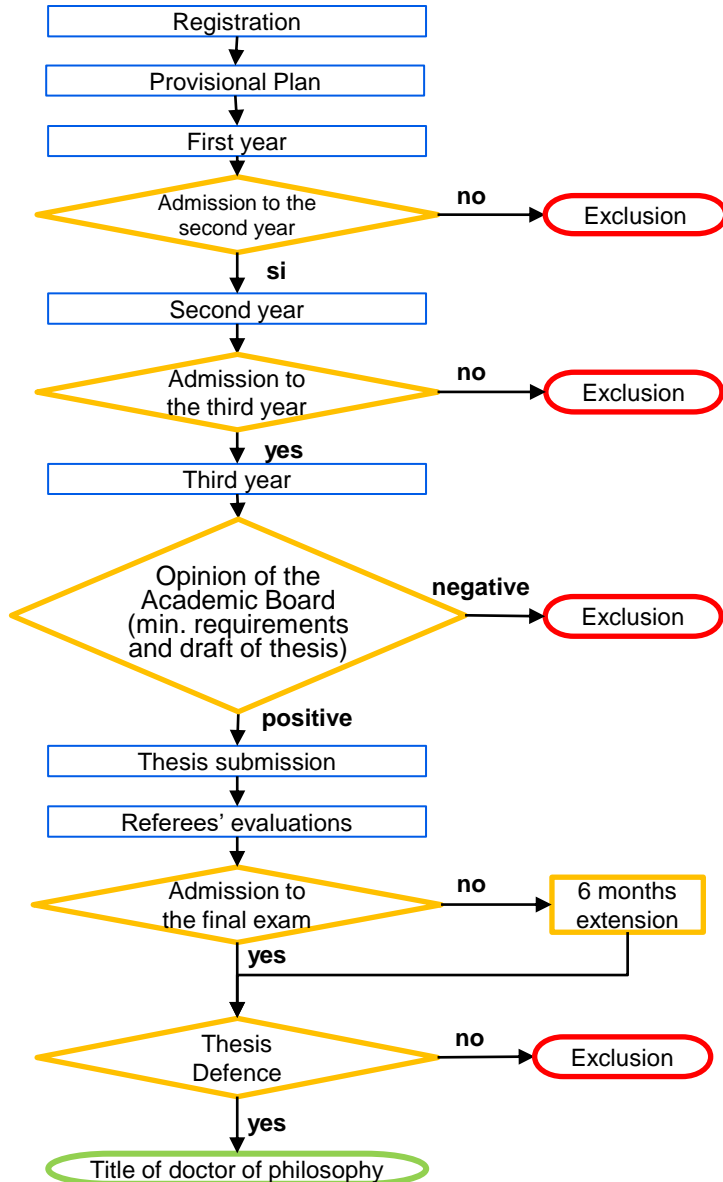
Minimum Admission requirements to the final exam

The Academic Board requires, together with a positive opinion both on the evaluation of the thesis work and the activities carried out by the PhD student, **the following highly recommended minimum requirements for the admission to the final exam:**

1. that the PhD student appears as co-author of at least one **scientific article**, related to the research topics explored in the PhD Programme, **accepted for publication (or published during the doctoral 3-year period) on an international journal** indexed in the **Scopus or ISI/Web of Science** databases;
2. or, alternatively, that the doctoral student appears as co-author of at least **three scientific papers**, related to the research topics explored in the PhD course, **accepted for publication or published during the doctoral 3-year period in proceedings of international conferences**, whose previous editions are indexed in the **Scopus or ISI/Web of Science** databases."

The failure in achievement one of these two minimum requirements may lead to the exclusion from the doctoral Programme at the end of the three-year, causing the non-authorisation to send the thesis to external referees and the non-admission to the final exam.

PhD-programme Flowchart



- At the beginning of the first year, the Academic Board requires the **provisional plan** of the activities that the doctoral student intends to carry out in the three-year period.
- At the end of each year, the **Academic Board evaluates the activities of the PhD student and admits it** to the following year, or to final exam.
- The Academic Board may require the achievement of minimum requirements for admission to the final exam.
- The PhD student submits the application for admission to the final exam within 30 days from the end of the doctoral programme, together with the documentation assessing the achievement of the minimum requirements.
- **After a positive opinion from the Academic Board**, the PhD student sends a draft of the thesis in digital format within 7 days from the end of doctoral programme both to the coordinator and two external referees.
- In case of unfavourable opinion, the PhD student is excluded from the programme.
- Within 30 days from the receipt of the thesis, the referees evaluate it and, if necessary, propose additional time (6 months) to finalize the results.
- Within 45 days from the end of the doctoral programme, the Academic Board, considering the referees evaluation, admits the candidate to the thesis defence or extends the programme by maximum 6 months.
- In any case, after 6 months of extension, the candidate is admitted to the final exam.
- Within 60 days from the end of the programme, the candidate admitted to the final exam submits the final version of the thesis.
- The final exam takes place **only once** within 90 days from the end of the programme (6-month extension included).
- After the defence, the thesis is approved (the PhD student is awarded by the title of doctor of philosophy) or rejected.

Incompatibilities (1/2)

- **Enrolment in a PhD programme is not compatible** with the concurrent enrolment in:
 - other PhD programmes at Italian and/or foreign Universities or Research Institutes
 - to Bachelor's and Master's degree programmes
 - first and second level university masters courses and graduate schools
 - specialization schools.
- The DM 45/2013, art. 12, states that “Admission to a PhD programme requires an exclusive and full-time commitment”.
- **Only the Academic Board can authorize a doctoral student to carry out undertake paid activities, subject to verification of the compatibility with the scheduling of the research activities.**

Incompatibility between doctoral scholarship and external work

- PhD scholarships are not compatible with other research scholarships at any level (including research grants), except for scholarships awarded by national or foreign institutions to support the study and research period abroad for the doctoral student.
- The annual income defined by Politecnico di Bari as compatible with the use of the scholarship is equal to a **maximum** of €20.000,00. The definition of that amount includes incomes from properties and remunerations with a **recurring nature**, with the exception of incomes from **occasional** works.
- **The estimation of the maximum does not include the PhD programme scholarship!**
- In case of the income limit is overcome, the doctoral student will be required to return the instalments received only in the year during which that limit was exceeded.

Doctoral Scholarship

- The doctoral scholarship is annual, monthly paid. It is automatically renewed every year, provided that the PhD student completed the activities programme scheduled for the previous year, therefore after passing the annual exam.
- Following the decree of the MIUR (DM. 40 January 25, 2018), with the increase of the minimum amount of the scholarship, the **gross annual** amount of the scholarship is **15,343.28€** (including the INPS social security contributions).
- The **net** monthly amount of the scholarship is therefore **1,132.72 €**

Social Security Contributions

- The PhD scholarship is subject to the payment of INPS social security contributions “**Gestione separata**” (art. 2, paragraph 26, of law 8 August 1995, n. 335), to the extent of two thirds by the administration and a third by the student.
- From January 2018 (INPS Circular n.18 of January 31, 2018), the contribution rates for the INPS are:
 - 34.23%, including 0.51% DIS-COLL, for non-insured persons in other mandatory pension funds (11.41% paid by the PhD student)
 - 24% for persons already insured with other mandatory pension funds.

ATTENTION: The rate to be paid by the student (equal to one third of the scholarship), however, is already excluded from the total amount received each month by the doctoral student.

Although the contributions paid by the PhD student are already subtracted from the amount of the doctoral scholarship, at the beginning of the PhD programme, students must open by themselves the “Gestione separata” account by using the INPS website.

Unemployment Benefits

The unemployment benefits, named as DIS-COLL, is extended to PhD students and PhDs and it is paid monthly. To be eligible for DIS-COLL, the following requirements should be satisfied:

1. the applicant must be unemployed when submits the form and he/she must have been made redundant involuntarily;
2. when apply for unemployment benefits, the applicant must not have a VAT tax number (***partita IVA***);
3. at least one month of tax contribution must be registered in the period from the first January of the year preceding the date of termination of the contract (see D.M. of 3 September 2019, n. 101).

Research fellows (assegnisti) and PhD students (with scholarships) that are registered to the INPS “*Gestione separata*” can apply for unemployment benefits; conversely, PhD students without scholarships and scholarship researchers (*borsisti*) are excluded.

Useful link:

"ADI Guide to DIS-COLL"

https://PhD_course.it/content/tutto-quello-che-avreste-voluto-sapere-sulla-dis-coll-ma-non-avete-mai-osato-chiedere-0

Tuition Fees

- Italian regulation requires the payment of fees for PhD programmes only for PhD students with a scholarship.
- **Politecnico di Bari exempts all PhD students from the payment of tuition fees.**
- However, at the beginning of each year, PhD students must pay **the regional tax** for the right to university study. This fee is also valid as a registration for the academic year.

Increase of Scholarship for Periods Abroad

Doctoral students can spend a training period abroad after received the authorization of the Academic Board.

- PhD students are entitled to receive an increase of the doctoral scholarship for periods of research abroad (art. 9 DM 45/2013).
- The amount of the scholarship can be increased by a maximum of 50%, for a total period not exceeding 18 months. This contribution is valid only for PhD students with a scholarship.

Politecnico di Bari requires the submission of forms attesting the visit of the PhD student at the foreign University (or other host institutions), both during the visiting period and at the end of it.

- **Modulo autorizzazione periodo estero:** this form must be completed BEFORE the departure, and approved both by the Tutor and the Coordinator.
- **Modulo permanenza estero:** this form must be completed after departure. The form can be completed every two months or, alternatively, only once after the whole period abroad (in the latter the increase of the scholarship in the second case is paid all together at the end of the period).

Both forms (along with others) are available at the link:

https://www.poliba.it/sites/default/files/modulistica_generale.zip

Additional Budget of 10% (1/3)

- Starting from the second year, each doctoral student, **with and without scholarship**, is entitled to use an additional budget for research activities in Italy or abroad. This fund cannot be less than 10% of the gross amount of the scholarship (art. 9 DM 45/2013).
- The fund is personal and its use by third parties (tutors, coordinators, etc.) is not allowed without the consent of the PhD student. Since missions (e.g. participation at conferences) are part of research activities, the related expenses can be covered by this fund.
- The total additional budget is equal to € 3.768,92 (D.M. 40 25/01/2018).

Politecnico di Bari allows the following distribution of the additional budget (starting from first year).

- **First year:** maximum refundable amount € 942.23
- **Second year:** maximum refundable amount € 942.23 + quota first year remaining funds
- **Third year:** maximum refundable amount € 1.884,46 + quotas first and second years remaining funds

Additional Budget of 10% (2/3)

The forms for refunds request are available at the link:

https://www.poliba.it/sites/default/files/modulistica_generale.zip

For expenses such as the purchase of teaching/scientific products (monitors, tablets, PCs, etc. are not included in this category) and the purchase of consumables items, PhD students should use the form: *rimborso_budget_ex_art._9_d.m._45_-_2013_richiesta_rimborso*

Procedure for a refund request:

- Complete the form;
- Approval by the tutor;
- Approval by the Coordinator;
- Submit the form to the Post-Lauream Office.

Additional budget of 10% (3/3)

For training and mobility expenses, two forms are available at the following link: https://www.poliba.it/sites/default/files/modulistica_generale.zip

- *Modulo_Autorizzazione_mobilità*
- *Rimborso_budget_ex_art._9_d.m._45_-_2013_richiesta_rimborso*

Procedure for a refund request:

- **Modulo di autorizzazione:** to be completed BEFORE the mission
 - complete the form;
 - approval by the tutor;
 - approval by the Coordinator;
 - submit the form to the Protocol Office of the Central Administration;
 - keep a copy, to be attached to each refund request.
- **Modulo richiesta rimborso:** to be completed AFTER the mission
 - complete the form;
 - approval by the tutor;
 - approval by the Coordinator;
 - submit the form to the Post-Lauream Office.

Pregnancy, Maternity Support Guidelines

The art. 12 of DM 45/2013 states that all the rights related with maternity of the D.L. 12 July 2007 are applied to PhD students.

In the case of pregnancy, the PhD Programme is **suspended for 5 months** and postponed for the equivalent duration.

During suspension period, the PhD student has no longer the right to receive their scholarship, but is entitled to receive a maternity allowance, equal to 80% of the scholarship, paid by INPS.

Useful link:

"ADI Guide to Maternity"

<https://PhD.course.it/content/guida-adi-alla-maternit%C3%A0-0>

Suspension for illness

- PhD students are NOT entitled to receive illness benefits granted to workers.
- In case of a documented serious illness (including psychological disorders), the PhD student may request a suspension of the doctoral programme, which can be resumed at the end of the suspension period.
- The suspension request must be authorized by the **Academic Board**.
- During the suspension period, all duties and rights deriving from the status of PhD student are suspended, including the payment of the scholarship. PhD students are not entitled to receive any allowance.
- In case of a suspension longer than 30 days, the scholarship related to the suspended period is not paid.

Industrial PhD Scholarships

Doctoral students with PON/POC scholarship have:

- to complete bi-monthly reports of the activities by using the online system <https://dottorati.cineca.it/pon/>
- to carry out a research period (from 6 to 18 months, with a duration already defined in the contract) in an Italian company (already identified in the contract);
- to carry out a period of study and/or research abroad (from 6 to 18 months, with duration already defined in the contract) in universities, public or private research institutions or companies (already identified in the contract);

Failure in accomplishment of the previous obligations leads to the withdrawal of the scholarship and the total refund of the amounts already paid;

The unauthorized modification of project objectives and failure in accomplishment of expected results leads to the withdrawal of the scholarship and the total refund of the amounts already paid.

The negative opinion of the Academic Board and the consequent non-admission to the subsequent year leads to the withdrawal of the amount already paid for the current year. The failure to obtain the PhD title leads to the withdrawal of the amount already paid for the last year of the course (NB: This rule is much stricter than in the case of traditional PhDs).

For each “industrial” PhD student, an University receives by MIUR a monthly amount equal to the 40% of the gross amount of the scholarship, in order to cover the remaining eligible costs (this amount includes the 10% budget). Politecnico di Bari (CdA 27.06.2018) allocates this budget as follows:

- 15% SCUDO Board;
- 15% PhD programme coordinators;
- 50% Tutor;
- 20% Academic Board.

Thank you for your attention!



Politecnico
di Bari



UNIVERSITÀ
DEGLI STUDI DI BARI
ALDO MORO

Prof. Engr. Mariagrazia DOTOLI(mariagrazia.dotoli@poliba.it)

Full Professor in Automation

Department of Electrical and Information Engineering – Politecnico di Bari

Coordinator of the interuniversity PhD Programme in Industry 4.0 - Università degli Studi di Bari – PhD School of the Politecnico di Bari

<http://dclab.poliba.it/industria40/>