

# University of Perugia

## Regulation of the Doctoral Course in Civil and Environmental Engineering

Regulations for internal use updated on the basis of the "Guidelines for the definition of teaching and training activities within PhD courses" approved by the Quality Presidium on 12 December 2022.

For anything not reported herein, reference is made to the University Regulations for PhD Courses, issued by R.D. no. 620/2022 11 March 2022

### **Art. 1 Object of the Regulation**

These Regulations govern the specific objectives of the Doctorate in Civil and Environmental Engineering, its internal organisation and the rules of conduct for doctoral students attending it, pursuant to the Regulations for Doctoral Courses issued by R.D. 1548 of 7 August 2013, to which full reference is made, hereinafter referred to as the "Doctoral Regulations".

### **Art. 2 Aims and structure of the Doctoral Course**

1. In addition to the general objectives, the PhD programme in Civil and Environmental Engineering aims at providing students with the necessary tools to carry out research activities in the characterising and frontier sectors of Civil, Environmental, Advanced Materials and Architectural Engineering. The PhD programme aims at training and advancing scientific knowledge in the field of prevention, prediction and mitigation of natural and anthropogenic risks in the built environment, as well as in the design and management of complex systems and infrastructures in Civil Engineering, favouring quantitative approaches based on engineering mathematical models. The PhD promotes a multidisciplinary approach in which, in addition to the disciplines of Engineering and Architecture, disciplines from other areas are also involved in full coherence with the mission of the course and with the development project of the proposing Department (Department of Excellence 2017).

2. The PhD programme involves mainly, but not exclusively, the following SSDs:

CEAR-01/A Idraulica

CEAR-01/B Costruzioni Idrauliche

CEAR-02/A Ingegneria Sanitaria-Ambientale

CEAR-03/A Strade, Ferrovie ed Aeroporti

CEAR-03/B Trasporti

CEAR-03/C Estimo e valutazione

CEAR-04/A Geomatica

CEAR-05/A Geotecnica

CEAR-06/A Scienza delle Costruzioni

CEAR-07/A Tecnica delle Costruzioni

CEAR-08/A Architettura Tecnica

CEAR-08/B Produzione e gestione dell'ambiente costruito

CEAR-08/C Progettazione tecnologica e ambientale dell'architettura

CEAR-08/D Disign

CEAR-09/A Composizione Architettonica e Urbana

CEAR-09/B Architettura del Paesaggio

CEAR-09/C Architettura degli Interni e Allestimento

CEAR-10/A Disegno

CEAR-11/A Storia dell'Architettura  
CEAR-11/B Restauro  
CEAR-12/A Tecnica e Pianificazione Urbanistica  
CEAR-12/B Urbanistica  
IMAT-01/A Scienza e Tecnologia dei Materiali  
CHEM-06/A Fondamenti Chimici delle Tecnologie  
AGRI-01/A Economia agraria, alimentare ed estimo rurale  
AGRI-06/B Chimica Agraria  
BIOS-01/C Botanica Ambientale e Applicata

3. The PhD programme involves mainly, but not exclusively, the following ERC fields:

PE6\_8 Computer graphics, computer vision, multi media, computer games  
PE6\_9 Human computer interaction and interface, visualisation and natural language processing  
PE6\_11 Machine learning, statistical data processing and applications using signal processing  
PE6\_12 Scientific computing, simulation and modelling tools  
PE7\_3 Simulation engineering and modelling  
PE7\_4 (Micro- and nano-) systems engineering  
PE7\_7 Signal processing  
PE8\_1 Aerospace engineering  
PR8\_3 Civil engineering, architecture, maritime/hydraulic engineering, geotechnics, waste treatment  
PE8\_4 Computational engineering  
PE8\_5 Fluid mechanics, hydraulic-, turbo-, and piston- engines  
PE8\_7 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)  
PE8\_8 Materials engineering (metals, ceramics, polymers, composites, etc.)  
PE8\_9 Production technology, process engineering  
PE8\_10 Industrial design (product design, ergonomics, man-machine interfaces, etc.)  
PE8\_11 Sustainable design (for recycling, for environment, eco-design)  
PE8\_12 Lightweight construction, textile technology  
PE8\_13 Industrial bioengineering  
PE10\_3 Climatology and climate change  
PE10\_7 Physics of earth's interior, seismology, geodynamics  
PE10\_14 Earth observations from space/remote sensing  
PE10\_17 Hydrology, hydrogeology, engineering and environmental geology, water and soil pollution  
PE10\_20 Geohazards: earthquakes, landslides, tsunamis and other ground instabilities  
SH2\_6 Sustainability sciences, environment and resources  
SH2\_7 Environmental and climate change, societal impact and policy  
SH2\_8 Energy, transportation and mobility  
SH2\_9 Urban, regional and rural studies  
SH2\_10 Land use and regional planning  
SH2\_11 Human, economic and social geography  
SH2\_12 GIS, spatial analysis; big data in political, geographical and legal studies  
SH3\_10 Geographic information systems, spatial data analysis  
SH5\_4 Visual and performing arts, film, design  
SH5\_6 History of art and architecture, arts-based research  
SH5\_7 Museums, exhibitions, conservation and restoration  
SH5\_12 Computational modelling and digitisation in the cultural sphere  
SH6\_3 General archaeology, archaeometry, landscape archaeology

### **Art. 3 Bodies of the Doctoral Course**

1. The bodies of the Doctoral Course are the Board of Lecturers and the Coordinator.
2. The functions of the bodies of the Doctoral Course are governed by Articles 12 and 13 of the Doctoral Regulations, to which reference is made.
3. The admission of new professors to the College is regulated by art. 12 of the University Research Doctorate Courses Regulations. Applications for admission shall be submitted by January of each year and shall be assessed by the College before the start of each cycle. Voting on the affiliation can only take place by open ballot if unanimously decided by the members of the Board; upon proposal of the Coordinator or upon request of even only one member of the Board, the vote shall take place by secret ballot and all the members of the Board of Doctorate Professors shall take part in the vote, taking into account the scientific criteria envisaged by the General Regulations of the University and the ministerial regulations provided by the MIUR.  
Newly admitted members will become members of the College as of 1 November, subject to accreditation of the course by MIUR.
4. Pursuant to Art. 12 of the Doctoral Regulations, the Board of Lecturers shall be supplemented by representatives of those enrolled in the Course, whose election procedures are set out in Art. 4 of these Regulations.  
These representatives attend the meetings of the body in an advisory capacity to deal with teaching and organisational problems of the Course; they do not take part in discussions and deliberations concerning the annual assessment of the students and the organisation of the final examination.

### **Art. 4 Representation of doctoral students in the Board of Lecturers**

1. The Board of Lecturers is attended by a representation of two doctoral students.
2. Student representatives are appointed on the unanimous designation of the students enrolled in the doctoral programme. In the absence of unanimity in the designation, the procedure shall be in accordance with Chapter 10 of the General Regulations of the University.
3. The new representatives take office as members of the Board of Lecturers from the beginning of the academic year in question.
4. The term of office of the appointees shall be two years, renewable once consecutively.

### **Art. 5 Modalities of access to courses**

1. Those who have obtained a score of 30/60 or higher are deemed suitable.
2. Access to the doctoral courses is by public selection.
3. The selection procedure will be carried out by means of an assessment of qualifications and an interview (in 60ths: 30+30); the interview is considered successful if the candidate has obtained a minimum score of 21.
4. If request in the call of applications, the candidate may prepare a research project proposal useful to verify the candidate's research aptitude and scientific interests, to be submitted together with the application for the competition. During the interview the candidate shall illustrate the project proposal not only in Italian but also in English, either in person or by videoconference.
5. The interview, if held in Italian, includes an assessment of knowledge of the English language. The overall assessment, in thirtieths, is accompanied by a reasoned judgment.
6. If the call for applications provides for a quota of places reserved for graduate students

from foreign universities, scholarship holders from foreign countries or from specific international mobility programmes, including holders of research grants financed by the European Union or by another European or international scientific institution, the procedures for carrying out the admission procedures are the same as those laid down for the other places.

7. If the announcement provides for places reserved for employees of companies in agreement (Industrial Doctorate), the procedures for carrying out the admission procedures are the same as those provided for the other places. In the case of other types of doctorates (Marie/Curie, foreign students, etc.) the procedures for admission are normally established in specific agreements.

## **Art. 6 Doctoral candidate's training project**

1. In accordance with the "Guidelines for the definition of teaching and training activities within PhD courses" approved by the University Board of Directors on 31 January 2024, the PhD student's training project is structured as follows:

- development, under the guidance of one or more supervisors, of an individual research programme related to a specific disciplinary field among those on which the Course focuses;
- attendance of doctoral level teaching activities, complementary to the research activity, not less than 30 cfu/year, according to the indications of the College and better specified in Table 1 reported in paragraph 5 of this article. Recognition of the cfu acquired is carried out by the College, using the details specified in Table 2 in Article 7, paragraph 1, which authorises attendance and assesses the results;
- attendance of other educational activities, which contribute to the student's training but do not involve the acquisition of cfu

2. Every year the Coordinator, having consulted the Board of Doctoral Lecturers, proposes to the doctoral students a programme of teaching activities formally assigned to the teachers of the Board or to external experts.

3. Each year the doctoral student submits to the board an individual scientific-didactic plan relating to the training and research activities envisaged for that year, including the teaching activities identified in agreement with the tutor from among the courses specifically activated for the doctoral course or among those activated in the University Departments or elsewhere (summer schools, European schools, workshops, etc.).

4. The PhD course is divided into the three years as follows:

- Year I: this is devoted to scientific orientation and the acquisition of the necessary specialist skills to develop, in agreement with the tutor, an appropriate research project to be followed during the course and which will then be the subject of the thesis.
- II and III years: these are mainly devoted to the research work inherent in the thesis. The doctoral student, in addition to continuing his or her training as planned by the doctoral course, is strongly encouraged to participate in national and international scientific events in his or her chosen field and in related fields deemed useful for his or her training.

5. Teaching Activities. The doctoral student is required to participate in the educational activities specifically arranged by the Board of Lecturers or by the University for the Doctorate a total of at least 30 CFU (10 per year on average, but typically to be acquired mostly in the first and second year). CFU can be achieved through participation in the type A, B, C and D teaching activities detailed in Table 1.

Each course under type A (Tab. 1) provides for a final examination for assessment purposes, to be taken in the presence of the participants only and which may also be taken

cumulatively for several courses.

The Doctoral Course does not include among its teaching activities the subjects taught in the Master's degree courses; any attendance of such subjects by the Doctoral student may be recorded among the training activities, subject to the assessment of their congruity with the Doctoral student's training project by the Board of Lecturers.

Upon request, the Board of Lecturers shall authorise the synchronous distance attendance of doctoral students who are temporarily carrying out their doctoral activities off-site and, subject to a reasoned and documented request, of doctoral students falling within the categories set out in R.D. 2199/2023 et seq.

Tab. 1. Typology of teaching activities

<b>Type</b>	<b>Expected cfu</b> (minimum/student/cycle)
A. Frontal teaching provided by the PhD Course	at least 12 cfu
B. Frontal teaching provided by other PhD courses	
C. Frontal and cross-disciplinary teaching at the University and/or other Doctorate Course, also at another University, with a multi/inter/trans-disciplinary character	at least 6 cfu
D. Conference activities and doctoral schools	at least 3 cfu
<b>TOTAL</b>	<b>at least 30 cfu</b>

6. Educational activities. The training activities contribute to the training of the doctoral student and may also include activities in the field of teaching, intellectual property and the Third Mission; they are proposed by the doctoral student, approved by the Tutor and then proposed to the Board of teachers, which approves them within the deadline established by art. 10 c. 2 letter e) of the University Regulations for PhD Courses.

Training activities may include the following types:

- supplementary teaching, up to a maximum of 40 hours per academic year and subject to the approval of the allocation by the Departmental Council;
- activities as an expert in the subject, with appointment in accordance with the current University Regulation on the subject;
- tutoring activities ascertained by the competent University Offices;
- tutoring activities for students in Level I and II degrees, ascertained and certified by the Tutor or the reference lecturer of the course for which the tutoring is intended;
- Active participation in orientation events organised by the relevant department or the University;
- presentation by the doctoral candidate of scientific proceedings at invited congresses and seminars;
- participation in journal clubs;
- other training activities closely related to the type of doctoral course.

The training activities are recorded in the doctoral student's curriculum, but no cfu is awarded for them and they do not contribute to meeting the minimum requirements for teaching activities. They contribute to the PhD student's final assessment.

### **Art.7 Review of teaching and training activities**

1. By the end of October of each academic year, the doctoral student must submit to the coordinator a scientific-didactic report on all the teaching, training and research activities carried out; by the same deadline he/she must send to the tutor any parts of the thesis elaborated up to that moment. The reports will be assessed by the board, which, having

heard the doctoral student and the tutor with regard to the progress of the thesis, in the event of a positive assessment, will arrange for admission to the following year, awarding credits for teaching activities and assessing the other training activities carried out by the doctoral student. The total commitment for training and research in the three-year PhD course is quantifiable in 180 CFU (about 60 per year), of which at least 30 in the three-year period for teaching activities as indicated in art. 6. At the end of the third year the doctoral students must submit a final report on the activities carried out during the three years of the PhD programme, which will be followed by the formulation of a judgement of merit by the Board of Lecturers, also considering the equivalent CFU for the activities carried out by the doctoral student during the three-year period, which will decide the admission to the final examination according to the procedures established in the following Art. 9.

The plan of educational activities must be agreed by the doctoral student with his/her tutor (possibly on a form provided by the College).

Each doctoral student completes a form, specially prepared by the doctorate, from which an accounting of the CFUs obtained is shown.

In order to allow doctoral students to concentrate on completing their doctoral thesis, it is recommended for the scientific-didactic plan presented in the third year to include a reduction in training and teaching commitments. In view of the transition to the second and third year, doctoral students are required to complete a report at the end of October on the activities carried out during the previous year.

The report consists of a draft, the standards of which are set out in Annex 1 to these Rules.

For the compilation of the form on training activities, the credits which can be assigned to the individual types of teaching activities listed in Table 1 (see Art. 6 para. 5) are defined on the basis of Table 2.

Table 2. Recognition and allocation of cfu to different types of teaching activities

<b>Type of teaching activity</b>	<b>Acknowledgement</b>
Frontal teaching provided by own course or other courses (A, B and C)	1 cfu every 6 hours
Frontal teaching provided by foreign doctoral courses (B and C)	1.5 cfu every 6 hours
Doctoral schools (D)	1 cfu each day
National conferences (D)	0.5 cfu each day
International conferences (D)	1 cfu each day
Seminars (A, B and C)	1 cfu every 6 hours
Seminars abroad attended (B and C)	1.5 cfu every 6 hours

2. Those enrolled in the PhD programme must obtain, by the end of the PhD course, a certification of English language knowledge of at least level B2. To this end, enrolled students may avail themselves of courses and tests offered by the University Language Centre.

All doctoral students are entitled to attend CLA language courses free of charge.

In order to assess the equivalent credits of those who attend additional language courses, compared to those offered by CLA (10 or 13 equivalent CFUs) and indicated in the PhD Course accreditation form, the hours of work carried out for this purpose at another institution will be taken into account. Internationally recognised certifications will also be assessed.

### **Art. 8 Tutors**

Each candidate admitted to attend the course is assigned a supervising lecturer, tutor, within the first semester of the course.

The tutor is responsible for integrating the doctoral student into the research activity of the doctorate and undertakes to support him/her in proposing and planning the individual study plan.

The tutor defines the specific research and thesis topics with the student and ensures the quality of his or her work.

The College may revoke the appointment of the tutor who does not fulfil these obligations.

One or more internal co-tutors may be appointed from among the members of the college, with the task of collaborating with the tutor in the performance of his or her duties and assisting the tutor in his or her tasks by contributing additional scientific or technological knowledge. The rights and obligations of the tutor are extended to the co-tutor(s).

Following a reasoned request by the doctoral student, the board of teachers may also authorise the choice of co-authors from outside the board of teachers.

### **Art. 9. Final Examination**

The title of doctor of research, abbreviated as "Dott. Ric. " or "Ph.D.", is awarded following the positive evaluation of a research thesis that contributes to the advancement of knowledge or the refinement of methodologies in the chosen field of investigation. The doctoral thesis, accompanied by a concise abstract, is written in English. The thesis is accompanied by a report by the PhD student and the tutor(s) on the activities carried out during the PhD course and on any publications made.

The thesis is assessed by at least two highly qualified lecturers, hereinafter referred to as assessors, at least one of whom must be from a foreign institution, external to the University of Perugia and to any partner or consortium universities or bodies. The evaluators are appointed, subject to acceptance of a confidentiality clause on their work, by decree of the Department Director, on the proposal of the Board of Lecturers, by 30<sup>th</sup> of June of the last year of the course of each PhD student. The doctoral student submits the thesis to the Board of teachers, which sends it to the evaluators by 31<sup>st</sup> October of the final year of the course. The assessors shall express in writing, on the basis of an outline prepared by the Board of Lecturers and no later than the following 31<sup>st</sup> December, their analytical judgement on the thesis, proposing to the Board of Lecturers that it be admitted for public discussion (possibly indicating the advisability of minor changes) or that it be postponed for a period not exceeding six months, if they deem significant additions or corrections to be necessary. The Board of Lecturers, on the basis of a comparative evaluation of the judgments of the two assessors, shall decide whether to admit the doctoral candidate to the final examination or to postpone it, and shall propose to the Director of the Department the composition of the Final Examination Committee. The doctoral candidate is promptly notified of his/her admission to the final examination, or of the postponement of the deadline for the discussion of the thesis. After the period of no more than six months, if any, referred to above, the thesis shall in any case be admitted for public discussion, accompanied by a new written judgement by the same assessors, rendered within 60 days of the end of the postponement period in the light of any corrections or additions made and forwarded to the Board of Lecturers, which shall promptly inform the doctoral student and the competent office.

Within one month from the date of completion of the Course or within the month following the deadline for the re-assessment by the assessors, the Doctoral student shall deposit the final version of the thesis, in electronic format, with the office in charge of the University.

In the case of a judgement of the assessors that does not provide for the postponement, the thesis, by resolution of the Board of Lecturers accompanied by the judgement on the activities carried out during the three years of the Doctorate, as per Art. 7 above, shall be admitted for public discussion, to be held by 30 April of the calendar year following that in

which the Course ended. In the case of postponement, the public discussion shall be held within ninety days from the deadline for filing the thesis with the competent office following the new judgement expressed by the assessors.

The thesis cannot, however, be discussed before the end of the final year of the three-year course.

The public discussion of the thesis takes place in English in front of a committee appointed by decree of the Director of the Department of Civil and Environmental Engineering, on the designation of the Board of Lecturers. The committee is composed of three Italian or foreign members, chosen from university professors specifically qualified in the topics addressed in the thesis. At least two members must belong to Italian or foreign universities not formally involved in the PhD Course and must not be members of the Board of Lecturers. The committee may be supplemented by no more than two experts belonging to public or private research structures, including foreign ones, with particular documented expertise on the subject of the thesis.

At the end of the discussion, the thesis, by reasoned collegial judgement of the committee, is approved or rejected. The committee may, by unanimous vote, propose the award of honours in the event of particularly outstanding scientific results.

The doctoral student shall be precluded from sitting the final examination by order of the competent Director, on the proposal of the Board of Lecturers, when, without providing adequate justification, he/she fails to comply with the deadlines laid down in this article for submitting the thesis to the Board of Lecturers and the assessors or for filing it with the office in charge.

By decision of the Board of Lecturers, the doctoral candidate is precluded from obtaining the title of PhD by order of the competent Director when, without providing adequate justification, he/she fails to sit the final examination on the date scheduled for the discussion. International inter-university cooperation agreements may provide for specific procedures for obtaining the degree.

#### **Art. 10. Doctor Europaeus**

At the doctoral candidate's request, the University may issue the Doctor Europaeus certificate, in addition to the national title of the relevant doctorate, if the following conditions are met:

- a. the discussion of the final thesis must take place after two positive opinions (counter-ratings) concerning the thesis have been submitted by professors or researchers from two universities of the European Union other than the one where the thesis is being discussed;
- b. at least one member of the Selection Committee must belong to an institution academic or research institution in an EU country other than the one where the thesis is being discussed;
- c. part of the research presented in the thesis must have been carried out during a stay of at least three months in an EU country other than that of the doctoral candidate.

If the same conditions are agreed with a non-EU country, the doctoral candidate may apply for *International Doctorate* certification.

#### **Art. 11 Transitional and final rules**

Amendments to the Regulations, which are not automatic by law or by a higher University standard, are proposed by the Board of Lecturers and approved by the proposing Department. For matters not explicitly provided for in these Rules, reference is made to the Doctoral Regulations.



## **Annex 1**

The report consists of a paper, in English, containing the research results achieved within the framework of one's project, and a brief report on the other training and supplementary/advisory teaching activities carried out during the same period, together with the sheet of credits obtained in the training activities.

The drafting rules for the report are set out in the 'Annual Report' template provided by the Board of Lecturers and published on the Course website.

The credits obtained in the training activities are reported by the doctoral student in the tables prepared within this model, in accordance with the course regulations.