

GUIDELINES FOR SETTING UP THE TRAINING PROGRAMME.

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Introduction

The Training Program is the document that describes the student training arrangements in the Industrial PhD Course on Technologies for Resilient Living Environments of the University of Campania "Luigi Vanvitelli"; this is for creating the conditions for developing the autonomy of the PhD student in conceiving, designing, implementing and disseminating research and innovation programmes.

The Teaching Board approves each student's training arrangements on the basis of the endorsement of both Supervisor(s) and several co-supervisor(s) and any preliminary discussions as well.

The acquisition of the doctorate is based on the Educational Credit System (CFU) and final thesis defense. Credits are acquired by completing the activities provided among those of the training arrangements and any other activities agreed with the Supervisor(s) and approved by the Board; The CFU credits are determined for each activity on the basis of the overall commitment required of the student in terms of study, learning and research. Admission to the final exam requires to have acquired 180 credits PhD students must acquire at least 60 credits each year, distributed according to the training program agreed with the supervisor(s) and with the co-supervisor(s) and approved by the Teaching Board and consistent with the program.

The PhD Course periodically reviews and updates the training, research and educational programs of the PhD students; this to be updated with the cultural and scientific evolution of the research fields and to facilitate the exchange/ presentation of the results of research; It is strongly recommended to use English for all the activities provided in the training program and in the preparation of the educational support ematerial.

Organization of the training programme.

The training program includes, but is not limited to, various types of activities such as education, research, subsidiary and on-the-job activities; the percentages of the activities previously mentioned, must be suitably modulated to take into due consideration the types of positions available in the PhD competition notice that, verified and updated for the subsequent cycles, are summarized as follows for the entire PhD course:

- PhD Executive (reserved for corporate employees);
- position full funded (100%) by companies;
- position half-funded (50%) by companies;
- 100% financed by national funds;
- ordinary and reserved positions financed by the University.

The following table shows a percentage distribution of the CFU based on the various activities that make up the Training Programme, according to the positions put out to tender.

	<i>PhD Executive</i>	<i>Position financed 100% Azeinda</i>	<i>Co-financed position 50% ¹</i>	<i>100% financed position²</i>	<i>Ordinary and Reserved Position University³</i>
Educational activities (%)	5-10	5-15	10-15	15-25	15-25
Research activity (%)	5-10	5-15	10-25	35-50	35-50
Subsidiary activity (%)	-	5-10	5-10	15-20	15-20
Business Activities (%)	80-90	60-70	40-50	0-10	0-10
Period of study and research abroad (%)	-	Min. 3 months corresponding to about 9% Max 12 months corresponding to 33%	Min. 6 months corresponding to about 17%. Max 18 months corresponding to 50%	Min. 6 months corresponding to about 17% Max 18 months corresponding to 50%	Min. 3 months corresponding to about 9% Max 12 months corresponding to 33%

In the following table, for example, there is a hypothesis of hourly distribution of the various activities that make up the Training Programme for the entire three-year period and with reference to two particular positions put out to tender.

	<i>PhD Executive</i>	<i>Ordinary and Reserved University Position 3</i>
Educational activities*	5% 225 hours (of which 68 hours of frontal teaching/seminars and the remaining 157 hours covered by individual study)	25% 1125 hours (of which about 338 hours of frontal teaching/seminars and the remaining 787 hours covered by individual study)
Research	5% 225 hours	45% 2025 hours
Subsidiary activity	-	15% 675 hours
Attività Aziendali	90% 4050 hours	5% 225 hours
Period of study and research abroad	-	10% 450 hours (3.6 months)

*For the didactic activities it has been assumed that 1 CFU, equal to 25 hours, consists for 30% of hours of frontal teaching/ seminars and for the remaining 70% of hours covered by individual study; for all other assets 1 CFU is assumed to be 25 hours.

In the development of the Training Programme, particular attention will be paid to balancing highly specific themes, relating to the various fields of research, including in relation to frontier scientific and technological aspects relating to the ability to respond to environmental and/or social changes and stresses, with more general aspects and aimed at filling training gaps, introducing multidisciplinary, transdisciplinary and interdisciplinary elements.

The aim is to standardize the skills and knowledge of incoming students, as well as build common and multidisciplinary skills on research fields. Subsequently, possible methods of analysis and evaluation will be identified, through appropriate operational tools, in order to represent and analyze the selected living environments; this in order to strengthen sustainability with an innovative and human-centric vision, in which the most technologically advanced solutions are identified. The activities carried out should also be directed to the development of a capacity for dissemination/communication of research activity and of themes related to technology transfer and entrepreneurship.

Students in PhD executive positions or winners of grants 100% funded by an institution or a company can propose a personalized Training Program in line with their technical interests-scientific, consistent with the educational objectives of the PhD Course.

¹ For this PhD position the periods of study and research in enterprise from a minimum of 6 months to a maximum of 18 months and periods of study and research abroad from a minimum of 6 months to a maximum of 18 months

² For this PhD position the periods of study and research in enterprise from a minimum of 6 months to a maximum of 12 months and periods of study and research abroad from a minimum of 6 months to a maximum of 18 months

³ The University Regulations and the Admission Notice provide for a period of study and research abroad up to a maximum of 12 months. The University for PhD students of previous cycles has recommended a minimum of 3 months for periods of study and research abroad.

The College, at the end of each year, in the final phase, for each of the students,

- acknowledges credits acquired for the activity carried out during the year on the basis of a report describing the activity carried out, a public presentation and the supervisor's opinion;
- in the event that the conditions are met, authorise admission to the final examination or the passage to the following year, possibly defining the activities to be carried out for the recovery of the debts not acquired.

The Training Program can be developed on the basis of the following activities:

Educational activities

The educational activities include:

- activities to standardize the skills and knowledge of incoming students, so that they can follow the Doctoral Training Programme profitably; this in the light of the training curriculum gained before entering the Course.
- activities to build common skills on solutions and technologies, related to environments of life, work and cultural production at various scales, so as to ensure a positive attendance of the course.
- activities to develop specialized skills, targeting individual students or specific groups of students of the course, with higher training courses, held by internal or external teachers of high qualification.

The teaching activity is usually carried out both through collegial forms, intended for all students of the course or homogeneous groups, and in a more specialized or personalized form, intended for specific groups of students or individual PhD candidates; these activities can be carried out both at the Doctoral Offices (both Departmental and Corporate), and off-site (also at the headquarters of the member companies).

The College, based on the educational objectives of the doctorate, year by year, defines:

- the didactic activities to be organized for the implementation of the Training Program, specifying the contents, the articulation, the temporal location, the/i responsible/i, the students to whom they are intended and the corresponding CFUs;
- other educational activities, possibly external (national schools, activities borrowed from other courses, seminars, etc.) to be included in the Training Programme.

The recognition of credits/hours of an activity requires:

- the certificate of participation issued by the teacher or the body that organized the activity;
- a statement of a positive profit assessment, where applicable.

The certification and evaluation are based on appropriate assessment criteria defined by the College on the basis of the specific teaching needs of the Course and are framed in the general evaluation process provided for all the activities of the Course.

The College, where necessary, reserves the right to identify, in the list of courses and other teaching activities (seminars, laboratory and research activities, interdisciplinary, multidisciplinary and transdisciplinary training) activities to be included in the Training Programme.

The College, on the basis of the educational objectives of the doctorate, year by year, also having heard the proposal of/i Supervisor/i, agrees on the teaching activity for each student (or homogeneous groups of students), within the respective Training Programmes, specifying the ECTS (hours) acquirable.

Research

The research activities include:

- experimental or numerical activity aimed at technical and scientific objectives;
- preparation of scientific works to be presented at national or international conferences, or to be published in national or international journals;
- participation in conferences, congresses and scientific seminars;
- elaboration and production of documents (reports, elaborations, procedures, etc.) of scientific and technical importance;
- participation in the work of national or international research groups;
- participation in technology transfer activities;
- scientific contribution to the organisation of scientific events;
- writing the thesis;
- other possible, to be defined by the College.

Research activities shall aim to:

- deepen the potential use of specific technologies for the different living environments considered; this with particular reference to their applications in laboratory and field experiences.
- be able to set up and/or monitor full-scale and/or reduced-scale components or systems for experimental or field testing; This shall be done with particular reference to the assessment of the efficiency of those components and systems and their effectiveness in terms of sustainability and resilience.
- develop and/or apply analysis models of the technologies used; In particular, it is possible to assess their impact with regard to living, working and cultural production environments at various scales.
- drawing up scientific and technical documents;
- participate in scientific and technical dissemination activities at various levels;
- develop further specialized skills, targeting them to individual students or specific groups of students of the course, with events (meetings, workshops...), held by internal or external researchers of high qualification.

The recognition of credits for participation in conferences, congresses and scientific seminars, if provided by the organizers, is based on the attestation of the person who organized the activity.

The College, on the basis of the educational objectives of the doctorate, year by year, also having heard the supervisor's proposal, agrees on the technical-scientific activity for each student (or homogeneous groups of students), within the respective Training Programmes, specifying the ECTS (hours) to be acquired.

Subsidiary activity

Subsidiary activities include:

- the subsidiary or supplementary teaching activity within the limits specified by the rules;
- the activity of tutoring within the limits specified by the rules;
- third mission activity within the limits specified by the rules;
- the propositive and organizational activity of scientific projects;
- the organisation of conferences and scientific meetings or higher education events;
- any other activity useful, in the opinion of the College, for the training of students.

Business activities

Business activities include all those activities that may be particularly useful within SMEs that intend to

implement and improve R&D activities on fundamental research, industrial research and experimental development; These activities are intended to bring the added value of doctoral training compared to ordinary work, with the use of the results and repercussions of research for the enhancement of the skills of the PhD student.

The company activities are also those that are provided for by Ministerial Decrees or Regulations as periods of study and research in the enterprise.

Business activities, among others, include:

- design and implementation of projects and services;
- R&D activities of an experimental or numerical nature, aimed at specific technical objectives of the company's production process, such as analysis and development of procedures, prototypes, monitoring, etc.;
- preparation of scientific technical reports;
- participation in technical and scientific seminars;
- processing and production of documents (company reports, elaborations, procedures, etc.);
- participation in technology transfer activities.

Evaluation System of the Training Programme

The evaluation system of the Training Programme, framed in the more general evaluation system of the Doctoral Course, includes the following specific activities:

- evaluation of the Course by the students (organization, articulation, training program, structures, assistance, tutoring, availability of funds, etc.);
- Evaluation of the Course by teachers (organization, pre-requisites, structures)