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Academic Regulations for the Interuniversity Doctoral Program in Electronic Engineering in the Framework of the Royal Decree RD 99/2011

I. Preface:

This internal Academic Regulation particularizes and complements the regulating framework for the doctoral studies, concerning the Interuniversity Doctoral Program in Electronic Engineering, which is jointly run by the UPC's Department of Electronic Engineering and the Universitat de les Illes Balears. Therefore, this document must not have an independent reading, but jointly with the Academic Regulation for the Doctoral studies of the University, to which this document complements.

The objective of this internal Academic Regulation is to provide students enrolled in the Program with clear progress itineraries and understanding of the evaluation criteria in the different stages of their PhD, from admission to the defense of the doctoral thesis, which lead to the achievement of the competences provided by the doctoral studies, according to Spanish legislation (RD 99/2011 and RD 1027/2011).

For students in the Universitat Politècnica de Catalunya (UPC), the current regulating framework is the Academic Regulations included in agreement number 105/2011 drawn up by the Board of Governors (CG 2/7 2011), adapted to the RD 99/2011, and which apply to all students admitted to this Program *after* it has been verified and adapted to this RD. These regulations establish, in their Annex 1, that students that had started their doctorate studies under older RD, they will be ruled according to the regulating framework active in the moment they started their doctorate, except for the regulation of the deposit, defense, evaluation committee and assessment of the doctoral thesis, for which the current regulations will be applied.

According to this, the sections of this document relative to admission of new students, appointment of tutor or director, and deposit, defense, evaluation committee and assessment of the doctoral thesis, are unique, adapted to the RD 99/11, and apply to all the students in the Program. On the contrary, sections relative to the student's progress within the doctorate distinguish between students subject to the new regulations (RD 99/11) and those subject to previous regulations, which in these aspects will have as a reference the Academic Regulations included in agreement number 106/2009 drawn up by the Board of Governors (CG 20/5 2009, adapted to the RD 1393/2007).

This internal Academic Regulation for the Doctorate in Electronic Engineering comes into effect at the beginning of the 2013/2014 academic course, when it will replace the previous regulation approved by the CAPD on 21/12/2011.

II. Admission to the Doctorate Program in Electronic Engineering

II.1 Requirements

Candidates to be admitted to the Doctorate Program in Electronic Engineering must fulfill the following requirements:

1. Hold university degrees, in the area of engineering or sciences, which allow access to doctorate studies under the current legislation, according to one of the possibilities listed in section II.2 of the Academic Regulation.
2. Ability to communicate, writing and oral, using English language, proven either through personal interview, or by means of official academic certificates.
3. Have contacted some Professor of the Program who evaluates positively the skills and motivation of the candidate, and who approves to start a PhD Thesis in one of the research areas of the Program.

II.2 Admission criteria

Depending on the degrees accredited by the candidate, the following possibilities are considered:

1. Candidates in possession of Spanish official degrees of *Grado* (or equivalent, this includes engineers), and *Master Universitario*.
2. Candidates in possession of an official university degree Spanish or issued by another country member of the EHEA (European Higher Education Area), that qualifies for admission to the Master in accordance with Spanish law (this includes engineering, bachelor), who have passed a minimum of 300 ECTS in all official university courses, of which at least 60 ECTS must belong to Master courses. It is allowed that some of these 60 credits are included in the transcript as recognized credits, up to a maximum of 45 ECTS.
3. Candidates in possession of a degree, obtained in the EHEA (European Higher Education), or other foreign educational systems, that attests a level of education equivalent to the Spanish official title of Master's Degree, and that enables access to doctoral studies in the country that issued such degree.

In these three cases:

If the candidate fulfills the admission requirements, and if the Academic Committee of the Doctoral Program (CAPD) concludes, after examining the academic records of the Master degree or equivalent and following the criteria detailed in Annex I, that the candidate has already obtained enough research training specific to the areas of the Program, then the candidate will be admitted to the Program without the need of taking bridging courses.

If the candidate fulfills the admission requirements, but even having pursued degrees in the areas of engineering or sciences, the CAPD concludes that the candidate has not obtained enough research training specific to the areas of the Program, following the criteria detailed in Annex I, then the candidate will be admitted to the Program with the need of taking bridging courses, quantified in a number of ECTS credits that must be obtained after registering in specialization courses included in the Master in Electronic Engineering of UPC, UIB, or other similar Masters. The number of ECTS credits to take will be 30 ECTS at maximum, and will be set after evaluating the academic records of the Master degree or equivalent and checking with the proposed tutor, who will make a justified proposal of the additional training needed by the candidate, related to the research area in which the thesis is expected to be developed.

4. Candidates in possession of another PhD Spanish degree, obtained according to previous legislation.

This possibility will be analyzed case by case by the CAPD. As a general criterion, the candidate will be admitted if he/she has developed his/her research activity in some of the research areas of the Program.

5. Candidates for admission as part of transferring the academic file (they started the doctoral studies according to previous regulation: RD 185/1985, RD 778/98, RD 56/2005, RD 1393/2007).

If the candidate is transferred from the Doctoral Program in Electronic Engineering, admission is automatic and without the need to take bridging courses, if the candidate fulfills the conditions to access doctorate studies in RD 99/11. This means having completed the training phase of the doctorate (candidates that were regulated by RD 56/2005 or RD 1393/2007) or that have fulfilled research proficiency (*suficiencia investigadora*) (candidates that were regulated by RD 185/1985 or RD 778/1998).

6. Candidates for admission who had started the doctorate studies in other programs.

The candidate will be admitted if he/she fulfills the general admission requirements to the Program, including fulfilling the conditions to access doctorate studies in RD 99/11. Depending on the specific training related to the areas of the Program, the CAPD will request taking bridging courses, 30 ECTS at maximum, after checking with the proposed tutor, who will make a justified proposal of the additional training needed by the candidate, related to the research area in which the thesis is expected to be developed.

In any other case, admission will be not be granted.

II.3 Weighting criteria

In case the demand exceeds the number of positions opened, the applications will be weighted according to the criteria detailed in Annex IV, and access points will be granted to each candidate. Candidates will then be sorted according to their access points, and those with the highest punctuation will be admitted first.

III. Appointment, role and characteristics of the tutor and supervisor of the doctoral thesis

III.1 Regular professors in the Doctoral Program

The Academic Committee of the Doctoral Program (CAPD) maintains the updated list of regular professors of the Doctoral Program, who can act as tutor and/or thesis supervisor. The list of regular professors of the Program is composed of teaching and research staff with tenured positions, full-time dedication and holding a PhD, of the electronics engineering Department in UPC or the Physics Department in UIB.

Besides that, they must also have demonstrated research experience, after attesting that they meet at least one of the requirements defined in the Academic Regulations for doctoral studies at the UPC:

- Having supervised a doctoral thesis defended in the last 5 years.
- Having an active research premium (obtained in the last 7 years).
- Serve, or have served during the last five years, as a principal investigator in a research project that was financed by some external public institution, in a competitive call.

Joining the list of regular professors of the Doctoral Program shall be requested by the applicant and approved by the CAPD. Once approved, the list of regular professors will be updated in the websites that contain information about the Program, and in the different databases related to the doctorate academic management.

III.2 The tutor

All new students to the Doctoral Program must have a tutor, who is appointed by the CAPD in the moment of admission. The tutor is responsible to supervise that the training and research activity suits the principles of the Program, guides the student, and acts as an academic link to the CAPD and the University until a thesis supervisor is assigned, and is also the person who validates the registrations in the Program. The tutor must be a member of the list of regular professors of the Program.

In duly justified cases, the CAPD may, at any time during the course, assign a new tutor at the student's request.

III.3 The thesis supervisor

Once the student has registered for the first time, and there is an agreement on a research topic between the student and a professor, and always within six months after the first registration, the CAPD appoints a thesis supervisor.

Default, the thesis supervisor shall be a member of the list of regular professors of the Program, with accredited capacity and research experience in the scientific or technological area of the research topic. In this case, the supervisor shall perform the functions of the tutor.

Other doctors of the Departments that manage the Doctoral Program, and who do not belong to the list of regular professors, can act as co-supervisors together with another co-supervisor that does belong to the list, and share the same competences. In any case, the number of supervisors of a doctoral thesis may never exceed two.

Under exceptional circumstances and with proper justification, the CAPD may approve the appointment of a doctoral-level expert not belonging to the units that manage the Doctoral Program. If this doctor belongs to UPC or UIB, he/she must have demonstrated research experience, according to the conditions detailed above. In case this doctor does not belong to UPC or UIB, the prior approval of the UPC Doctoral Studies Committee is required, as well as the backing of an internal examiner, who must belong to the list of regular professors of the Program.

III.4 Student-supervisor agreement

Once the doctoral student has been assigned a thesis supervisor, the student and UPC supervisor(s) must sign an student-supervisor agreement (available in the UPC and Program websites), which must be delivered to the administrative office of the Program, and which shall be also signed by the vice-rector responsible for doctoral degree courses at the UPC.

IV. Progress and evaluation of the student in the Doctoral Program, for students that started their doctorate in academic course 2012/2013 or before (ruled by RD 778/98, RD 56/2005 or RD 1393/2007)

IV.1. Duration of the training period

Once students have been admitted to the training period on the Doctoral Program, they must take 60 ECTS credits (or the number that the tutor and the CAPD may establish in each case) within two academic years at the most, as is provided for in the UPC's regulations on doctoral courses (CG 20/5 2009).

IV.2. Admission to the research period

At the end of each academic year, the CAPD will approve admissions to the research period of those students who are able to prove that they have passed the 60 ECTS credits or the bridging courses, as applicable, that were required to follow by the tutor and/or the CAPD at the time they were admitted to the training period.

IV.3. Duration of the research period

According to what is established in the RD 99/11 and in the Academic Regulations of Doctoral Studies in UPC (CG 2/7 2011), students that had started the doctorate in the Program in academic course 2012/2013 or before, have two choices:

- Defend the thesis before February 11th, 2016. After this date, the doctoral student shall be permanently dismissed from the Program.
- Apply the CAPD, before December 11th, 2015, to transfer the academic files and adapt to the RD 99/11. Transferring will be automatic provided the access requirements to the doctorate under this RD are fulfilled.

The CAPD establishes that transferred students will have, as a deadline to defend their thesis, that obtained by subtracting the years they spent in the research period under former regulations¹ to the duration of the doctoral studies specified in RD 99/11. After this date, the doctoral student shall be permanently dismissed from the Program.

IV.4. Research period

Students who are admitted to the research period must register for annual tutorship and have a thesis supervisor.

At the end of the academic year, the supervisor or tutor must write a student progress report. It will contain a satisfactory or non-satisfactory assessment, which shall be justified according to the extent to the student progress during that year. The CAPD will make an annual evaluation of the students in the research period based on this progress report, the progress level of the student and a number of quantitative items described in Appendix II. Students who have not registered for annual tutorship, and who have not been granted a temporary interruption of the doctorate, will receive a non-satisfactory evaluation.

According to the Academic Regulations of Doctoral Studies in UPC, any research stay in a foreign center, which fulfills the requisites to obtain the International Mention in the Doctor Degree, must have been communicated to the CAPD in advance. Once the stay has finished, the student must deliver to the administrative services of the Program the

¹ Except the years they were granted a temporary interruption of the doctorate

certificate of the stay, issued by the responsible of the research group in the hosting institution.

IV.5. Thesis Proposal

During the research period (preferably at the end of the first year of this period and always before finishing the second year, according to UPC regulations), students must register and present a thesis proposal that contains the following sections (whenever possible, drawn up in English):

- Identification of the doctorate student and of the thesis supervisor.
- Title of the thesis proposal.
- Summary of the proposal.
- Critical state of the art on the subject.
- Thesis objectives.
- Methodology and resources needed.
- Description of tasks to achieve the thesis objectives.
- Workplan schedule with estimated deadlines.
- Bibliography.
- Material published in the field, if applicable.

The Thesis Proposal will be examined by a committee composed of three doctor members, one of them a professor of the Program representing the CAPD, another member a professor of the Program expert in the subject of the proposal and if possible Full Professor, and a third member expert and external to the Program. In case the students have registered their thesis proposal as master thesis to the Master in Electronic Engineering, this board of examination will be completed in order to fulfill the Master regulations.

IV.6. Temporary interruption of the doctorate

Students regulated by RD 56/2005 or RD 1393/2007 may apply the CAPD a temporary interruption of their doctoral studies during one or more academic years, thus releasing from the obligation to register the annual tutorship if the interruption is granted. The temporary interruption application must be backed by the tutor/supervisor and justified by a document certifying the reason why the interruption is requested (employment contract, medical certificate, etc.). The temporary interruption shall be authorized by the CAPD and will be filed in the student's records.

IV.7. Withdrawal from the Doctoral Program

Students will be dismissed from the Doctoral Program under the following circumstances:

- a) The maximum deadline for passing the bridging courses has run out.
- b) The thesis proposal and/or annual tutorship evaluation have been awarded a non-satisfactory mark for two consecutive evaluations.
- c) The thesis has not been defended before February 11th, 2016, and the student has not applied to transfer the academic files and adapt to the RD 99/11.

V. Progress and evaluation of the student in the Doctoral Program, for students that started their doctorate in academic course 2013/2014 or later (ruled by RD 99/11)

V.1. Work schedule

Default, it is assumed that students that register the Program carry out a full-time doctorate. In the moment of the first registration, the student can apply the CAPD a part-time dedication, by justified reasons.

It is only allowed a full-time to part-time change (or vice-versa) once within all the doctorate duration.

V.2. Duration of the doctorate

As specified in RD 99/11, the maximum duration of the doctorate is 3 years if full-time, and 5 years if part-time. The CAPD established a duration of 4 years if work schedule is changed two years after starting the doctorate.

The student can apply the CAPD an ordinary extension (one year if full-time, two years if part-time), and exceptionally, an extraordinary extension (one year regardless of the work schedule). For the extraordinary extension, the application will attach a document, backed by the tutor/supervisor, that justifies the viability to complete the doctoral thesis within one year. This document will consist of description of pending tasks, and detailed workplan schedule until the thesis defense

If one student started the doctoral studies before the academic year 13/14 and transferred the academic files to the RD 99/11, the CAPD establishes that he/she will have, as a deadline to defend the thesis, that obtained by subtracting the years they spent in the research period under former regulations² to the duration of the doctoral studies specified in RD 99/11.

In case a student is admitted to the Program as a result of academic transfer from a different program, the date on which the student was first admitted to a doctoral program at the UPC shall be considered for the purposes of calculating the length of his/her doctoral degree studies.

If the doctoral student fails to meet the deadlines specified in this section, besides absences due to sick leave, maternity leave, other causes identified in the prevailing regulations, or temporary interruptions of the doctorate, he/she shall be permanently removed from the doctoral program.

V.3. Bridging courses

Bridging courses assigned in the moment of admission to the Program must be completed within one year after the first registration in the Program. The CAPD is responsible to check this term at the end of each academic year, and failing to meet this deadline is a reason for a non-satisfactory evaluation of the annual tutorship. Completing these bridging courses is justified by passing the evaluations established in these courses.

² Except the years they were granted a temporary interruption of the doctorate

V.4. Registration

Students admitted to the Program must register for annual tutorship, in the administrative office of the Program. Two periods will be opened annually for first-time registration, during September and February. Exceptionally, registrations out of these periods will be allowed, if here are justified reasons for it.

Students who have not registered for annual tutorship, and who have not been granted a temporary interruption of the doctorate, will receive a non-satisfactory evaluation of the annual tutorship.

V.5. Doctoral Student Activity Report

It is the student's responsibility to keep updated the information contained in the Doctoral Student Activity Report, by using the instruments provided by the University. The CAPD will check annually the information contained in this Report in order to complete the annual tutorship evaluation.

V.6. Research Plan

Before completing the first year of the doctorate, students must develop, register and defend a Research Plan, backed by the thesis supervisor, which contains the following sections (whenever possible, drawn up in English):

- Identification of the doctorate student and of the thesis supervisor.
- Title of the thesis proposal.
- Summary of the proposal.
- Critical state of the art on the subject.
- Thesis objectives.
- Methodology and resources needed.
- Description of tasks to achieve the thesis objectives.
- Workplan schedule with estimated deadlines.
- Bibliography.
- Material published in the field, if applicable.

The Thesis Proposal will be examined by a committee composed of three doctor members, one of them a professor of the Program representing the CAPD, another member a professor of the Program expert in the subject of the proposal and if possible Full Professor, and a third member expert and external to the Program.

This committee shall issue a report declaring the plan either satisfactory or unsatisfactory. A satisfactory research plan is an essential requirement for continuance on the doctoral program. If the research plan is deemed unsatisfactory, the doctoral student shall have six months to prepare and submit a new plan, which shall be evaluated by the CAPD. If the research plan is deemed unsatisfactory in two consecutive evaluations, the student shall be permanently dismissed from the Program.

This Research Plan may be improved throughout the doctoral degree course, after required by the evaluation committee, the CAPD in the annual tutorship evaluation, the thesis supervisor, or at the initiative of the student.

V.7. Formative activities during the doctorate

The coordination of the Program will organize, in proportion to the available resources, formative research activities specific to the different areas of the Program, and transversal formative activities, as specified in Article 4 in RD 99/11. These activities must contribute to the achievement of the competences provided by doctoral courses according to the legislation.

It is expected that students complete, during the first two years of their doctorate, a minimum of formative activities, both research-specific and transversal, either organized by the research groups, by the Doctoral Program, by other units of the University, or by external institutions, with the agreement of the tutor/supervisor. It is the student's responsibility to introduce in the Doctoral Student Activity Report the documents that attest participation in these activities, by using the instruments provided by the University. The CAPD is responsible for checking that the student has completed these formative activities at the end of the second year of the doctorate, and to evaluate the achievement of the associated competences.

V.8. Annual Tutorship Evaluation

At the end of each academic year, the supervisor or tutor must write a student progress report, which will be entered in the Doctoral Student Activity Report. This report will contain a satisfactory or non-satisfactory assessment, which shall be justified according to the extent to the student progress during that year.

The CAPD will make an annual evaluation of the students in the research period based on this progress report, the progress level of the student relative to the Research Plan, achievement of research-specific and transversal competences, and a number of quantitative items described in Appendix II.

As a result of this evaluation, the CAPD will issue a report with the overall qualification satisfactory or non-satisfactory, together with the reasons for the qualification, and will open a period to review the qualifications, and amend the documents in the Doctoral Student Activity Report.

V.9. Research stays

Any research stay in a foreign center, which fulfills the requisites to obtain the International Mention in the Doctor Degree, must have been communicated to the CAPD in advance. Once the stay has finished, the student must deliver to the administrative services of the Program the certificate of the stay, issued by the responsible of the research group in the hosting institution, and enter this certificate in the Doctoral Student Activity Report.

Doctoral students from other Programs that wish to make research stays in UPC must register ³ as visitor students that academic course.

V.10. Change of thesis topic

If the doctoral student decides to change his/her thesis topic, he/she must submit a new Research Plan.

³ This registration is free of charge.

V.11. Changing a thesis supervisor

The thesis supervisor or the doctoral student may request that a thesis supervisor be changed at any time prior to the thesis deposit. The person requesting the change must submit a written statement explaining his/her reasons, and the CAPD is responsible to authorize the change.

To make the change of thesis supervisor official, a new student-supervisor agreement must be signed by the doctoral student and the new thesis supervisor (if the supervisor is from the UPC).

IV.12. Temporary interruption of the doctorate

Students may apply the CAPD a temporary interruption of their doctoral studies during one academic year, which can be extended to a second one, thus releasing from the obligation to register the annual tutorship if the interruption is granted. The temporary interruption application must be backed by the tutor/supervisor and justified by a document certifying the reason why the interruption is requested (employment contract, medical certificate, maternity leave, etc.). The temporary interruption shall be authorized by the CAPD and will be filed in the student's records.

IV.13. Withdrawal from the Doctoral Program

Students will be dismissed from the Doctoral Program under the following circumstances:

- a) The Research Plan has received two consecutive non-satisfactory assessments.
- b) The annual tutorship evaluation has received two consecutive non-satisfactory assessments by the CAPD.
- c) The duration of the doctorate has exceeded the maximum duration set by the legislation.

VI. Deposit, evaluation committee, defense and assessment of the doctoral thesis

VI.1. Evaluation of the doctoral thesis before the deposit

It is the CAPD's responsibility to validate the quality of the thesis before it is deposited, by checking quality indicators internationally accepted in the area of the thesis and of the Program. These quality indicators are detailed in Annex III. The student will provide the CAPD the necessary information to validate these indicators.

When the CAPD cannot check the existence of these quality indicators, or when it is considered necessary to validate the quality of the thesis, the thesis is sent for evaluation to two reviewers, external to the Program, to the UPC and to the UIB, appointed by the CAPD, who must be doctors with notable research experience in the area of the thesis, with the order to write a report about the suitability of the work as a doctoral thesis, which must be delivered within one month after receiving the thesis.

VI.2. Proposal of the doctoral thesis evaluation committee

It is left on the supervisor's decision whether the committee must consist of three or five main members. In both cases the appointment procedures must respect the University regulations. Given the Interuniversity characteristic of this Program, the majority of main members must be external to both the UPC and the UIB. Given the interuniversity characteristic of the Doctoral Program in Electrical Engineering, the majority of main members must be external to both the UPC and the UIB. As for the committee members internal to the UPC or UIB, they must have demonstrated research experience⁴.

The director of the doctoral thesis will provide the CAPD a prioritized proposal for the evaluation committee, and for every candidate of the committee, a brief CV⁵ and the acceptance of the candidate to be part of the committee, all in standard forms. He/she will also provide, to the corresponding administrative unit, detail of the means to finance the expenses generated by the committee. In case it is proposed that some member of the committee follows the defense session remotely by using videoconference, it is necessary that this is specified in the moment of the proposal, and the whole procedure should meet the specific regulations emitted by the Doctoral School.

If any member of the evaluation committee is co-author of publications arising from the thesis, the thesis director must provide the CAPD a justification that his/her participation in the overall work of the thesis to be evaluated was marginal, and the CAPD must authorize his/her presence in the committee. In the case of a thesis presented as a compendium of publications, the presence of co-authors in the examination committee is not allowed.

VI.3. Defense of thesis with associated patent processes and/or confidentiality agreements

When a thesis involves a confidentiality agreement with a company or its content has the potential to be patented, the student must apply the CAPD to benefit from the procedure detailed on article III.11 of the Academic Regulations for the doctorate in UPC (CG 2/7 2011), attaching the documents listed in that article.

⁴ Fulfill at least one of the conditions detailed in Section III.1 of this document.

⁵ Only for members external to both UPC and UIB, and in electronic format (PDF).

Annex I: Criteria to decide on the need to take bridging courses for newly admitted

As a general criterion, it is considered that there is need to take bridging courses if the academic records of the Master degree show that the candidate has passed 60 ECTS of courses or research activities that, according to their content, provide research training in electronic engineering, or in any of the research areas of the Program.

As a reference, the following list shows some Spanish official Master degrees that fulfill this criterion, and candidates holding them can be admitted to the Program without need to take bridging courses:

- Máster en Ingeniería Electrónica
- Máster en Ingeniería de Sistemas Automáticos y Electrónica Industrial
- Máster en Ingeniería Electrónica y Automática
- Máster en Ingeniería de Telecomunicación, esp. Electrónica
- Máster en Ingeniería de Redes y Telecomunicaciones, esp. Electrónica
- Máster en Ingeniería y Gestión de las Telecomunicaciones, esp. Investigación
- Máster en Ingeniería micro y nanoelectrónica
- Máster en Nanociencia y Nanotecnología, esp. Physical Sciences and Technologies, Information Technologies, Energy and Environment
- Máster Universitario en Energía y Electrónica de Potencia

Other degrees close to the research areas of the Program may offer academic itineraries that would allow fulfilling the above criterion, among them, and non-exclusively:

- Máster en Tecnologías de la Información y las Comunicaciones
- Máster en Ingeniería Biomédica
- Máster en Ingeniería Industrial
- Máster en Ingeniería en Energía
- Máster de Física
- Master in Photonics

In these cases, the CAPD and the proposed tutor will examine the academic records and, according to the itinerary or specialization followed, and to the topic of the Master Thesis, will decide whether the above criteria is met. If a regular professor of the Program, who acted as tutor of the student during the Master studies, certifies that the academic itinerary followed by the candidate was selected in order to provide research training aimed to start doctorate studies in this Program, then the candidate would be admitted to the Program without need to take bridging courses

Annex II: Criteria to qualify a student during the research period (annual tutorship evaluation).

The assessment of the annual tutorship evaluation will be based on the following five aspects:

1. Student progress report, written by the supervisor or tutor ⁶. This report will contain a satisfactory or non-satisfactory assessment, which shall be justified according to the extent to the student progress during that year. A non-satisfactory evaluation in this report is enough to produce a non-satisfactory qualification in the annual tutorship evaluation.
2. Justification of the progress of the thesis according to work plan envisaged in the Research Plan (Thesis Proposal), and Research Plan update, written by the student.
 - For students who have not yet submitted the Research Plan, this can be a short report explaining what they have done since they started the doctorate or research period.
 - For students who are evaluated for the first time and just defended the Research Plan, they only need to present the initial work plan with tasks enumeration and expected calendar, which is part of the Research Plan.
 - If the Research Plan has been defended during the last year, it is also required to justify that the observations issued by the Evaluation Committee of the Thesis Proposal have been accounted for.
 - For students who are evaluated for the second time, or subsequent evaluations, PhD students must present a justificatory document of their thesis progress during that academic year, in reference to that scheduled in the workplan of the Research Plan or that of the last annual evaluation. According to their progress, the student must either confirm or modify the workplan and expected calendar. Note that a simple copy & paste of the last workplan is not admitted: a justification of the progress during the last year is required.
3. Justification of partial results derived from the thesis: a first publication during the first two years of the thesis/research period (four years if part-time schedule). Lack of this item is enough to produce a non-satisfactory qualification in the annual tutorship evaluation⁷. Items admitted under this concept are:
 - Article in an indexed journal. The article must derive from the research work developed within the doctorate, must be either published or accepted for publication, and the student must be the first author.
 - Contribution to congress or workshop proceedings, peer-reviewed, either oral presentation or poster. The contribution must derive from the research work developed within the doctorate, must be either published or accepted for publication, and the student must be the first author.
 - Patent application, national or international. The patent must derive from the research work developed within the doctorate, and the student must be the first inventor.

⁶ Must be entered in Student Activity Report.

⁷ Except in case of doctoral thesis involved in confidentiality agreements with a companies, or thesis in industrial doctorates. In these cases, it is required to provide the justificatory documents.

4. Justification for attending research-specific formative activities⁸. A minimum of 10 hours or formative activities in their research area must be justified by the end of the 2nd year of the doctorate (3rd year if part-time schedule). Items admitted under this concept are:
- Attendance to research training courses and seminars organized by the PhD Program in Electronic Engineering, other units at UPC or UIB, or other organizations outside these Universities, with attendance certificate reporting the number of hours.
 - Attendance to tutorial sessions organized in the framework of congresses, with attendance certificate reporting the number of hours.
 - Participation in internal seminars organized by the research groups, with a brief report issued by the supervisor or tutor of the thesis explaining this participation, reasoning the appropriateness of this activity for student training, and the number of hours spent.
 - Preparation of research reports for funded research projects, with a brief report issued by the supervisor or tutor of the thesis explaining the work done, reasoning the appropriateness of this activity for the formation of the student, and the number of hours spent.
 - Research stay in another national or foreign research center, accredited with a report issued by the responsible of the stay at the hosting institution (stay may be completed or in progress, minimum two weeks, although it is recommended that stays fulfill the requisites to obtain the International PhD Mention).
5. Justification for attending transversal formative activities. A minimum of 10 hours of formative activities in transversal skills (cross-training), preferably oriented to insertion into labour market, must be justified by the end of the 2nd year of the doctorate (3rd year if part-time schedule). Items admitted under this concept are:
- Transversal training courses and seminars organized by the Doctoral School of UPC⁹, other units of the UPC or UIB, or other organizations outside the University, with attendance certificate reporting the number of hours.
 - Attendance to Doctoral research forums, workshops PhD-Industry, workshops for future doctors, organized by the Program, the UPC or the UIB, or other entities, with attendance report.
 - Making part of the thesis in a private industry, accredited through an university-company agreement or an industrial doctorate program.
 - Research stay in another national or foreign research center, accredited with a report issued by the responsible of the stay at the hosting institution (stay may be completed or in progress, minimum two weeks, although it is recommended that stays fulfill the requisites to obtain the International PhD Mention).

In case the CAPD considers that, for two consecutive years, the number and quality of transversal formation activities organized by the Program or by the Doctorate School has been inadequate, students will be waived from this requisite.

⁸ Except for the case of students developing part of the thesis in a private company (industrial doctorates, among others. In these cases, it is required to provide the justificatory documents.

⁹ <https://eel.postgrau.upc.edu/academic-information/Transversal%20formative%20activities>

Annex III: Criteria to validate the quality of the thesis before it is deposited, by checking quality indicators.

The following items are considered indicators of sufficient relevance in order to validate the quality of the thesis before it is deposited:

- I. At least one article in a journal indexed in JCR¹⁰ o SJR¹¹, positioned in the first three quartiles in its category in the year of publication (or last published JCR or SJR) . The article must derive from the research work developed within the doctorate, must be either published or accepted for publication, and the student must be the first author.
- II. At least two papers in proceedings of notable international congresses, defined as those that fulfill the criteria defined by UPC ¹², or those that appear in the first three quartiles in its category in the SJR^{iError! Marcador no definido.} index. The paper must derive from the research work developed within the doctorate, must be either published or accepted for publication, and the student must be the first author.
- III. At least one patent, national or international, applied for and accepted after a review procedure (procedure with previous exam, or favorable report of the state of the art). The patent must derive from the research work developed within the doctorate, and the student must be the first inventor.

The student will have to provide the CAPD with the information necessary to validate the above listed items.

¹⁰ <http://admin-apps.webofknowledge.com/JCR/JCR>

¹¹ <http://www.scimagojr.com/journalrank.php>

¹² <https://drac.upc.edu/info/glossari/classificacio-alfabetica/c/congressos-notables-upc>

Annex IV: Weighting criteria to sort candidates to admission.

The following aspects will be valued for each of the admission applications, granting a number of points:

- A.- Adequacy of the competences acquired by the candidate in the degrees that provide access to the doctorate (up to 3 points).
- B.- Academic records (up to 3 points).
- C.- Knowledge of English language (up to 1 point).
- D.- Assessment of the research group and participation in research projects (up to 3 points).

The different points will be added, producing as a result a total amount of access points for the candidate. In general, candidates will be admitted if they fulfill the admission requirements of the Program and obtain a total of at least 6 access points. In case the demand exceeds the number of positions opened, candidates will then be sorted according to their access points, and those with the highest punctuation will be admitted first.

The criteria to grant points for each of the aspects are the following:

A.- Adequacy of the competences acquired by the candidate in the degrees that provide access to the doctorate

- o La CAPD will examine the academic records of the candidate and will evaluate the competences acquired, giving value when the candidate has obtained enough research training specific to the area of electronic technology.

The candidate has obtained enough research training specific to the area of electronic technology and does not need to take bridging courses.	3 points
The candidate has not obtained enough research training specific to the area of electronic technology and needs to take bridging courses.	1.5 to 2.5 points
Degree out of the area of sciences and/or engineering	0 points

B.- Academic records

- o Addition of credits passed by the candidate in the degree that gives access to the doctorate, each one multiplied by the value of the qualification obtained, and divided by the total amount of passed credits. Recognized credits without qualification will be ignored.

ECTS scale	International qualitative scale	Spanish qualitative	Spanish numerical	
A	Excellent	Matrícula d'honor		3 points
B	Very good	Excel.lent	nota \geq 9	2.5 points
C	Good	Notable	9>nota \geq 7	2 points
D	Satisfactory	Bé	7>nota \geq 6	1 points
E	Sufficient	Suficient	6>nota \geq 5	0 points

C- Knowledge of English language

- Level B2 in English Language in the Common European Framework, justified by at least one of the following:
 - Have English as native language
 - Have studied in an English-speaking country
 - Have obtained a higher education European degree, which includes level B2 in English Language.
 - Academic certificate
 - Cambridge: First Certificate in English.
 - TOEFL PBT: 550, CBT: 213, IBT: 79-80.
 - IELTS: 5,5.
 - TOEIC: 750.
 - Official Language School (Escola Oficial d'Idiomes) Certificate of Advanced Level (Level 5).

Level B2 in English Language in the Common European Framework	1 point
Insufficient Level in English Language	0 points

D- Assessment of the research group and participation in research projects

- Report of the professor contacted by the candidate (and proposed as tutor) or research group, assessing the skills and motivation of the candidate to start a PhD Thesis in one of the research areas of the Program.

The assessment of the candidate is positive, and he/she will be eligible to participate in a financed research project.	3 points
The assessment of the candidate is positive, but he/she will not be eligible to participate in a financed research project.	2 points
The assessment of the candidate is neutral or negative.	0 points