ROMANIAN AGENCY FOR QUALITY ASSURANCE IN HIGHER EDUCATION
*Full member of the European Association for Quality Assurance in Higher Education - **ENQA***
*Listed in the European Quality Assurance Register for Higher Education - **EQAR***

Annex No. 3

The External Evaluation Report of a Doctoral Study Domain

Contents
I. Introduction
II. Methods used
III. Analysis of performance indicators
IV. SWOT Analysis
V. Overview of judgments awarded and of the recommendations
VI. Conclusions and general recommendations
VII. Annexes

I. Introduction[1]

In this chapter, the following shall be summarized:

- the context in which this external evaluation report was drafted (**the type of evaluation, the period of the evaluation visit, the composition of the Experts Committee** etc.);
- details about the doctoral school(s) of which the doctoral domain under review is part (number of doctoral advisors, number of students, institutional context, short history etc.);
- details about the doctoral study domain under review (number of students, institutional context, short history etc.).

Due to the restrictions of the pandemic crisis, the evaluation was mainly conducted online. Meetings were organized through the platform Zoom in Romanian but with a simultaneous translator service.

The Doctoral School of Engineering Studies from IOSUD-UPT manages 13 fields of doctoral university studies. At the date of the report, there are 148 total IOSUD-UPT affiliated Ph.D. supervisors, being 78 of them full-time Ph.D. supervisors and 53 associate Ph.D. supervisors. 61 full-time Ph.D. supervisors who have obtained the habilitation certificate.

Within the specific field of Electronic Engineering, Telecommunications and Information Technologies, 15 IOSUD UPT affiliated Ph.D. supervisors are coordinating the doctoral students. being 12 with an employment contract for an indefinite period. The number of doctoral students at the time of evaluation is 30. The doctoral domain covers the following research topics:

Multimedia signal processing, virtual reality and augmented reality, Open Data, technologies for smart city, advanced educational technologies, signals and systems, signal processing, information and coding theory, detection and estimation in information theory, power electronics, energy harvesting, microwaves, antennas and propagation, electromagnetic compatibility, intelligent computing, computer vision, processing of biomedical signals and images and communications (4G-5G).

---

[1] Each time when applicable the information shall be presented gender-wise.

II. Methods used

This chapter will contain the methods and tools used in the external evaluation process, before and during the evaluation visit, including at least:

• The analysis of the internal evaluation report of the doctoral study domain under review and its Annexes;

• The analysis of documents made available by the IOSUD, in physical format, during the evaluation visit (if such documents have been requested);

• The analysis of documents, data and information available on the IOSUD/Doctoral School(s) website, in electronic format;

• Visiting the buildings included in the institution's property, comprising (indicative and non-exhaustive list, which shall be changed according to the context):

- classrooms;
- laboratories;
- the institution's library;
- research centers;
- the Career Counselling and Guidance Center;
- lecture halls for students;
- the student residences;
- the student cafeteria;
- sports ground etc.;

• Meeting/discussions with doctoral students in the doctoral study domain under review;

• Meeting/Discussions with the graduates of the doctoral study domain under review;

• Meeting/Discussions with employers of the graduates in the doctoral study domain under review;

• Meeting/Discussions with the school officials of the Doctoral School(s) in which the doctoral study domain under review is operating;

• Meeting/Discussions with the doctoral advisors in the doctoral study domain under review;

• Meeting/discussions with the representatives of the various structures of the IOSUD/Doctoral School(s) in which the doctoral study domain under review is operating:

- The Council of the Doctoral School, the University Senate, the Board of Directors, the Quality Assessment and Assurance Commission, the Quality Assurance Department, the Ethics Commission (including with the student representatives of these structures);
- the Career Counselling and Guidance Center;
- student organizations;
- secretariats;
- various departments/administrative offices (Social/Student residences-Cafeterias etc.);

• Application of questionnaires to doctoral students or academic staff in the doctoral study domain under review.

During the evaluation, the self- assessment report and provided annexes were used as the main elements for the evaluation. This information was complemented with additional documentation, such as the presentations displayed during the online meetings and the physical visit to the educational and research infrastructure.

The online meetings proceeded as scheduled with the different stakeholders: representatives of the institution and of the Council for Academic Doctoral Studies (CSUD), responsible of doctoral domain

and the team who drafted the internal evaluation report, doctoral coordinators, PhD students, members of the Ethics Commission, members of the Commission for Quality Evaluation and Assurance, the Directors and persons in charge of the research centers/laboratories, Doctoral Studies Council, employers of doctoral graduates and graduates. The meetings were moderated by the evaluation team, and attendants answered to the question raised by the members of the evaluation panel. In general, all the meeting were satisfactorily carried out and the discussion with attendants helped to clarify the different issues raised by the evaluation members.

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

The managerial and administrative structures of the doctoral domain have been implemented. From the financial point of view, the funding of doctoral students is adequate. The IT system is proved to sustain the necessities of the doctoral domain. The research infrastructure is aligned with doctoral studies' research lines and allows students to carry out the required experiments for the validation of their research works. Finally, human resources are adequate, but it is suggested to increase the scientific production in journals and magazines with impact factor.

Criterion A.1. The administrative, managerial institutional structures and the financial resources

From the institutional and managerial point of view, the doctoral domain of Electronic Engineering, Telecommunications and Information Technologies covered satisfactorily all the issues related to the adoption and implementation of specific regulations for doctorate schools and enough financial and logistics resources are allocated to carry out the doctoral studies' mission.

Standard A.1.1. The institution organizing doctoral studies (IOSUD) has implemented the effective functioning mechanisms provided for in the specific legislation on the organization of doctoral studies.

The doctoral School has adequately implemented all the aspects included in the specific legislation of doctoral studies. Both indicators under the standard A.1.1. are fulfilled and there are evidence that confirm the application of specific regulations, being this information accessible to all students.

Performance Indicator A.1.1.1. The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:

(a) the internal regulations of the Doctoral School;

(b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;

c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);

d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;

e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;

f) the contract for doctoral studies;

g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.

The Doctoral School of Engineering Studies at the Politehnica University of Timișoara (UPT) was constituted and operates according to the current legislation of the Romanian government. The Council of Doctoral Studies (CSUD) is managed by a director, appointed through the public competition organized by UPT, in accordance with the Institutional Regulation for organizing the elections for the organizational structures and management positions of doctoral studies at the level of IOSUD-UPT. The structure, legislation and regulations are publicly available at the website of the Doctoral School (http://www.upt.ro/Informatii_studii-de-doctorat_266_en.html) both in Romanian and English, including the methodology for conducting elections, the organization of the doctoral studies, the PhD programme, the admission regulations, the doctoral study contract and the habilitation procedure to obtain the status of PhD advisor.

The analysis of the evidence provided shows that functioning mechanisms provided in the specific legislation have been adequately implemented. All the information is publicly available and the organization of the Doctoral School is clear and efficient, so students can easily fin all the required information.

As a recommendation, the CSD meetings should be organized in a regular basis.

The indicator is fulfilled

Performance Indicator A.1.1.2. *The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.*

The regulations of the doctoral school within IOSUD-UPT establishes mandatory criteria, procedures and standards regarding the acceptance of new doctoral coordinators, as well as the regulations regarding the method by that a doctoral coordinator may be revoked as a member of the doctoral school, the mechanisms through which decisions are taken, the procedures for changing the doctoral coordinator of a certain doctoral student and the procedures for mediating the conflicts, the conditions under which the doctoral program may be interrupted, the procedures to prevent fraud in scientific research, the accessibility to research facilities and the attendance obligations of doctoral students.

The analysis of the documentation and the meetings with CSUD and PhD students provide evidence that the doctoral school' Regulation covers all the aspects addressed by this indicator.

There are no specific recommendations.

The indicator is fulfilled

Standard A.1.2. The IOSUD has the logistical resources necessary to carry out the doctoral studies' mission.

The logistical resources are adequate to keep record and analyze the evolution of doctoral students. Information is easily accessible and facilitates the guidance of students. Accessibility to anti-plagiarism is also guaranteed.

Performance Indicator A.1.2.1. *The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.*

The IT system consists of the ENROLL admission platform, for the management of the information on the admission of students, and the ACCESS database "Records of doctoral students enrolled in UPT", to keep track of doctoral students enrolled in UPT. The database stores general and personal data for each enrolled student, the situation of doctoral students currently enrolled, the situation of doctoral students who have elaborated and defended doctoral theses in a specific period of time, the situation of doctoral students who have interrupted doctoral studies, the number of doctoral theses defended in the specific period of time and observations regarding the doctoral studies: interruption/expulsion/extension.

Supplementary documentation provides evidence of the IT system and during the meetings with CSUD it was evidenced how their internal IT system works.

There are no specific recommendations.

The indicator is fulfilled

Performance Indicator A.1.2.2. *The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.*

During the last 5 years, three different platforms were used to verify the percentage of similarity in all doctoral theses:

- Plagiat.pl, through the computer platform doct.edu.ro/doct of the Ministry of Education, between June 2016 and July 2017.
- SemPlag, through the platform uefiscdi-direct.ro/semplag/index.php, between August 2017 and September 2017
- iThenticate (purchased by UPT), October 2017 - present.

Supplementary documentation provides evidence of the use of previous anti-plagiarism software and some similarity reports as examples.

There are no specific recommendations.

The indicator is fulfilled

Standard A.1.3. The IOSUD makes sure that financial resources are used optimally, and the revenues obtained from doctoral studies are supplemented through additional funding besides governmental funding.

Financial resources are optimally used. It is worth mentioning the high number of research projects headed by PhD advisors that contribute to generate additional funding for students and increase the expertise of the advisors in their respective fields.

Performance Indicator A.1.3.1. *Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.*

In the last 5 years, the Doctoral domain of Electronic Engineering, Telecommunications and Information Technologies shows a total of 3 research grants under implementation plus 11 already implemented and a total of 26 contracts in the referenced field.

Supplementary documentation details the list of projects with the title, budget and the funding organism. The meetings with PhD students revealed that many of them have participated in such projects.

There are no specific recommendations.
The indicator is fulfilled

Performance Indicator *A.1.3.2.* *The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.*

IOSUD-UPT makes use of the following financial resources from its own incomes to support doctoral students: UPT doctoral scholarships from own income, doctoral grants from UPT's own revenues intended to complete doctoral studies, doctoral grants from research projects.

Supplementary documentation provides the complete list of Ph.D. students additionally financed from UPT's own revenues, with a final number of students of 12. Given that there are 30 students currently enrolled, that represents a ratio of 40% over the limit of 20%.

There are no specific recommendations.
The indicator is fulfilled

Performance Indicator *A.1.3.3.[2]* *At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).*

The calculated ratio between the total doctoral training expenses and the total government revenue is 13.71%, over the threshold of 10%.

Supplementary documentation includes the details of the calculations.

There are no specific recommendations.
The indicator is fulfilled-

Criterion A.2. Research infrastructure

The research infrastructure is aligned with doctoral studies' research lines and allows students to carry out the required experiments for the validation of their research works.

Standard A.2.1. The IOSUD has a modern research infrastructure to support the conduct of doctoral studies' specific activities.

---

[2] The indicators marked with an asterisk (*) hold a special status, referring exclusively to the evaluation of doctoral studies domains, as per Article 12 from the annex No.1 of the Order of the minister of education No. 3651/12.04.2021 approving the Methodology for evaluating university doctoral studies and the system of criteria, standards and performance indicators used in the evaluation. In case they are not met, the Agency extends a period of maximum 3 years to IOSUD to correct the respective deficiencies.

The research infrastructure is aligned with doctoral studies' research lines and allows students to carry out the required experiments for the validation of their research works.

Performance Indicator A.2.1.1. The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.

The research spaces, offices and laboratories, are located in the building of the Faculty of Electronics, Telecommunications and Information Technologies and were recently renovated, along with the entire building. The following facilities are accessible for doctoral students to conduct their research

- Laboratories of the Multimedia Research Center
- Laboratory of Signal Circuits and Systems,
- Data Communications Laboratory,
- Research laboratory within the ISPRC research center
- Power Electronics Lab
- Laboratory for PhD students
- Integrated Circuits Laboratory
- Systems Laboratory with Programmable Logic
- Research laboratory for Microwave, Antenna and Propagation, Electromagnetic Compatibility
- Bioinspired Systems Laboratory and embedded systems laboratory
- Virtual Instrumentation Laboratory

Additionally, the Central Library of UPT offers access to information resources both traditionally and electronically. Access to information resources is made through the Web page, at: https://library.upt.ro/. The Library also provides access to most relevant electronic databases in the field of Electronic Engineering, Telecommunications and Information Technologies at https://library.upt.ro/baze-de-date/: IEEE, Elsevier, Scopus, Springer,…

The provided annexes detail the research infrastructure and the equipment included in each lab. During the meetings with students and graduates, the availability of this infrastructure was confirmed.

There are no specific recommendations.
The indicator is fulfilled.

Criterion A.3. Quality of Human Resources

The human resources of the doctoral domain comply with the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) and most of them holds permanent positions. As a recommendation, supervisors should increase their scientific production in journals and magazines with impact factor. They exhibit a good international visibility.

Standard A.3.1. At the level of each domain there are sufficient qualified staff to ensure the conduct of doctoral study program.

Human resources belonging to the doctoral domain of Electronic Engineering, Telecommunications and Information Technologies meet the current CNATDCU minimum standards and exhibit a high level of expertise in the topics of the doctoral domain.

Performance Indicator A.3.1.1. *Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.*

Within the field of Electronic Engineering, Telecommunications and Information Technologies, 13 out of 15 doctoral coordinators meet the minimum CNATDCU criteria, which means that the ration addressed by the indicator is 86.6 % over the required 50%.

Supplementary documentation provides the score for each advisor.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator *A.3.1.2. *At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.*

12 out of 15 doctoral coordinators are tenured professors within IOSUD UPT. This, there is an 80% of tenured professors, clearly above the required limit and the criterion is met.

Supplementary documentation provides evidence of the coordinators' position.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator A.3.1.3. *The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.*

The training program includes cross-curricular courses, for all doctoral students of the 1st year, Master degree courses and tutorial sessions. All courses within the training program are sustained by professors or researchers who have the level of doctoral coordinator/holders of habilitation degree, professor/CS I or associate professor/CS II with proven expertise in the field of taught subjects.

Supplementary documentation details the subjects of the training programme during the academic year 19/20 and the lecturers in charge of each subject.

There are no specific recommendations.

The indicator is fulfilled

Performance Indicator *A.3.1.4. *The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs[3] does not exceed 20%.*

---

[3] 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education

0 (zero) doctoral coordinators belonging to the field of Electronic Engineering, Telecommunications and Information Technologies supervise at the same time more than 8 doctoral students, but not more than 12. Therefore, the criterion is met.

Supplementary documentation included the number of doctoral theses coordinated by each supervisor.

There are no specific recommendations.

The indicator is fulfilled

Standard A.3.2. The Doctoral advisors within the domain are carrying out a scientific activity visible at international level.

The internationalization of the doctoral school is manifested through the international activities and publications of the research staff. They achieve the score requested by CNATDCU standards. However, supervisors should increase their scientific production in journals and magazines with impact factor.

Performance Indicator A.3.2.1. At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.

13 out of 15 advisors show relevant contributions in the field of Electronic Engineering, Telecommunications and Information Technologies, so the criterion is met. However, half of the supervisors show a low number of contributions in journals and magazines with impact factor. Supplementary documentation includes the list of publications for each supervisor.

Regarding the international visibility, supplementary documentation also details the participation of supervisors in commissions/groups abroad in the last 5 years.

As a recommendation, supervisors should increase their scientific production in journals and magazines with impact factor.

The indicator is fulfilled

Performance Indicator *A.3.2.2. At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required

---

No.1/2011 with subsequent amendments and additions, with additional extension periods approved as per Article 39, paragraph (3) of the Code of doctoral studies approved by the GD No. 681/2011 with subsequent amendments and additions.

and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years.

In the last 5 years, 93.3% of supervisors have at least 25% of the score requested by the minimal CNATDCU standards, so the criterion is met. Supplementary documentation details the scores achieved for the activity corresponding to the last 5 years.

There are no specific recommendations.

The indicator is fulfilled

Domain B. EDUCATIONAL EFFECTIVENESS

The capacity if attraction of students coming from other higher education institutions is below the limits, so the doctoral field should try to improve these numbers. The admission procedure is adequately implemented. The training program is adequate and includes the compulsory subject about "Ethics and academic integrity in scientific research and dissemination of results". However, the specific subjects' program should explicitly include the learning outcomes. Students receive an adequate guidance from the advisory committee. Finally, productivity of doctoral students that finished their PhD over the last 5 years is adequate, although it is suggested to target more journals with impact factor. External researchers regularly participate in the evaluation commissions.

Criterion B.1. The number, quality and diversity of candidates enrolled for the admission contest

The capacity of attraction of students coming from other higher education institutions is below the limit so that the doctoral field should try to improve these numbers. The admission to the doctoral study program is clearly defined by the Doctoral School Regulations. Each applicant is individually evaluated attending to their academic performance, their interest in scientific research and scientific publications. A personal interview is also conducted as part of the selection process. The procedures are adequately implemented and help to reduce the dropout rate below the required limit.

Standard B.1.1. The institution organizing doctoral studies has the capacity to attract candidates from outside the higher education institution or a number of candidates exceeding the number of seats available.

The capacity of attraction of students coming from other higher education institutions is below the limit so that the doctoral field should try to improve these numbers.

Performance Indicator *B.1.1.1. The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.

The ratio between the number of master's degree graduates of other higher education institutions different to UPT and the number of positions financed from the state budget considered for competition in the doctoral field is 0.14, below the limit of 0.2. The second indicator, given by the ratio of the number of candidates in the last five years and the number of positions financed from the state

budget considered for competition in the doctoral field is 1.04, also below the limit 1.2. Therefore, the criterion is not met.

Supplementary documentation provides the list of candidates enrolled for doctoral studies coming from other higher education institutions in the country or abroad, the number of positions financed from the state budget in the last 5 years and the list of candidates enrolled for doctoral studies in IOSUD - UPT, in the last 5 years.

As a recommendation, it is suggested to improve the visibility of the doctoral domain in other institutions, as the two ratios given by the criterion are below the limit.

The indicator is partially fulfilled

Standard B.1.2 Candidates admitted to doctoral studies demonstrate academic, research and professional performance.

The admission to the doctoral study program is clearly defined by the Doctoral School Regulations. Each applicant is individually evaluated attending to their academic performance, their interest in scientific research and scientific publications. A personal interview is also conducted as part of the selection process. The procedures are adequately implemented and help to reduce the dropout rate below the required limit.

Performance Indicator *B.1.2.1. Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.

Admission to doctoral studies in IOSUD-UPT is regulated by the Institutional Procedure regarding the organization of admission to doctoral studies in IOSUD-UPT. The selection criteria include the academic performance, an interview with the applicant, the interest for the scientific research and scientific publications related to the doctoral domain. All the information is accessible through the website of the doctoral studies. The Council of the Doctoral School of Engineering Studies from IOSUD-UPT, establishes and displays, after the registration period, the doctoral admission commissions associated with the doctoral fields. The doctoral admission commission comprises the permanent members, the secretary of the commission and the chairman of the commission.

Supplementary documentation details the selection criteria and the specific weigh of each item to obtain the final score.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission[4] does not exceed 30%.

Only 1 PhD student expelled in the first 3 years of the doctoral program, so the abandonment rate is 2.7% quite below the maximum of 20%.

Supplementary documentation details the situation of each student during the period 2015-2019.

---

[4] 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No. 1/2011 with subsequent amendments and additions.

There are no specific recommendations.
The indicator is fulfilled.

Criterion B.2. The content of doctoral programs

The training program is adequate and includes the compulsory subject about "Ethics and academic integrity in scientific research and dissemination of results", although it is suggested to cover deeply aspects related to Intellectual Property. Moreover, the specific subjects' curricula should explicitly include the learning outcomes. Students receive an adequate guidance from the advisory committee, and the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance is clearly below the limits.

Standard B.2.1. The training program based on advanced university studies is appropriate to improve doctoral students' research skills and to strengthen ethical behavior in science.

The training program is adequate and includes the compulsory subject about "Ethics and academic integrity in scientific research and dissemination of results", although it is suggested to cover deeply aspects related to Intellectual Property. Moreover, the specific subjects' curricula should explicitly include the learning outcomes. Students receive an adequate guidance from the advisory committee, and the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance is clearly below the limits.

Performance Indicator B.2.1.1. The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.

The training program contains three courses relevant to the scientific research training of the doctoral students. The cross-curricular course is mandatory and is a discipline related to the research methodology and deontology of the scientific researcher. Since 2018 this course is entitled 'Ethics and academic integrity in scientific research and dissemination of results', and it is intended for the in-depth study of the research methodology. The second and third disciplines in the plan are chosen by the doctoral coordinator so as to contribute to the deepening of the field and the doctoral topic.

Supplementary documentation provides the subjects' plan. Their content is aligned with the field of the doctoral domain.

There are no specific recommendations.
The indicator is fulfilled.

Performance Indicator B.2.1.2. At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.

Within the advanced university training program for doctoral students from IOSUD-UPT, the discipline entitled "Ethics and academic integrity in scientific research and dissemination of results" covers aspects such as ethics and academic integrity in scientific research and dissemination of results.

The subject's curriculum is provided in the supplementary documentation.

As a recommendation, it is suggested to cover deeply aspects related to Intellectual Property.
The indicator is fulfilled.

Performance Indicator B.2.1.3. *The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes", specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities[5].*

The Doctoral School has specific procedures for the analysis of the content of study program. The disciplines' curricula are provided in the supplementary documentation and contains the objectives of subject and competences, the content and the evaluation.

As a recommendation, the disciplines' curricula should explicitly address the learning outcomes that students are expected to achieve. Currently, the include the objectives and competences. But while objectives generally describe the desirable knowledge, learning outcomes are a more specific description of what students will be able to do in some measurable way.

There are no specific recommendations.

The indicator is fulfilled

Performance Indicator B.2.1.4. *All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.*

The advising commission for each doctoral student is designated by the doctoral coordinator and approved by the Director of the Doctoral School. The advising commission includes specialists in the field and subject of the doctoral thesis, who assist and guide the doctoral student on specific aspects of the doctoral research program.

Supplementary documentation provides evidence of the meeting of the guidance commissions with doctoral students. The meeting with students and graduates showed that in general they were satisfied with the tutoring activities of their supervisors.

There are no specific recommendations.

The indicator is fulfilled

Performance Indicator B.2.1.5. *For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.*

The ratio between the doctoral students existing at the time of the evaluation and the number of professors in advising commissions is 0.71:1, below the limit 3:1. Therefore, the indicator is accomplished.

There are no specific recommendations.

The indicator is fulfilled

Criterion B.3. The results of doctoral studies and procedures for their evaluation.

Productivity of doctoral students that finished their PhD over the last 5 years is adequate, but it is suggested to target more journals with impact factor. External researchers regularly participate in the evaluation commissions.

---

[5] Or by what the graduate should know, understand and to be able to do, according to the provisions of the Methodology of 17 March 2017 regarding inscription and registration of higher education qualifications in the National Register of Qualifications in Higher Education (RNCIS) approved by the Order No.3475/2017 with subsequent amendments and additions.

Standard B.3.1. Doctoral students capitalize on the research through presentations at scientific conferences, scientific publications, technological transfer, patents, products and service orders.

Provided documentation proves that there are joint publications in journals and conferences between students and supervisors, and they are related to the topic of the doctoral field. However, it is recommended to target journals with higher impact factors.

***Performance Indicator B.3.1.1.** For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain.*

There are 7 students who obtained the doctoral degree in the period 2016-2020: All of them presented papers at scientific conferences and/or published them in journals in the field, so that at least one paper per doctoral student is available. The list of students' publications is provided in the supplementary documentation. All of them fall with the topics of the doctoral field. However, not all of them have impact factor, so it is suggested to target higher ranked journals.

As a recommendation, PhD students' publications should target higher ranked journals with impact factor.
The indicator is fulfilled.

***Performance Indicator *B.3.1.2.** The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.*

The number of articles presented at conferences is 25. Given that 7 students finished their PhD in the last 5 years, the ratio for this indicator is 3.57 higher than the required value of 1.

The list of students who obtained the title of doctor in the period 2016-2020 and their corresponding presentations are detailed in the supplementary documentation.

There are no specific recommendations.
The indicator is fulfilled.

Standard B.3.2. The Doctoral School engages a significant number of external scientific specialists in the commissions for public defense of doctoral theses in the analyzed domain.

The doctoral school keeps contact with other national research groups that regularly participates in the public defence of doctoral theses. There is no over participation of external evaluators.

***Performance Indicator *B.3.2.1.** The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.*

In the period 2016-2020, there were no cases in which the same expert was part of more than two doctoral commissions for the public defense of theses coordinated by the same doctoral coordinator in the same year,

The list of students who defended their doctoral theses in the period 2016-2020 and the commissions of scientific experts in the field of Electronic Engineering, Telecommunications and Information Technologies is detailed in the supplementary documentation.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator *B.3.2.2. *The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.*

The number of PhD theses defended in the area of Electronic Engineering, Telecommunications and Information Technologies in the past five years is 7 lower than 10. Therefore, the criterion is not applicable.

There are no specific recommendations.

The indicator is fulfilled.

Domain C. QUALITY MANAGEMENT

The Quality Assurance System is designed and implemented satisfactorily, although more emphasis on explicit action plans is advised. All the relevant information regarding the doctoral field is available through the website. Finally, the internationalization of the doctoral school is supported by the agreements with foreign institutions, the invitation to international experts to deliver courses and by the presentation of the educational offer at international events

Criterion C.1. Existence and periodic implementation of the internal quality assurance system

The Quality Assurance System is designed and implemented. There are procedures to monitor the activity of all the actors of the doctoral domain and to collect feedback information. However, it is suggested to keep track of actions through an explicit action plan.

Standard C.1.1. There are an institutional framework and procedures in place and relevant internal quality assurance policies, applied for monitoring the internal quality assurance.

There is a defined framework for Quality Assurance, with procedures that have been implemented. The framework includes procedures for collecting information about students and advisors, the training program and the infrastructure. There are also procedures to detect deficiencies, but Action Plan is too generic, and does not define specific and measurable actions, with a specific person responsible to keep track of them and a deadline.

Performance Indicator C.1.1.1. *The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory:*

(a) the scientific work of Doctoral advisors;

(b) the infrastructure and logistics necessary to carry out the research activity;

(c) the procedures and subsequent rules based on which doctoral studies are organized;

d) the scientific activity of doctoral students;

e) the training program based on advanced academic studies of doctoral students;

f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.

The Doctoral School has specific procedures for the internal quality assurance and mechanisms for the periodic evaluation of the PhD supervisors, the PhD students' research activities, the infrastructure and facilities, the organization of the doctoral programme and the social and academic support services. The teaching and research staff periodically present the results of the research activity to the management of the department/faculty/university. In addition to these reports, there are also internal reports used to allocate funding to departments. All the procedures are updated periodically, in accordance with the modifications of national legislation.

Supplementary documentation includes the links to the different procedures covering the quality assurance system.

As a recommendation, minutes of the meetings and periodical reports must be explicit in the provided documentation.

The indicator is fulfilled.

Performance Indicator *C.1.1.2.* *Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.*

Doctoral students are periodically interviewed about the level of satisfaction regarding the advanced university training program and the scientific research program, using questionnaires. Supplementary documentation provides the templates for such questionnaires. However, the results in terms of satisfaction are not provided nor discussed. Following the processing of questionnaires and the analysis of the answers offered by doctoral students, a set of measures is established to improve the general level of satisfaction with doctoral studies. But the provided action plan is too generic.

As a recommendation, the periodical reports should include an action plan where deficiencies are identified and listed, and remedy actions are proposed along with a deadline, a responsible person and the indicators to measure the evolution of the detected problem.

The indicator is partially fulfilled.

Criterion C.2. Transparency of information and accessibility of learning resources

*general description of the criterion analysis.

Standard C.2.1. Information of interest to doctoral students, future candidates and public interest information is available for electronic format consultation.

The links for the doctoral school regulations, admission regulations, doctoral studies contract, information for public defence of the thesis and required standards, the content of training programs, the academic and scientific profile of supervisors, list of PhD students and links to abstracts of doctoral theses to be defended publicly are provided and they contain the expected information. As a

recommendation, the website of the doctoral domain should have its own domain or subdomain separate from the general University website.

Performance Indicator C.2.1.1. *The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:*

    (a) the Doctoral School regulation;

    (b) the admission regulation;

    (c) the doctoral studies contract;

    (d) the study completion regulation including the procedure for the public presentation of the thesis;

    (e) the content of training program based on advanced academic studies;

    (f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;

    (g) the list of doctoral students within the domain with necessary information (year of registration; advisor);

    (h) information on the standards for developing the doctoral thesis;

    (i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.

Students can easily access through the website of the Doctoral School (http://www.upt.ro/Informatii_studii-universitare-de-doctorat_266_ro.html) to all the information related to the doctoral studies: general regulations of the Doctoral School and specific regulations for admission and study completion, the doctoral studies contract, the content of the training programme and the profiles and research lines of PhD advisors. The information is available in in Romanian and English Additionally, the website also provides information about the doctoral students with the year of registration and advisor and the procedures for developing the doctoral thesis. The Politehnica University Timișoara ensures, from its own revenues, the publication of 25 additional copies of each doctoral thesis. Finally, the website provides links to the doctoral theses to be defended publicly, as well as the date, time and place where they will be defended and the CV of the doctoral student.

As a recommendation, the website of the doctoral domain should have its own domain or subdomain separate from the general University website.

The indicator is partially fulfilled.

Standard C.2.2. The IOSUD/The Doctoral School provides doctoral students with access to the resources needed for conducting doctoral studies.

Students have access to the electronic resources though international databases, to anti-plagiarism software and labs and the equipments and infrastructure required to perform their research.

Performance Indicator C.2.2.1. *All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.*

All PhD students have free access to the electronic resources and databases of the UPT Central Library. The Library databases can be accessed at https://library.upt.ro/baze-de-date/.

During the meetings with students, the accessibility of electronic resources was confirmed.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator C.2.2.2. *Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.*

The computer program iThenticate (http://www.ithenticate.com/) is used to analyze the degree of similarity of the content of doctoral theses with other documents. Similarity reports can be generated, at the request of the doctoral student or doctoral coordinator, in different phases of elaboration of the doctoral thesis, or of the scientific papers associated with the doctoral research program. The availability of this tool was confirmed during the meetings with students and supervisors.

There are no specific recommendations.
The indicator is fulfilled.

Performance Indicator C.2.2.3. *All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures*

The doctoral studies contract explicitly stipulates the obligations assumed by IOSUD-UPT regarding the access of doctoral students to the research infrastructure and facilities. Supplementary documentation provides the doctoral studies contract and the specific article that ensures the access of the doctoral student to the education and research infrastructure within the doctoral studies. During the meetings with students and graduates, it was confirmed the availability of previous facilities.

There are no specific recommendations.
The indicator is fulfilled.

Criterion C.3. Internationalization

The internationalizacion of the doctoral school is supported by the agreements with foreign institutions so that local students can have interships abroad, by the invitation to international experts to deliver courses and by the presentation of the educational offer at international events.

Standard C.3.1. There is a strategy in place and it is applied to enhance the internationalization of doctoral studies.

The internationalizacion of the doctoral school is supported by the agreements with foreign institutions so that local students can have interships abroad, by the invitation to international experts to deliver courses and by the presentation of the educational offer at international events.

Performance Indicator *C.3.1.1. *IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.*

The UPT keeps ERASMUS mobility agreements with many foreign higher education institutions abroad and cooperation agreements with enterprises, associations and research centres. The list of the doctoral students who have completed mobility internships for the field of Electronic Engineering,

Telecommunications and Information Technologies is detailed in the supplementary documentation and turns out to be 64.86%, clearly above the required limit. The Strategic Plan for the internationalization of the higher education aims to increase the degree of internationalization of PhD students.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator C.3.1.2. In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.

In the last 5 years, no thesis was co-supervised with foreign experts in the field of Electronic Engineering, Telecommunications and Information Technologies. Supplementary documentation proves that 33 senior experts have delivered courses/lectures to doctoral students during that period of time.

As a recommendation, it is suggested to put more efforts to achieve more international supervision agreements in the doctoral field.

The indicator is fulfilled.

Performance Indicator C.3.1.3. The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).

For the internationalization of the activities within the doctoral school, IOSUD - UPT participated in 9 promotion missions, at educational fairs, to attract international doctoral students, preparing collaboration agreements with prestigious universities. The event ware detailed in the self-assessment report. Other activities that support the internationalization of the doctoral domain are short-term mobilities abroad and participation of doctoral students in summer schools, conferences, and other events. Additionally, supervisor participate as members of the scientific committees of international publications and conferences, members of the boards of international professional associations; guest lecturer in conferences or groups of experts held abroad, and members of commissions for the defence of doctoral theses at foreign universities.

Supplementary documentation provides details of the activities supporting the internationalization of the doctoral domain.

There are no specific recommendations.

The indicator is fulfilled.

IV. SWOT Analysis

Strengths:	Weaknesses:
- The minimum requirement of at least 2 scientific papers indexed in the Web of Science set by the doctoral regulations - High number of research projects headed by PhD advisors	- Low scientific production in journals and magazines with impact factor - The capacity of attraction of students coming from other institutions different to UPT is low - PhD students publications should target higher ranked journals with impact factor

	Opportunities:	Threats:
	- The presence of an important technological industry in Timisoara could be used to strength the relationships between industry and University - Fluid communication between the University and companies - Fluid communication between PhD students and advisors	. The action plan is insufficient to guarantee that detected deficiencies are fixed.

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	**A.1.1.1.** The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain: a) the internal regulations of the Doctoral School; b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct; c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies); d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad; e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings; f) the contract for doctoral studies; g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.	**Fulfilled**	**The CSD meetings should be organized in a regular basis**
2.	PI	**A.1.1.2.** The doctoral school' Regulation includes mandatory criteria, procedures and	**Fulfilled**	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.		
3.	PI	**A.1.2.1.** The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.	**Fulfilled**	
4.	PI	**A.1.2.2.** The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.	**Fulfilled**	
5.	IP	**A.1.3.1.** Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.	**Fulfilled**	
6.	PI *	**A.1.3.2.** The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.	**Fulfilled**	
7.	PI *	**A.1.3.3.** At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).	**Fulfilled**	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
8.	CPI	**A.2.1.1.** The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly	**Fulfilled**	
9.	CPI	**A.3.1.1.** Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.	**Fulfilled**	
10.	PI *	**A.3.1.2.** At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.	**Fulfilled**	
11.	PI	**A.3.1.3.** The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.	**Fulfilled**	
12.	PI *	**A.3.1.4.** The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs does not exceed 20%.	**Fulfilled**	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
13.	CPI	**A.3.2.1.** At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.	**Fulfilled**	**Supervisors should increase their scientific production in journals and magazines with impact factor**
14.	PI *	**A.3.2.2.** At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years	**Fulfilled**	
15.	PI *	**B.1.1.1.** The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio	**Partially fulfilled**	**It is suggested to improve the visibility of the doctoral domain in other institutions, as the two ratios given by the criterion are below the limit**

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.		
16.	PI *	**B.1.2.1.** Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.	**Fulfilled**	
17.	PI	**B.1.2.2.** The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission does not exceed 30%.	**Fulfilled**	
18.	PI	**B.2.1.1.** The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.	**Fulfilled**	
19.	PI	**B.2.1.2.** At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.	**Fulfilled**	**It is suggested to cover deeply aspects related to Intellectual Property**
20.	PI	**B.2.1.3.** The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes", specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.	**Fulfilled**	**The disciplines' curricula should explicitly address the learning outcomes that students are expected to achieve. Currently, the include the objectives and competences. But while objectives generally describe the desirable knowledge, learning outcomes are a more specific description of what students will be able to do in some measurable way**
21.	PI	**B.2.1.4.** All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in	**Fulfilled**	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		written guidance and feedback or regular meeting.		
22.	CPI	**B.2.1.5**. For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.	**Fulfilled**	
23.	CPI	**B.3.1.1.** For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain	**Fulfilled**	**PhD students publications should target higher ranked journals with impact factor**
24.	PI *	**B.3.1.2.** The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.	**Fulfilled**	
25.	PI *	**B.3.2.1.** The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.	**Fulfilled**	
26.	PI *	**B.3.2.2.** The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have	**Fulfilled**	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		been presented within the past five years should be analyzed.		
27.	PI	**C.1.1.1.** The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory: a) the scientific work of Doctoral advisors; b) the infrastructure and logistics necessary to carry out the research activity; c) the procedures and subsequent rules based on which doctoral studies are organized; d) the scientific activity of doctoral students; e) the training program based on advanced academic studies of doctoral students; f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.	**Fulfilled**	
28.	PI *	**C.1.1.2.** Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.	**Partially fulfilled**	**The periodical reports should include an action plan where deficiencies are identified and listed, and remedy actions are proposed along with a deadline, a responsible person and the indicators to measure the evolution of the detected problem**
29.	CPI	**C.2.1.1.** The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as: a) the Doctoral School regulation; b) the admission regulation; c) the doctoral studies contract; d) the study completion regulation including the procedure for the public presentation of the thesis; e) the content of training program based on advanced academic studies; f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their	**Fulfilled**	**The website of the doctoral domain should have its own domain or subdomain separate from the general University website**

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		institutional contact data; g) the list of doctoral students within the domain with necessary information (year of registration; advisor); h) information on the standards for developing the doctoral thesis; i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.		
30.	PI	**C.2.2.1.** All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.	**Fulfilled**	
31.	PI	**C.2.2.2.** Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.	**Fulfilled**	
32.	PI	**C.2.2.3.** All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.	**Fulfilled**	
33.	PI *	**C.3.1.1.** IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.	**Fulfilled**	
34.	PI	**C.3.1.2.** In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of	**Fulfilled**	**It is suggested to put more efforts to achieve more international supervision agreements in the doctoral field**

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		leading experts to deliver courses/lectures for doctoral students.		
35.	**PI**	**C.3.1.3.** The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).	**Fulfilled**	

The recommendations contained in the report shall be resumed in the indicators' analysis. Other general recommendations may be made that do not fit within a particular indicator.

VERY IMPORTANT!!! – Each identified weakness must be correlated with at least one recommendation to improve the situation!

VI. Conclusions and general recommendations

Several important issues raised during the evaluation are resumed and some general conclusions are drawn on the quality of the education provided within the doctoral study domain under review; the Experts' Panel also presents general assessments about the institution. Other general recommendation may also be presented, which cannot be related to a specific indicator and have not been presnted at point V.

A decision is proposed, together with the reasons for granting it (if the Experts' Panel members do not reach a consensus, each of them can propose and argue his/her own decision).

From the analysis performed on the Internal Evaluation Report, as a result of the meetings held at all levels, it can be concluded that the doctoral domain of Electronic Engineering, Telecommunications and Information Technologies has a clear mission and well-defined objectives and programs, successfully responding to the growing needs of the market, being an interdisciplinary doctoral program that offers highly qualified specialists for research.

PhD students have access to the research infrastructure of the Doctoral School, the electronic resources more relevant in the field and anti-plagiarism software. Supervisors reach the CNATDCU requirements and are quite active in terms of their participation in projects and scientific production.

All quality indicators related to the standards and evaluation criteria are met, except for only two that are partially met. Some recommendations are proposed to fully accomplish both indicators, such as improving the visibility of the doctoral domain in other institutions outside UPT and a more detailed action plan where deficiencies are identified and listed, and remedy actions are proposed along with a deadline, a responsible person and the indicators to measure the evolution of the detected problem.

Some other recommendations have been made for the continuation of good practices and for the permanent improvement of the quality of the doctoral field. They are summarized in the table of section V.

VII. Annexes

The following types of documents shall be attached:

- *The detailed schedule of the evaluation visit – MANDATORY.*
- *The survey questionnaire applied to doctoral students or academic staff in the doctoral study domain under review, the results - optional (e.g., in graphic form) and their interpretation - if applicable.*
- *Scanned documents – any document requested from the IOSUD during the evaluation visit and received, which is not found in the internal evaluation file received before the visit and referred to in the report.*
- *Pictures – if relevant issues are raised regarding the condition of the student residences, cafeterias, premises for teaching and learning activities, library etc.*
- *Screenshots/Print screens of the Doctoral School/IOSUD website proving specific claims in the report, accompanied by the date when they were accessed and saved.*
- *Any other documents relevant to the evaluation process referred to in the report.*