Annex No. 3

The External Evaluation Report of a Doctoral Study Domain

Contents

I. Introduction[1]

Visiting Team:

- Prof. Petrica VIZUREANU, Universitatea Tehnica “Gh. Asachi” Iasi – coordinator
- Prof. Gultekin GOLLER, Istanbul Technical University – internațional expert
- Raul-George Ciubotariu, Universitatea Tehnica "Gheorghe Asachi" Iasi – student representative

Organization and progress of the university doctoral studies in the Doctoral Schools of the University of Pitești, which is accredited as Organizer Institution of University Doctoral Studies by the approving of CNATDCU in 22.07.1997. The Interdisciplinary Doctoral School is organized and carries on its activities based on the Regulation of organization and operation of the university doctoral studies within the Interdisciplinary Doctoral School within IOSUD University of Piteşti. Within the Interdisciplinary Doctoral School, the PhD directors of theses and the PhD students acts in the following doctoral domains: Materials Engineering, Electronic Engineering, Telecommunications and Informational Technologies, Industrial Engineering, Mechanical Engineering, Mathematics, Informatics, and Biology, these being 7 out of the 10 doctoral domains within UPIT.

The field of doctoral studies in Materials Engineering has operated in the University of Piteşti since 2000. Currently, the field operates at the University of Pitești with two active doctoral supervisors and mentors in the steering committee. The scientific research infrastructure consists, in particular, of laboratories belonging to the Department of Manufacturing and Industrial Management within the Faculty of Mechanics and Technology and to the Regional Research-Development Center for innovative materials, processes and products for the automotive industry - CRC & D-Auto, in which most of the teaching staff involved in the activities of the doctoral field Materials Engineering carry out their activity. The main laboratories within CRCD-Auto where the research activities in the field of industrial engineering are carried out are: the electron microscopy laboratory, the optical microscopy laboratory, the X-ray characterization laboratory,

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

the conception and product development laboratory, the manufacturing laboratory, the modeling laboratory. Simulation & Simulated Enterprise, Laboratory Systems Engineering & Lean Manufacturing.

II. Methods used

As a part of evaluation process, online meetings were done with the panel members, PhD students, academic staff, ethics and quality commission and employers of the doctoral graduates. All meetings were very productive. All the questions asked were answered and the suggestions were received very positively. It can be said that graduated students are allocated in highly prestigious institutions. Based on the information given in the meetings and shared documents, it was understood that the laboratories of the doctoral school were very well equipped and suitable for scientific researchs. All ethical issue aiming to cntrol all unexpected situation probable as well.

Since I did not have the chance to visit the school, I cannot comment on the physical spaces of the school.

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

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

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.

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:*

The criterion was met. At the level of IOSUD-UPIT, respectively of the Interdisciplinary Doctoral School, there are and one applies specific regulations regarding the organization of doctoral university studies.

(a) *the internal regulations of the Doctoral School;*

- Regulation on the organization and development of doctoral university studies within IOSUD University of Pitești, Annex I.1.1.2 Regulation on the organization and conduct of doctoral university studies;

- Regulation on the organization and development of doctoral university studies within the Interdisciplinary Doctoral School, Annex I.1.1.6 Regulation on the organization and development of doctoral university studies in SDI.

(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;*

- Methodology for organizing elections and appointing the members of the Council for doctoral studies (CSUD) within IOSUD University of Pitesti, Annex II.A.1.1.1.1 Election methodology CSUD,

- Methodology regarding the election of the members of the Council of the Interdisciplinary Doctoral School, Annex II.A.1.1.1.2 Methodology regarding the

organization and development of the process of selection and election of the management structures of the doctoral schools within IOSUD,

- Methodology for conducting the competition for the position of CSUD director, Annex II.A.1.1.1.3 Methodology for conducting the competition for the position of director of the Council of Doctoral Studies (CSUD) within IOSUD - University of Pitesti,

The CSUD Director Contest took place in 2012 for the 2012-2016 term, in 2016 for the 2016-2020 term and in 2020, for the 2020-2024 term. The nominal composition of CSUD is presented in the document Annex II.A.1.1.4 CSUD & CSD_2021 component.

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

- Methodology Regulation regarding the organization and development of the admission contest for the academic year 2021-2022 for the doctoral university study programs within the doctoral schools, Annex II.A.1.1.1.5 Methodology regarding the organization and development of the admission contest for the university study programs of doctorate from doctoral schools

- Regulation on the organization and conduct of doctoral studies in the Interdisciplinary Doctoral School, Annex I.1.1.6 Regulation on the organization and conduct of doctoral studies within the Interdisciplinary Doctoral School

- Methodology for completing doctoral studies and defending the doctoral thesis within the University of Pitești, Annex I.2.2.6 Methodology for completing doctoral studies and defending the doctoral thesis within UPIT.

Every year, at the proposal of CSD, respectively CSUD, the UPIT Senate approves the regulations, respectively, the methodologies for admission to doctoral university studies, at least 6 months before the date of the admission competition.

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

- Regulation on the organization and development of the doctoral university studies within the Interdisciplinary Doctoral School, Annex I.1.1.6 Regulation on the organization and development of the doctoral university studies within the Interdisciplinary Doctoral School.

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

- Regulation on the organization and conduct of doctoral studies within IOSUD University of Pitesti, Annex I.1.1.2 Regulation on the organization and conduct of doctoral studies,

- Regulation on the organization and development of the doctoral studies within the Interdisciplinary Doctoral School, Annex I.1.1.6 Regulation on the organization and development of the doctoral studies within the Interdisciplinary Doctoral School.

The Council of the Interdisciplinary Doctoral School, resulting from the elections of April 23, 2021 and approved in the CSUD meeting of April 29, 2014 (Annex II.A.1.1.1.6 Minutes of approval of the CSD in CSUD) had a series of meetings , especially on skype, both in its restricted form and having as guests the field managers within the school. The meetings took place on: 5 July 2021, 7 July 2021, 8 July 2021, 15 July 2021, 19 July 2021, 11 August 2021, 20 August 2021, 26 August 2021, 27 August 2021 (Annex II.A.1.1.1.7 CSD - SDI meetings).

f) the contract for doctoral studies;

The doctoral study contract is presented in Annex II.A.1.1.1.8 Contract for doctoral studies - example.

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

Internal procedure for the analysis and approval of proposals for the subject of the training program based on advanced university studies.

The topics of the doctoral study programs are established through direct discussions and consultations with the members of the Doctoral School Council, taking into account the Internal Plan for Research-Development-Innovation. The doctoral student proposes the topic together with the scientific director, the Doctoral School Council analyses it and, together with the scientific director, finalizes the topic that is subsequently included in the study contract. The advanced training program and the structure of the associated scientific research program are proposed by the scientific director and the doctoral student and are approved by the Doctoral School Council.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

The documents are given in Annex 17

The doctoral study contract is given in Annex II.A.1.1.1.8

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes and websites.

Recommendations:

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 indicator is met. Regulation on the organization and development of doctoral university studies in the Interdisciplinary Doctoral School (Annex I.1.1.2 Regulation on the organization and development of doctoral university studies in the Interdisciplinary Doctoral School and https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala- doctoral-interdisciplinary) includes all the criteria, procedures and mandatory standards mentioned in art.17, par. 5 of GD 681/2011, as follows:

(a) Article 10 makes specific references to the method of acceptance of new members of PhD Supervisors.

(b) Art. 11 provides the modalities by which the quality of member of the Interdisciplinary Doctoral School may be withdrawn from a doctoral supervisor.

(c) Article 12 specifies the mechanisms by which decisions are taken regarding the appropriateness, structure and content of the training program based on advanced university studies.

(d) Art. 13 and art. 14 describe the procedures for changing the doctoral supervisor or a member of the streering committee / mentor for a certain doctoral student and the procedures for mediating possible conflicts.

(e) Art. 15 specifies the situations in which the doctoral program may be interrupted, taking into account the fact that this aspect is often encountered. Thus, the specific aspects generated by: the actual interruption (art. 15 para. 1 (ad), extension (art. 15 para. 2 (ad), the grace period (art. 15

para. 3 ac) and the postponement are extensively treated). Although less likely, the measures taken in situations of non-acceptance of the doctoral thesis when defending before the mentors or following the analysis by CNADTCU are analyzed in Article 15 paragraphs 5 and 6.

(f) Awareness of respect for intellectual property is cultivated throughout doctoral studies, including the introduction of a course on ethics in the first year of study. However, for the prevention of fraud in scientific research, including plagiarism, Article 16 paragraphs 1-4 deals with the methods of prevention, but also the measures that can be taken to ascertain this irregularity.

(g) The access of doctoral students to the research resources of the school or research centers of the university is regulated by art. 17 para. 1-3.

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(h) The form of education in the Interdisciplinary Doctoral School is based on attendance, according to the methodologies elaborated by the Ministry of National Education (art. 18 paragraphs 1-3), and the doctoral supervisor establishes the place of attendance (in the university or in some research-development units with which agreements or institutional partnerships are concluded by IOSUD - University of Pitești).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

. Details related with these informations are given in the Annex I.1.1.2.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes.

Recommendations:

The indicator is fulfilled.

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

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 indicator is met. UPIT has an adequate software for the record of doctoral students and their academic career. The software is made in Microsoft Access and allows:

- the record of doctoral students per year of studies;

- the composition of the team of mentors for each doctoral student;

- the advanced training program of the doctoral student (study disciplines, scientific reports, etc.)

- timely planning of activities (exams, support reports, etc.);

- management of situations of interruption of doctoral studies.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

An extract from this software, referring to the doctoral students in the field of Materials Engineering, their academic course, is illustrated in Annex II.A.1.2.1.1 The academic course of the doctoral students in the field of Materials Engineering.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes.

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.*

The indicator is met. UPIT has and uses on a contract basis a software (www.sistemantiplagiat.ro, Annex II.A.1.2.2.1 Proof of existing anti-plagiarism program) to verify the similarity percentage for doctoral theses. Thus, the Procedure regarding the electronic anti-plagiarism preventive control of doctoral theses at the University of Pitești (Annex II.A.1.2.2.2 The procedure regarding the electronic anti-plagiarism preventive control of doctoral theses) mentions the steps to be taken to achieve electronic preventive control of the doctoral theses (at the request of the doctoral supervisor), respectively, the stages for the electronic control of the doctoral theses regarding the pre-defense and submission of the doctoral thesis. Also, the Procedure on how to use the anti-plagiarism system within the UPIT (Annex II.A.1.2.2.3 ReportSemPlag Nitu IA) presents the concrete use of the software and the thresholds established by each doctoral school and doctoral field for accepting the similarity generated report. For the PhD field Materials Engineering, the maximum limits of similarity coefficients and citations in the report generated by the anti-plagiarism program are: similarity coefficient 1 (percentage of text with all similar sentences discovered by the system in other documents - relative similarity) = 10% and coefficient of similarity 2 (percentage of text with similar fragments exceeding 25 words - absolute similarity or identity) = 5%.

The software has been used so far to verify doctoral theses in order to defend in front of the steering committee at IOSUD-UPIT and other doctoral fields within the Interdisciplinary Doctoral School and it has been used for the doctoral field Materials Engineering in the last five years (Annex II.A.1.2.2.3 ReportSemPlag Nitu IA - Alexandru Ionuț Nițu doctoral thesis).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Related information are given at *Annex II and www.sistemantiplagiat.ro*

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annex and website.

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.

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.

The indicator is met. The academics with activities in the field of PhD Materials Engineering have applied continuously to national and international competitions to fund scientific research projects.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the websites.

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%.*

The indicator is met **. In the academic year 2020-2021, in the Materials Engineering doctoral field there are 9 PhD students in internship, out of which 3 PhD students benefiting from funding from the state budget, 1 under doctoral agreement with UBM, France. Of these, 4 PhD students (Laura Teodorescu, Ecaterina Magdalena Gorgoi, Ovidiu Udrescu and Ion Pătrașcu) are financially supported by research grants, by their involvement as research members, on funded positions, in teams of research projects won through national competition.**

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details and copies of the agreements are given in report

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the report.

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.).*

[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 indicator is met **. At the level of the Interdisciplinary Doctoral School of which Materials Engineering the doctoral field is part, one establishes by a specific procedure, for each academic year, the use of revenues, and at the level of IOSUD-UPIT the use of doctoral funds benefits from a distinct accounting system. The values of the incomes and their destination for the last five academic years are presented in table II.A.4. It is highlighted that the value of the funds destined annually for research and professional training of doctoral students is over 5%.**

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details about the calculation method and about data specific to the area are presented in Annex II.A.1.3.3.1.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes.

Recommendations:

The indicator is fulfilled.

Criterion A.2. Research infrastructure

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

The Interdisciplinary Doctoral School has spaces and material endowment (laboratory equipment, computers, specific software, equipment, library, access to international databases, etc.) necessary to carry out research activities in the field of Materials Engineering.

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 indicator is met. The research infrastructure consists of the Advanced Materials Laboratory affiliated to the Regional Research-Development Center for materials, processes and innovative products for the automotive industry - CRC & D-Auto, the Materials Science and Engineering Laboratory of the Faculty of Mechanics and Technology and the Laboratory of Electronic measurements within the Research Center Modeling and Simulation of Processes and Systems (https://www.upit.ro/ro/academia-reorganizata/facultatea-de-electronica-comunicatii-si-calculatoare-2/cercetarestiintificafecc/centre-de- research-fecc / ccmsps-fecc). CRC & D-Auto is a research center of excellence in which highly competitive inter and multi-disciplinary research activities are carried out, within 12 research laboratories (Annex I.1.5.1 Presentation of the CRC & D-Auto research center). The research infrastructure has been developed in recent years through funded research projects (POCCE and PN III), internal research projects (funding from UPIT's own sources), research contracts with socio-economic partners or sponsorships. The laboratories have top equipment, special equipment and software, which allow research activities in the following directions: advanced characterization of materials (X-ray diffraction, SAXS, electron microscopy, optical microscopy, determination of residual stresses, determination of mechanical

properties - micro and macrodurity, mechanical strength, etc.), elaboration of oxide nanomaterials (hydrolytic synthesis, ultrasound-assisted synthesis, mirounde-assisted synthesis), heat treatments (thermal furnaces), elaboration of thin layers (spin-coating, magnetron sputerring).
The research infrastructure of CRC & D-Auto and CC MSPS are presented on the ERRIS platform: https://www.upit.ro/ro/cercetare-stiintifica/centrul-regional-crcd, http://erris.gov.ro/CENTRUL - DE-CERCETARE-MODELAR, and their offer of services is included in the Catalog of technological transfer services of UPIT, presented at: https://www.upit.ro/ro/cercetare-stiintifica/centrul-de-transfer-tehnologic / upit-service-offer. A significant part of the equipment within this research infrastructure, specific to the research activities in the field of PhD Materials Engineering, has been acquired and developed in the last 5 years (Annex I.2.5.1 Research equipment purchased during 2016-2020).
It should be noted that throughout the evaluation period, specialists and PhD students in the field of Materials Engineering had access to the infrastructure of the European Laboratory PROMES https: //www.promes. cnrs.fr/ through research contracts FP7 capacities and in the partner laboratories of research institutes.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

The research infrastructure is given on the website of the Doctoral School or the

websites of the centers (ex. https://www.upit.ro/ro/academia-reorganizata/facultatea-de-electronica-comunicatii-si-calculatoare-2/cercetarestiintificafecc/centre-de- research-fecc / ccmsps-fecc).

Annex I.1.5.1 Presentation of the CRC & D-Auto research center.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes and websites.

Recommendations:

The indicator is fulfilled.

Criterion A.3. Quality of Human Resources

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

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.*

The indicator is not met. Within the field of Materials Engineering doctoral studies, at the time of submitting the self-assessment file, there are 2 affiliated professors.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Related information is given in Annex II.A.3.1.3.2.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Relevant informations are given in the Annexes.

Recommendations:

The indicator is not fulfilled. A strategy should be created to increase the number of the PhD supervisors.

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.*

The indicator is met. Out of the 2 doctoral supervisors affiliated to the doctoral field, Materials Engineering, Ms. Adriana-Gabriela Plăiașu is employed in IOSUD-UPIT on the basis of an indefinite employment contract.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Relevant informations are given in the Annexes.

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.*

Indicator is met. The disciplines in the training program based on advanced university studies related to the doctoral field Materials Engineering are supported by academics who have the quality of PhD supervisor / habilitation degree, professor, associate professor, with proven expertise in the field of taught subjects. The four disciplines that ensure the formation of transversal competencies are supported by PhD supervisors from the three doctoral fields of the Faculty of Mechanics and Technology (Materials Engineering, Mechanical Engineering, Industrial Engineering), and the two disciplines that ensure the formation of specialized competencies (defined for each doctoral student depending on the research topic) are supported by other academics who have the quality of PhD supervisor / habilitation degree, professor, associate professor, with proven expertise in the field of subjects taught. Themes or chapters in these disciplines were supported by teaching staff whose competence is justified by the results obtained in scientific research and professional development, who meet the standards for teaching positions.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex II.A.3.1.3.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All regulations and relevant informations are given in the Annexes.

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%.*

The indicator is met. In the academic year 2020-2021, in the field of Materials Engineering doctorate there are 10 students enrolled, out of which 1 student is in the year of grace, 4 doctoral students are with grant and 5 with tuition fee.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in report.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the report.

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.

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.*

The indicator is met. The doctoral supervisors in the field of Materials Engineering have international visibility in the last five years, consisting in: membership in the scientific committees of international publications and conferences (M. Abrudeanu - ImanEE 2020, AG Plăiașu - ImanEE 2019, ImanEE 2020 ECAI 2020, ECAI 2021) and are members of the boards of international

[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 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.

professional associations (M. Abrudeanu: Full member of the Romanian Academy of Technical Sciences, AG Plăiașu: Member of the Romanian Chemical Society, Member of the Professional Association Modern Manufacturing Technologies MODTECH, Member of the CRIFST Association, Argeș branch. co-supervised with a foreign university. (M. Abrudeanu - Iuliu Trifa, A.G. Plăiașu 32
- COST committee member). (Annex II.A.3.1.3.2 CV Abrudeanu M., Annex II.A.3.1.3.4 CV Plaiasu G.) and organizes workshops dedicated to research and innovation in the field of materials engineering: International Workshop on Technology and Materials Engineering IWTME '2021, (http://ecai.ro/iwtme%27-2021 , workshop, (http://ecai.ro/iwtme%27-2021 , workshop http://upitmedia.ro/index.php/evenimente/item/797-workshopul-energie-pentru-viitor-reactoare-nucleare-de-generatie-iv-alfred-joi-17-octombrie,
http://upitmedia.ro/index.php/evenimente/item/837-imbunatatirea-performantelor-de-cercetare-prin-participarea-institutiilor-in-consortii-cdi-in-domeniile-prioritare-workshop-la-universitatea-din-pitesti)
The doctoral supervisors in the field of Materials Engineering have a no. of 42 relevant scientific publications (listed or indexed Web of Science) and 2 patents presented in the lists of papers.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details and supporting documents are given in Annex.

The level of international visibility is also highlighted by the values of the Hirsh indices of doctoral supervisors Annex II.A.3.2.1.1 Hirsh indices doctoral supervisors.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes.

Recommendations:

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

The indicator is met. The PhD supervisors in the field of Materials Engineering are scientifically active, fulfilling the scores required by the CNADTCU minimum standards. Mrs. prof.dr.chim.habil. Adriana-Gabriela Plăiașu is scientifically active, obtaining in the last five years more than 25% of the score required by the minimum CNATDCU standards necessary and mandatory for obtaining the habilitation certificate.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details and supporting documents are given in Annex II.A.3.1.1.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes*.*

Recommendations:

The indicator is fulfilled.

Domain B. EDUCATIONAL EFFECTIVENESS

**general description of domain analysis.*

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

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.

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 indicator is met. In the last 5 years, 11 candidates have entered the admission competition in the field of Materials Engineering (of which 4 were master's degree graduates from other higher education institutions), out of a total of 4 places financed from the budget state put out for competition.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in report.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the report*.*

Recommendations:

The indicator is fulfilled.

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

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.*

The indicator is met. Admission to doctoral study programs is based on selection criteria that include: the academic, research and professional performance of the candidates, their interest in scientific or artistic / sports research, publications in the field and a research topic proposal. Admission to doctoral university studies is based on the Admission Regulations at the University of Pitești (Annex II.A.1.1.1.5 Online Admission Regulations at UPIT 2021_2022) and the Methodology on organizing and conducting the admission competition to doctoral study programs within the Doctoral Schools of the University of Pitești (Annex II.A.1.1.1.6 Methodology

regarding the organization and conduct of the doctoral admission contest), approved by the UPIT Senate for each academic year and the Regulation on the organization and conduct of the PhD university studies in the Interdisciplinary Doctoral School within IOSUD University of Piteşti. An interview with the applicant is a mandatory part of the admission procedure. The admission methodology provides: the minimum conditions for sitting for the entrance exam (Art.7 - 10); how to register and the documents required for the registration of candidates (Art. 6 and Art.11); the manner of conducting the entrance exam (Art. 13 - 16), the method of evaluation and calculation of the grade at the entrance exam (Art. 17 - 20), the registration conditions (Art. 27 - 28).

It is highlighted that the admission methodology includes the following aspects:

- The competition for admission to doctoral university studies contains a specialized test, specific to the field of study - Art. 13 (1);

- The specific test for the competition for admission to doctoral studies corresponding to the doctoral field is held in front of a commission - Art. 15 (1);

- The specialized test for doctoral admission consists of the oral presentation of one's own concerns for scientific research, of the studied bibliography and of a direction in which the doctoral thesis would be completed. This presentation is followed by a clarifying discussion with the members of the admission commission for doctoral studies - Art.16.

On the IOSUD - UPIT website (https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/admitere-doctorate) one makes public annually: the admission methodology, the number of the places financed from the budget state and those with tuition fees, the amount of the tuituion fee, the admission calendar and the registration procedure for admission, and that of the doctoral field Materials Engineering (https://www.upit.ro/ro/academia-reorganizata/studii- de-doctorat / scoli-doctorale / scoala-doctorala-interdisciplinara / ingineriamaterialelor), as part of the Interdisciplinary Doctoral School, is displayed annually: the topic for each doctoral supervisor and the bibliography.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details and admission criteria in the past five years are given in (Annex II.A.1.1.1.5 Online Admission Regulations at UPIT 2021_2022.

Annex II.A.1.1.1.6 Methodology regarding the organization and conduct of the doctoral admission contest.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

***All relevant informations are given in the Annexes**.*

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%.*

The indicator is met. During the evaluated period, 10 doctoral students were admitted to the doctorate in the field of Materials Engineering. None of them gave up their doctoral training.

[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.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

***All relevant informations are given in the Annexes**.*

Recommendations:

The indicator is fulfilled.

Criterion B.2. The content of doctoral programs

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.

***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 indicator is met. The training based on advanced university studies is carried out in the first year of study through 4 compulsory disciplines common to doctoral fields in science: Mechanical Engineering, Mechatronics, Industrial Engineering and Management (Ethics and academic integrity, intellectual property rights; Information technology in research and documentation, elaboration of scientific research papers; Management of scientific research projects, research methods; Methods and techniques of statistical analysis of experimental data) and two disciplines established by each doctoral supervisor according to the skills and research topics of the guided doctoral students.

Disciplines: Management of scientific research projects, research methods; Methods and techniques of statistical analysis of experimental data, provided in the curriculum offer the doctoral student the basic training necessary for the preparation of the research project, research reports and doctoral thesis. Each subject in the curriculum has a course syllabus (Annex I.2.2.3 Course Syllabus) in which one arranged in order: program information, discipline information, estimated total time, prerequisites, deployment conditions, specific skills acquired, course goals, the contents, the bibliography, the corroboration of the contents of the discipline with the expectations of the representatives of the epistemic community, the professional associations and of the employers with activities in the doctoral field, and the evaluation.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details and supporting documents are given in Annex I.2.2.3 Course Syllabus.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

***All relevant informations are given in the Annexes**.*

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.*

The indicator is met. Among the 4 compulsory disciplines within the training program based on advanced university studies, common at the level of the Interdisciplinary Doctoral School and provided in the first year of study, is the discipline "Ethics and academic integrity, intellectual property rights" which contains the following topics: ethics in scientific research, industrial property, intellectual property, copyright.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

The subject sheet is given in the report.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the report..

Recommendations:

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 indicator is met. IOSUD-UPIT has created mechanisms to ensure that the training program based on advanced university studies of a doctoral field aims at "learning outcomes, at level 8 EQF / CNC, according to the Recommendation of the Council of the European Union of 22.05.2017, on the European Framework of Qualifications (Annex I.1.2.1 Procedure_level_8_EQF_CNC and Annex I.1.6.1 Curriculum DD_IM), in which the competences, skills and attitudes that doctoral students should acquire after completing it or through research activities are mentioned (Annex I.2.2.3 Course Syllabus). Credit points are provided for each discipline. The forms of evaluation of the study disciplines are exams, which are taken at the end of the semester in which the discipline is taught.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex I.1.2.1 Procedure_level_8_EQF_CNC and Annex I.1.6.1 Curriculum DD_IM.

Annex I.2.2.3 Course Syllabus.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes.

Recommendations:

The indicator is fulfilled.

[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.

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 indicator is met. Throughout the doctoral training period, doctoral students in the field of Materials Engineering benefit from the counseling and guidance of some guidance commissions (mentors), which are established since the enrollment of the doctoral student (Annex I.2.3.2 Mentors in Materials Engineering). This is done through regular meetings (established by each mentor), email communication, participation in scientific events and elaboration of scientific papers. Their counseling / guidance is done as follows: through regular meetings (established by each mentor, including online and email communication), on the occasion of supporting scientific reports, in scientific research projects , by joint elaboration and publication of scientific papers (Annex II.B.2.1.4.1 List of doctoral dissertations).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex I.2.3.2 Mentors in Materials Engineering.

Annex II.B.2.1.4.1 List of doctoral dissertations.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes.

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 indicator is met. The total number of teaching staff / researchers who provide guidance to doctoral students is 9 holders of UPIT and 2 holders of co-tutoring partner institutions, and the total number of doctoral students (including those in the grace year, postponement of thesis and doctoral collaboration) is 10.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in report

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the report*.*

Recommendations:

The indicator is fulfilled.

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

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

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.*

Indicator is met. In the doctoral field of Materials Engineering, in the last 5 years, 1 graduate (Ionuț Alexandru Nițu) defended the doctoral thesis, currently a researcher at ICN Mioveni, with activities in the development of techniques for the characterization of nuclear materials. Also, 2 PhD students Andreea Roșu and Iustin Popa defended their thesis in the steering committee. Each of them presented and published scientific papers that make original and significant contributions to the development of the field according to the synthesis

1. **Al. Nițu, V. Radu, M. Abrudeanu, The study of the mechanical properties of small tubes made from Oxide Dispersion Strengthened steel by using the Ring Tension Tests, Revista de chimie ISSN 0034-7752, vol. 69, pp. 3033 – 3037, nr. 11/2018 (accept de publicare nr.51/18.04.2018), WOS:000451931500015**
2. **Al. Nițu, V. Radu, M. Abrudeanu, Investigation of the fracture mechanics properties of small tubes from Oxide Dispersion Strengthened steels, Revista de chimie ISSN 0034-7752, vol. 69, pp. 3533 – 3537 ,nr. 12/2018 (accept de publicare nr.51/18.04.2018), WOS:000458533800042**
3. **A. Popa, A. E. Rosu, G. Neacsu, D. C.n Anghel, V. Rizea, M Branzei, CM. Ducu, M.M. Dicu, M. Abrudeanu The influence of the high temperatures thermal shocks on the microstructure and harness of zircaloy-4 alloy, Revista de chimie, 69(7), 1655-1660, july, 2018, WOS:000444595700011**
4. **Al. Nitu, L.Aioanei, A.Vâlcu, V. Radu, M. Hororoi, V.Ionescu, L. Stoica, D. Toma,V.Olaru, Control System Development for Liquid Lead Testing Installation, Conferința NUCLEAR 2021, 26-28 mai, 2021**
5. **L. N. Stoica, A. I. Nitu, V. Radu, Study on the mechanical properties of generation IV innovative materials by non-standardized method, Romanian Journal of Physics 65, 904 (2020).**

   All selected articles were published in high impact factor journals. It should be said that all articles will make significant contributions to the relevant literature.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

The papers published during the completed thesis period, but also by doctoral students in the process of thesis completion are given in Annex II.B.2.1.4.1 List of doctoral students' papers.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes*.*

Recommendations:

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 indicator is met. A doctoral student has publicly defended the thesis and has presented and published so far a number of 5 scientific papers at prestigious international scientific events.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex II.B.2.1.4.1 List of doctoral students' papers .

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

***All relevant informations are given in the Annexes**.*

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.

***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.*

The indicator is met. In the Materials Engineering doctoral field, in the last 5 years, only one graduate defended his doctoral thesis. The number of reviewers from other higher education institutions is 4, for the graduated student. The public streeting committe was formed by two specialists in the field from Pitesti Nuclear Research Institute, a doctoral supervisor from the Polytechnic University of Bucharest, a doctoral supervisor from Gheorghe Asachi Technical University of Iași, a doctoral supervisor from the University of Pitești, the scientific supervisor of the thesis, and the president was the CSUD Director, specialist in Materials Physics.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in the Annexes.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

***All relevant informations are given in the Annexes**.*

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.*

In the assessed doctoral field, In the doctoral field, Materials Engineering, in the last 5 years, 1 graduate defended his doctoral thesis and obtained the doctorate. In the Advisory Committee, 2 graduates defended their thesis. Therefore the criterion is not assessed.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Recommendations:

The criterian is not assessed. Number of the PhD students should be increased.

Domain C. QUALITY MANAGEMENT

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

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.

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 indicator is met. Within IOSUD - UPIT there is a methodology (Annex II.C.1.1.1.1 UPIT methodology for self-evaluation of IOSUD activity and https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/regulamente -si-legislatie-nationala-iosud) which considers the periodic self-evaluation of doctoral university study programs, by quantifying their degree of quality assurance based on several self-evaluation criteria (such as: the existence and quality of teaching staff, the content of the educational process, the doctoral students, the content and results of the scientific research, the material basis, the scientific, professional and university ethics), to which performance indicators are associated.

a) in connection with the scientific activity of PhD supervisors:

- The PhD supervisors from the Interdisciplinary Doctoral School report annually, on the SIIIMADC platform of the University of Pitești (https://www.upit.ro/profesor/home) the results of their research activities from the previous year. This annual report is mandatory, and the reporting

is based on the CNATDCU criteria in force at that date. An example of such a report is presented in Annex II.A.3.1.1.2 CNATDCU-Plaiasu minimum compliance check sheet.

- The evaluation of PhD supervisors is done annually according to the Methodology regarding the internal evaluation of the performances of the PhD supervisors from the doctoral schools (Annex II.C.1.1.1.2 UPIT Methodology. Evaluation of PhD supervisors performances and https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/regulamente-si-legislatie-nationala-iosud).

b) in connection with the infrastructure and logistics necessary for carrying out the research activity:

- The research activity is carried out in the laboratories of the research centers where the doctoral supervisors and mentors work. The PhD supervisors and mentors of the PhD students in the field of Industrial Engineering are affiliated to the Regional Research-Development Center for innovative materials, processes and products destined to CRC & D-Auto automotive industry.

- In order to ensure the quality of the activities carried out in the research centers, each center is evaluated annually, according to the Operational Procedure: Setting up, Internal Certification and Evaluation of Research Units (Annex II.C.1.1.1.3 OP setting up, evaluation, UC certification). This evaluation is coordinated by the Scientific Research Council of UPIT, and the research centers that meet the minimum standards imposed (with reference to the criteria: Human resources and research-development-innovation activities; Results of research-development-innovation activities; socio-economic environment and visibility, research infrastructure and portfolio of services offered - Annex II.C.1.1.1.4 Criteria and minimum standards evaluation CC) are institutionally certified.

c) doctoral studies are organized based on (https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/regulamente-si-legislatie-nationala-iosud):

- Regulation on the organization and conduct of doctoral studies within IOSUD University of Pitesti (Annex I.1.1.2 Regulation on the organization and conduct of doctoral studies within IOSUD University of Pitesti);

- Regulation on the organization and development of doctoral studies in the Interdisciplinary Doctoral School within IOSUD University of Pitesti (Annex I.1.1.6 Regulation on the organization and development of doctoral studies in the Interdisciplinary Doctoral School within IOSUD University of Pitesti)

- The methodology regarding the organization and development of the admission contest to the doctoral university study programs within the doctoral schools of the University of Pitești (Annex II.A.1.1.1.5 The methodology regarding the organization and development of the doctoral admission contest);

- Regulation on the professional activities of doctoral university studies (Annex I.2.2.1 Regulation on the professional activities of doctoral university studies);

- Methodology on taking exams, research projects and reports for doctoral studies at the University of Pitesti (Annex I.2.2.2 Methodology on taking exams, research projects and reports for doctoral studies at UPIT including in emergency situations); Methodology for completing doctoral studies and defending the doctoral thesis within the University of Piteşti (Annex I.2.2.6 Methodology for completing doctoral studies and defending the doctoral thesis within UPIT).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annexes and websites.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes and websites.

Recommendations:

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.*

The indicator is met. At the level of the Interdisciplinary Doctoral School, the Working Instruction is implemented - the evaluation of the general level of satisfaction of the doctoral students towards the doctoral university study program (Annex II.C.1.1.2.1-The evaluation of the general level of satisfaction of the doctoral students towards the doctoral university study program). Thus, at the end of each academic year, under the coordination of CEAC-SDI, the person in charge of the doctoral studies program elaborates a questionnaire, which he sends to the doctoral students for completion. In the academic year 2020-2021, for the doctoral field Materials Engineering, the questionnaire was completed and sent to doctoral students through the Google platform (Annex II.C.1.1.2.2 Questionnaire).

The results (Annex II.C.1.1.2.3 Results of questionnaire) were analyzed by CEAC-SDI together with the person in charge of the study program, who drew up a plan of measures (Annex II.C.1.1.2.4 - Plan of measures) to increase the degree of satisfaction of doctoral students regarding the Materials Engineering study program.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Relevant information are given in Annex II.C.1.1.2.2 Questionnaire.

Annex II.C.1.1.2.3 Results of questionnaire

Annex II.C.1.1.2.4 - Plan of measures

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes.

Recommendations:

The indicator is fulfilled.

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

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

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;

https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/regulamente-si-legislatie-nationala-iosud

(b) *the admission regulation;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/regulamente-si-legislatie-nationala-iosud

(c) *the doctoral studies contract;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/formulare-utile1

(d) *the study completion regulation including the procedure for the public presentation of the thesis;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/teze-de-doctorat

(e) *the content of training program based on advanced academic studies;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala-doctorala-interdisciplinara/ingineriamaterialelor

(f) *the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala-doctorala-interdisciplinara/ingineriamaterialelor

(g) *the list of doctoral students within the domain with necessary information (year of registration; advisor);*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala-doctorala-interdisciplinara/ingineriamaterialelor

(h) *information on the standards for developing the doctoral thesis;*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala-doctorala-interdisciplinara/ingineriamaterialelor

(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.*
https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/teze-de-doctorat

The indicator is met - all information is available on the websites,

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Detailed informations are given in websites.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the website.

Recommendations:

The indicator is fulfilled.

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

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.*

Indicator is met. All UPIT students (including doctoral students) have access to international databases, UPIT being a member of the ANELIS + project (Annex II.A.2.1.1.1 ANELIS Contract). The way in which they can access these databases is presented at: http://cat-biblioteca.upit.ro/bibl/Pagina%20WEB/Site_nou/BazeDate.htm.
Access can be made from a computer with the UPIT IP (mandatory for the first time, in order to create the account) or it can be mobile.
The relevant databases for the PhD field in Industrial Engineering, to which PhD students have access, is Springerlink, Science Direct, MathSciNet, Scopus. There is also access to the integrative database (scientometric data) Web of Science.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Details are given in Annex II.A.2.1.1.1 ANELIS Contract

. The way in which student can access these databases is presented at: http://cat-biblioteca.upit.ro/bibl/Pagina%20WEB/Site_nou/BazeDate.htm.

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes and websites.

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.*
Indicator is met. UPIT has and uses a computer program (www.sistemantiplagiat.ro) to verify the percentage of similarity in all doctoral theses. Thus, according to the procedure on electronic preventive anti-plagiarism control of doctoral theses (Annex II.A.1.2.2.2 Procedure on electronic preventive anti-plagiarism control of doctoral theses), each doctoral student has access, upon request and with the consent of the PhD supervisor, to this electronic system for verifying the degree of similarity with other existing scientific or artistic creations.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Annex II.A.1.2.2.2 Procedure on electronic preventive anti-plagiarism control of doctoral theses

www.sistemantiplagiat.ro

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes and website.

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.*

Indicator is met. According to the rights explicitly mentioned in the Regulation on the organization and conduct of doctoral studies - art. 44 (f) (Annex I.1.1.2 Regulation on the

organization and conduct of doctoral studies), doctoral students have access to "logistics, libraries and other possibilities for documentation, as well as to UPIT equipment".

PhD students in the field of Materials Engineering carry out research activity, mainly in laboratories belonging to the Regional Research-Development Center for innovative materials, processes and products for the automotive industry - CRC & D-Auto, and access to these places takes place according to "Procedure CRC & D-Auto infrastructure access", available at (https://www.upit.ro/ro/cercetare-stiintifica/centrul-regional-crcd) and the Modeling and Processes and Systems Research Center (https://www.upit.ro/ro/academia-reorganizata/facultatea-de-electronica-comunicatii-si-calculatoare-2/cercetarestiintificafecc/centre-de-cercetare-fecc/ccmsps-fecc).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Annex I.1.1.2 Regulation on the organization and conduct of doctoral studies.

https://www.upit.ro/ro/cercetare-stiintifica/centrul-regional-crcd

https://www.upit.ro/ro/academia-reorganizata/facultatea-de-electronica-comunicatii-si-calculatoare-2/cercetarestiintificafecc/centre-de-cercetare-fecc/ccmsps-fecc

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All relevant informations are given in the Annexes and websites.

Recommendations:

The indicator is fulfilled.

Criterion C.3. Internationalization

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

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.*

Indicator is met. The Materials Engineering Doctoral field has been developed on the basis of a wide international collaboration (with 14 universities and French "grandes écoles"). The PhD field of Materials Engineering has concluded, through the Center for International Relations and the ERASMUS Office (https://www.upit.ro/ro/international), mobility agreements with foreign universities that carry out doctoral research activities in the field of Materials Engineering, agreements aimed at the mobility of doctoral students and teaching staff.

IOSUD-UPIT also develops and implements policies and action plans aimed at increasing the number of doctoral students participating in training courses abroad, up to at least 20%, which is the target at the level of the European Higher Education Area. In this sense, the UPIT Internationalization Strategy 2020-2027 (Annex II.C.3.1.1.3 UPIT Internationalization Strategy 2020-

2027) provides for 15 concrete strategic objectives, with action plans for each of them, which include actions, measures, projects, result indicators and deadlines. In the period 2018-2021, doctoral student Laura Teodorescu benefited from ERASMUS funding for the research internship, and doctoral student Magdalena Modan participated in the training on "Substitution of CRM: preparation of extreme materials by application of HP-HT and SPS methods" " The course is part of the E-Cost project „EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY, held on 7-8 FEBRUARY 2019 at the Institute of Advanced Manufacturing Technologies, Krakow (Annex II.C.3.1.1.2 Diplome training proiect COST).

A number of 7 PhD students (70%) have presented 30 scientific papers at international conferences ECAI 2021 - International Workshop on Technology and Materials Engineering IWTME' 2021 http://ecai.ro/iwtme%27-2021, IMANEE - INNOVATIVE MANUFACTURING ENGINEERING & ENERGY INTERNATIONAL CONFERENCE, The 25th edition of IManEE 2021 International Conference https://www.imane.ro/, NUCLEAR 2021 - THE 13th ANNUAL INTERNATIONAL CONFERENCES ON SUSTAINABLE DEVELOPMENT THROUGH NUCLEAR RESEARCH AND EDUCATION https://nuclear.ro/online_registration/register.php, COFRET 2021 - Colloque Francophone en Energie, Environnement, Economie et Thermodynamique http://cofret2021.eu/index.php/cofret/2021.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

https://www.upit.ro/ro/international

Annex II.C.3.1.1.3 UPIT Internationalization Strategy 2020-2027

Annex II.C.3.1.1.2 Diplome training proiect COST

http://ecai.ro/iwtme%27-2021

https://nuclear.ro/online_registration/register.php

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes and websites.

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.*

Indicator is met. Within the field of doctorate in Materials Engineering there are consolidated collaborations with partner universities in France, in which 7 doctorates in co-supervision have been completed (mentioned in Annex II.C.3.1.2.1 Theses in co-supervision I. Mat.) There are also conventions with universities in France through which academic teaching staff (including ability) support teaching activities within the master's programs Materials Science and Technology - STM, with a double degree (Romanian and French - diploma of the Polytechnic Institute of Toulouse, for which all teaching activities are carried out in French, with the involvement of professors from France (Annex II.C.3.1.2.2 STM master collaboration agreement). Thus, doctoral students can attend specialized courses and scientific seminars organized on the occasion of their arrival, which are special premises for the achieving of doctorates in international co-supervision. Funding for the travel of international experts to deliver international lectures was based on ERASMUS agreements, but also on the project Soutien aux formation

francophones, science et technologie des materiaux, Agence Universitaire de la Francophonie (Support for Francophone training, science and technology of materials, Agence Universitaire de la Francophonie), Call: Support for Francophone training, Science and Technology of materials. (Annex II.C.3.1.2.3 AUF Project).

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Annex II.C.3.1.2.1 Theses in co-supervision I. Mat

Annex II.C.3.1.2.2 STM master collaboration agreement

Annex II.C.3.1.2.3 AUF Project

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

All relevant informations are given in the Annexes.

Recommendations:

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.).*

The indicator is met. The internationalization of the activities within the doctoral studies is supported at IOSUD-UPIT level through concrete measures, such as: participation in educational fairs to attract international doctoral students, inclusion of international experts in committees for defending doctoral theses (Annex II.C.3.1. 2.1 Theses in co-supervision), as well as by organizing Summer Schools (Annex II.C.3.1.3.1 Summer School) and thematic workshops in prestigious international conferences (www.ecai.ro). Also, during the lectures delivered by academics with activities in the field of PhD Materials Engineering on the occasion of international mobility (Annex II.C.3.1.3.2 International teacher mobility) one presented the possibilities of collaboration in the field of scientific research, including doctoral collaboration.

Also, the Interdisciplinary Master (in the field of industrial engineering) - Materials Science and Technology - master's degree with double degree (UPIT-INP Toulouse) conducted in French - is based on a collaboration agreement with INP Toulouse (II.C.3.1.2.2 International collaboration agreement - STM master), with the involvement of professors from France. These collaborations allow, on the one hand, the master-students to be involved in the international research activity (by carrying out internships at partner universities) and, thus, to be attracted to doctoral studies and, on the other hand, to allow doctoral students to attend some specialized courses and / or scientific seminars organized on the occasion of their arrival. Both aspects constitute special premises for the achievement of doctorates in international co-supervision.

The financial support of these international collaborations was made on the basis of ERASMUS agreements, but also on the basis of the project: Support for Francophone training, science and technology of materials, Agence Universitaire de la Francophonie, Call: Support for Francophone training, Science and Technology of materials, which financed the travel of international experts to deliver lectures. (Annex II.C.3.1.2.3 AUF Project).

Also, through the Center for International Relations of UPIT, the research topics proposed to potential doctoral and postdoctoral students benefiting from the Eugen Ionescu scholarships are

updated (https://www.auf.org/europe-centrale-orientale/nos-actions/toutes- our-actions / doctoral-and-post-doctoral-research-fellowships-eugen-ionescu /). An example of such proposed research topics is presented in Annex II.C.3.1.3.2 Research topics for Eugen Ionescu scholarships. Under the coordination of the mentor Mihai Oproescu, in the period 2016-2021, the following doctoral students carried out research internships for the elaboration of the thesis, within the Eugen Ionescu scholarship program: drd. Badre Bossoufi, Faculty of Sciences; Sidi Mohamed Ben Abdellah University theme: Nonlinear Non Adaptive Backstepping with Sliding-Mode Torque Control Approach for PMSM Motor and drd. Mustapha Jamma's, Mohammed V University of Rabat, theme: High frequency coil operation in power converters.

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Annex II.C.3.1. 2.1 Theses in co-supervision

Annex II.C.3.1.3.1 Summer School

Annex II.C.3.1.2.3 AUF Project

https://www.auf.org/europe-centrale-orientale/nos-actions/toutes- our-actions / doctoral-and-post-doctoral-research-fellowships-eugen-ionescu /

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All relevant informations are given in the Annexes and websites.

Recommendations:

The indicator is fulfilled.

IV. SWOT Analysis

Strengths: -Competence of Ph.D. supervisors. - the laboratories and infrastructures of the doctoral school are very well equipped and suitable for scientific researches.	**Weaknesses:** - Number of ongoing research project is low. - Lack of international projects and a relatively modest level of internationalization. - Low number of PhD supervisors.
Opportunities: - National/international visibility of leaders. - Existing public-private partnerships.	**Threats:** - Low number of PhD supervisor

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations

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.

VI. Conclusions and general recommendations

Self assessment report has been prepared in detailed and provides the opportunity to answer most of the possible questions. As a part of evaluation process, online meetings were carried out with the panel members, PhD students, academic staff, ethics and quality commission and employers of the doctoral graduates. All meetings were very productive. All the questions asked were answered and the suggestions were received very positively.

My observations and recommendations during the evaluation of self study report and meeting with different shareholder of the material science doctoral program of the University of Piteşti are listed below:

1. *Based on the information given in the meetings and shared documents, it was understood that the laboratories and infrastructures of the doctoral school are very well equipped and suitable for scientific researches.*
2. *The individual studies of the professors and their efforts in improving international cooperation are commendable.*
3. *There are only 2 PhD supervisors. Thus, a strategy should be created to increase the number of the PhD supervisors.*
4. *Doctoral school provides students to an interdisciplinary study opportunity. This is very beneficial for the students.*
5. *There is a cooperation with the France to carry out PhD thesis. Studies on nuclear materials and batteries are carried out in the department. It was pointed out that it is considered a chance for the school that the automotive sector close to the university. Academic staff mentioned that there is collaboration with the private company while determining PhD thesis subjects.*
6. *PhD students emphasized that interdisciplinary character of the doctoral school is an important attractive point for the university. They stated out that they have all totally satisfied with the PhD supervisors competency. Most of the students have been to abroad and have very useful internship experience during their PhD studies. They also mentioned that research teams offering new horizons to the students. Some students are supported by the private company and some of them are supported by the research grants and different programs like Erasmus. University supported the students for the conference participation and article publishing.*
7. *Number of ongoing research project is low. This effects the income and attractiveness of the department. A strategy should be developed for material and financial supporting to research.*
8. *Another important issue, number of the PhD students is not enough. A strategy should be developed to increase the number of PhD students.*
9. *Members of Ethics Commission was pointed out that the commission consisted of 10 people, including 7 teaching staff and 3 students. They stated that they have good collaboration with the doctoral school. Members of the committee emphasized that committee are having*

meeting on a regular basis and also mentioned that committee come together when necessary. It was observed that committee members have good coordination and harmony.

10. *In the meeting with the graduate students, there was only 1 graduate student in the meeting.. He mentioned that he could found all the necessary knowledge at the university and also pointed out that the university has well equipped laboratories and very good databases necessary for his studies. He emphasized that his expectation fulfilled end of their PhD studies. He pointed out that he had some problems related to how can he carry out a PhD thesis and write a PhD thesis. His supervisors taught him methodology and he seemed quite content with it. He emphasized that he worked on 2 international project during his PhD studies. One of those project supported by European Union. He pointed out that he went abroad for 1 month of a year for each projects. He also mentioned that he participated the conference and published article during his PhD studies. He received scholarship and also received conference attendance, article publishing and travel support from his international project budgets. He said that they had a good cooperation with their supervisor and had meetings with his supervisors almost every week. He mentioned that he had good cooperation with the doctoral school.*

11. *From the meetings with representative with the research centers, it was pointed out that PhD students can use the equipment and the other facilities in the laboratories. They supported the departments during their research activities. It was mentioned that they carried out some studies related with the improving the performance of the solar cell and achieving nanosensor. Articles were published from the studies carried out at the research centers. They mentioned that these articles increased their visibility at the international level. Research centers were supported by the university and also they obtained budget from the research projects. It was observed from the meetings that students impressed from the infrastructure of the centers and the enthusiasm of the research centers staff.*

12. *During the meetings, representative of the employers mentioned that they have good collaboration with the university.*

13. *At the whole evaluation process, evaluation team carried out the mission with a great harmony and coordination.*

14. *As a final point, one performance of critical indicators (A.3.1.1) is not fulfilled and for the other all performance indicators are awarded the grade fulfilled;*

15. *The Committee of Expert Assessors proposes the grade*

Regards,

Prof. Dr. Gultekin Goller