

The External Evaluation Report of a Doctoral Study Domain

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I. Introduction

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.).*

The evaluation of the doctoral study domains of the University Politehnica of Bucharest was during 14-25 of June 2021. Due to the pandemic the main activities were organised online over developed schedule of meetings with key representatives from the domain. (Annex 1)

The team for the Mechanical engineering doctoral school was:

- expert evaluator, Domnisoru Leonard, Universitatea "Dunărea de Jos" din Galați
- expert international, Djidrov Mishko, "Goce Delcev" University, Republic of Macedonia,
- student representative, Ovidiu Constantin Fudulache, Universitatea din Craiova

The site visit was organised on 22.06.2021 where prof. Domnisoru Leonard and student representative Ovidiu Constantin Fudulache made the visit.

POLITEHNICA University of Bucharest organizes its work in 15 faculties and with:

- Bachelor's degree studies in 17 scientific fields over 88 undergraduate study programs;
- Master's degree studies in 22 scientific fields in 191 study programs; and
- Doctoral studies, through the 14 doctoral schools.



Approximately 30,000 students are enrolled at the university in numerous study programs on three level of education. This number is enriched by almost 780 foreign students. The university has been classified as advanced research and education university and is the only university in Romania with A ranking for all study programs.

In 2012, there were 13 doctoral schools at UPB at Electrical, Energy, Automatic and Computer Engineering, Electronics, Telecommunications and Information Technology, Mechanical and Mechatronics Engineering, Technological Systems Engineering and Management, Biotechnical Systems Engineering, Transportation, Aerospace Engineering, Materials Science and Engineering, Applied Chemistry and Materials Science, Applied Sciences, Entrepreneurship, Business Engineering and Management.

In 2013 another Doctoral School of Engineering and Applications of Lasers and Accelerators was established and with that we have total of 14 doctoral schools at UPB.

The doctoral school part of this evaluation, the Doctoral Field of Mechanical Engineering there are doctoral schools of Mechanical and Mechatronics Engineering, Industrial and Robotics Engineering, Biotechnical Systems Engineering, Transport and Aerospace Engineering.

The Doctoral School of Mechanical and Mechatronics Engineering was established on 24.04.2012. The DC has 26 doctoral supervisors and 145 doctoral students in the internship. In the period 2016-2020, 33 theses were defended which represents 22.7%.

The Doctoral School of Industrial and Robotic Engineering was established by Decision of the UPB Senate in May 2012. In September 2019, the Doctoral School was named the Doctoral School of Industrial and Robotic Engineering.

This school has 8 doctoral supervisors and 52 doctoral students in the internship. In the period 2016- 2020, 6 theses were defended which represents 11%.

The Doctoral School of Biotechnical Systems Engineering was established on 23.04.2012.

This school has 8 doctoral supervisors and 47 doctoral students in internships. Between 2016 and 2020, at the ISB Doctoral School, a number of 22 theses were publicly defended - in the field of IM which represents 46%.

All the Doctoral Schools in the field of Mechanical Engineering have clear objectives to train scientific researchers with a high level of qualification in cutting-edge fields of technology areas that will make them capable of participating in complex research projects or curricula execution. Their mission is focused on education and training, scientific research for knowledge production, creativity and innovation.

The number of doctoral supervisors in the field of Mechanical Engineering from IOSUD-UPB on 11- 12-2020 was 42, where on FIMM the number is 26, on ISB is 8, and on IIR is also 8. (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) – it is around 60%

The number of students is 51, where on FIMM the number is 31, on ISB is 7, and on IIR is 13 in the time of the evaluation report writing.

The number of thesis defending in 2020 was 8, where the number by school is - FIMM with 3, on ISB is also 3 and on IIR is 2. All of this adds to the total number of 61 in the last 5 years.

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.

For the process of evaluating the doctoral study domain the starting point of the evaluation was analysis of the Self-assessment report about the domain. The structure and the elements well enough define the doctoral domain. On 69 pages the domain is

explained over general information section including information about the intuitional capacity and mission and objectives of the domain. The process of teaching, learning and evaluation is explained and information on human, material, and financial resources is presented. The internal quality assurance system is presented, and all key information are presented necessary for the specific standards, indicators, and criteria to be met.

Since the international evaluators were only working online and no visit was conducted, the documents that were analysed were presented in an electronic form on the cloud service site and send by email. All presented documents were more than sufficient for the purpose of the evaluation.

The meeting/discussions were organised online on Zoom platform in a timely manner basing on the greed time frame of work. The meeting/discussions all were opened with few information from who are we meeting and then most of the participants represented their position or relation to the doctoral domain. After that open discussion was encouraged with questions asked by the evaluators. Easily the discussion was developed in an open conversation that leded to clarification of many key points.

For the meeting with PhD students questionnaire was prepared and distributed and analysis was done on the results.

There were not organised online meetings with Career Counselling and Guidance Center, student organisation, secretariats and other administrative offices like Social/Student Residences-Cafeterias etc.

All analysis of the presented data and documents are part of the performance indicators section.

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

The institutional capacity of UPB is not just to be strong driver of the development of Romanian society, but to improve its managing activities, infrastructure and support functions, resulting in an improved quality of research, education and outreach in process of continuous improvement.

Two of the objectives of the university are:

- Development of an efficient management system, of participatory leadership in all activities;
- Identifying and attracting as many sources of extra-budgetary revenues as possible, with a shift in focus to reducing the share of budget expenditures;

This shows that the university has defined key objectives dedicated to this indicator. This is even more detailed defined in the specific objectives (page 5 in Self-assessment report).

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

The doctoral study domains work is framed in the following normative acts:

- Law of National Education No 1/2011, with subsequent amendments and additions
- Code of Doctoral Studies approved in Romanian Government Decision No. 681 of 29 June 2011
- Government Emergency Ordinance no. 75/2005 on Quality Assurance of Education.

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:

- (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.*
 - 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*

Regulation on the organization and conduct of doctoral studies at the Doctoral School of Engineering and Management of Technological Systems exist and it was adopted by the General Assembly of the Doctoral School IIR (former IMST) on 28.01.2019 and it was approved by CSUD UPB on 06.02.2019.

- a) the internal regulations of the Doctoral School;

There are documents supporting the existence of regulation. For example: **Annex 7D** Regulation on the organization and conduct of Doctoral Studies at the Polytechnic University. This document was uploaded to the cloud service as the other Annexes, but it was in Romanian language. The information should be on the English part of the internet site. The link in the Self-evaluation report is not working and it is not easy to browse the English part of the site looking for documents that regulate doctoral studies.

Another document is **Annex 5D** - Regulation of operation of the Doctoral School of Mechanical and Mechatronics Engineering (2020). This document was also presented on the cloud, and it was in Romanian language.

Most of the information was gathered from the different meetings. Through different meetings with the professors, it was established that there are regulations for the work of the doctoral school. The graduated students at the students that are part of university now, also stated that they have clear regulations that they are aware of, and they didn't have any surprises in some regulation changes. They prised the meetings or gatherings that they had for explanation of the procedures that helped them a lot in the studying and administrative processes.

- 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;

It is presented in the self-evaluation report that, after completing the competition for the position of Director of the Council of Doctoral Studies, CSUD was established as the governing body of IOSUD - UPB, consisting of Directors of Doctoral Schools and internationally renowned specialists in the field of doctoral studies, organized in UPB. CSUD confirmed the management structures of the doctoral schools (Doctoral School Councils) elected in October 2020.

This is presented in **Annex 8D** - Methodology for conducting elections at the CSUD level, doctoral schools, and evidence of their conduct. This document is uploaded on the cloud service and it is only in Romanian language.

Throughout the meetings with students the question for the elections by the students of their representative in CSD was not clearly asked. Through the meetings with the other domain evaluators discussion was raised that this question was not clear to all the students. They were not aware of such a procedure for election. This does not mean that there is no procedure, but it was not presented and the students from the other domains were not aware of the whole procedure.

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

SD Director and the SD Council have the responsibility to carrying out the procedures for organizing the admission to doctoral studies, for monitoring the activity of doctoral students and the program of scientific research for the students.

Each year, first the CSUD proposes and then the UPB Senate approves the Methodology for admission of new doctoral students at least 6 months before the date of the admission competition. There is a document presented for this in **Annex 7D** - The Annex presents the Methodology for admission to doctoral studies for the academic year 2019-2020. The document is in Romanian language.

The self-evaluation report explains the process and methodology where firstly the candidates register, then there are results from their application (this is regulated in **Annex 7D** – cannot comment more for the process since the annex is in Romanian language). Candidates who have obtained at least the average 8 are declared admitted, Then the candidates acknowledged if they are admitted based on the results of the admission, endorsed by CSD, are registered by Decision of the Rector of the University.

The candidates are admitted in descending order of the averages obtained and within the limits of the places put up for competition by the doctoral school.

There is also **Annex 6D** - Methodology regarding the organization and development of the online doctoral admission contest for the academic year 2020 – 2021 that is in relation to this indicator.

The number of places available for each year are defined by the Ministry of education. There are not any situations where the number of interested students was bigger than the number defined by the ministry.

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

At the level of IOSUD-UPB there are two decisions of the Rector that include two procedures, respectively the recognition of the quality of doctoral supervisor and the equivalence of the doctoral title obtained abroad - (**Annex 49D**). These documents were presented in the cloud service.

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

As presented in the self-evaluation report, functional management structures of

CSUD / Doctoral School Council is presented in **Annex 5D** and **Annex 50D**. The files are available on the cloud service. All information regarding this criterion is also available on the Romanian version of the internet site. Throughout the meetings the management structures were presented and explained. During the meeting with the Council of the doctoral school of industrial engineering and robotics, the internet site was opened, and the structure was explained. (<http://www.fir.upb.ro/index.php/ro/scoala-doctorala/structura-sd-iir>).

f) the contract for doctoral studies;

In the self-evaluation report and cloud service there is an information in **Annex 10** - Doctoral Studies Contract. The contract is in Romanian language. There were not comments from the students regarding this document.

- g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.
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In the self-evaluation it is written that the doctoral study programs include the training program based on advanced university studies (PPA) and the scientific research program (PCS). The doctoral study programs are periodically evaluated at period defined by CSUD and the internal evaluation of the quality of a doctoral university study program is made by the doctoral school. All of this is defined in **Annex 5** in section 7 - Quality assurance of doctoral university study programs. The annex is in Romanian language and no further analysis was done, just basic google translation.

The PPA ensures the obtaining of 30 ECTS credits. PCS is carried out based on an individual scientific research plan elaborated and guided by the doctoral supervisor and approved by the CSD and supported by a guiding commission. The completion of the PCS ensures obtaining of 120 ECS credits (30 for each research report).

All our meetings with the students, graduated PhD students and professors and CSD members, helped us to see the internal procedures for the analysis and approval of proposals.

Recommendations:

- Clear regulation translated into English must be clearly positioned on the internet site. This is not much needed for managing the institution, but for internalization of the doctoral studies.
- Clear procedure for elections by the students of their representative in CSD is needed.

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.

- *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**

The key annexes here are **annex 7D**, **Annex 5D** and **Annex 49D**. All information presented in the self-evaluation report and information gathered from the meetings support the regulation defined in the annexes.

Article 17, paragraph (5)	Evaluation Findings*
a) acceptance of new thesis supervisors and the manner whereby a thesis supervisor may be excluded from the doctoral school;	There is a procedure for acceptance and exclusion of student supervisor in Annex 49D
b) mechanisms for deciding on the adequacy, make-up and contents of the advanced university studies programme;	Annex 5D provides detailed description of the content and changes of study programmes
c) procedures for replacing a doctoral student's thesis supervisor and conflict mediation procedures;	Defined in annex 49D
d) conditions for interrupting a doctoral programme;	Annex 5D defines this
e) means for preventing research fraud, including plagiarism;	This is well defined in annex 5D and over the interviews we have proven that this is in practice and no fraud or plagiarism is common.
f) providing access to research resources;	This is defined in annex 5D and over the meetings we have gathered different information regarding this measure.
g) doctoral students' attendance requirements, based on a methodology developed by the Ministry of Education, Research, Youth and Sports.	Annex 7D and 5D define this.

*All annexes are in Romanian language. Basic google translation was used to analyse all the criteria. Meetings helped a lot in the evaluation.

Recommendations: /

The indicator is fulfilled.

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

Somehow this standard was analysed in over all the meetings, since all the representatives, starting from PhD students to professors and supervisors mentioned the value of logistical resources for better work.

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.

- 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

Student management system at Polytechnic University of Bucharest can be accessed at: <http://studenti.pub.ro>. Over the meetings we were introduced to the

system and how it works. Annexes supporting this indicator fulfilment are **Annex 29D**.

Recommendations: probably the system can produce a list of PhD students and topic of research and all this information can be available to the employers. In this way they will have insight in the topic and establish a connection during the studies and afterwards.

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.

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

Over the meetings we were introduced to the TURNITIN program that has been in use since 2017. There is a explanation in **annex 46D**. The system can be accessed over <http://turnitin.com/ro> to check the percentage of similarity of the doctoral theses. There is an example of candidates and results from the system in **Annex 11D**. During the meetings we were informed that they had very little examples of similarities in doctoral thesis.

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.

All the financial resources of the Politehnica University of Bucharest are included in the University Budget, that is approved annually by the University Senate. At the university it important that the financial resources from the university's scientific research are used to equip the university's laboratories to increase the research performance. The university is doing this also to increase its reputation and prestige and ensure sustainability.

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.

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visit itself
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visit itself

In the self-evaluation report information is presented that there are:

- Research Grants are 23 = 5 (IIR) + 13(IMM) + 3(ISB)+ 2(TR)
- Institutional development grants - 1 at FIMM
- Human resources grants are 2 = 1 (FIMM) and 1 (TR)

In **Annex 20D_Granturi_SD_IMM** Doctoral School of Mechanical and Mechatronics Engineering - Mechanical Engineering there are 13 Research Grants, 1 Contracts Institutional Development Grant and 1 Human Resources Grant.

There are annexes that prove grants given for the mentioned period for doctoral thesis advisors to prof. Sorin BIRIS for different periods, prof. Gheorghe VOICU and prof. Adrian PREDESCU

Annex 20D_Grants IM_SD_IMST (SD_IIR) for Doctoral School of Industrial Engineering and Robotics - Mechanical Engineering presents 5 Research Grants.

There are annexes that prove grants given for the mentioned period for doctoral thesis advisors to prof. Dan Mihai CONSTANTINESCU, prof. Anton HADAR for different period, prof. Adrian Olaru.

Annex 20D_SD_TR_Research grants for Transport Doctoral School - Mechanical Engineering field presented 2 Grants/research contracts and 1 Human resource grant for prof. Dumitru Madalina.

In **Annex 12D** collaboration agreements are presented with National Research and Development Institute for Mechatronics and Measurement Technique Bucharest and the Doctoral School of Mechanical Engineering and Mechatronics from UPB. And in **Annex 13D INSIST_UCTB** collaboration with INSIST Laboratory - Technical University of Constructions Bucharest. These collaborations are in support of the research orientation of the doctoral school.

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%.

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From the analysis of annexes available and from the meetings organised during the evaluation I can say that there was a training organised for the period of July 2019-December 2020 (BeAntreprenor!) that included 10 participants (**Anexa 21D**) and all of this worth 1500 lei / month for doctoral students and 2700 lei / month for postdoctoral students for the period of 12 months. Overall, this activity is in some way scholarship award that can be accepted in this indicator and the total budget is 234.000 lei.

Another activity related to this indicator is the **Annex 18D** that is for M. Constantin Stochioiu and his research in France that is total 18.000 lei.

Additional documents were asked during the evaluation and after we received them, we made an additional analysis:

- document **Raportare SD Petrica_Turtoi_5.07.2021.docx** supporting PN-II-PT-PCCA, Contract 287/2014 Protection systems against high energy impacts and

explosions using porous materials soaked in liquids / PROTHEIS, period 2014-2017

- Amount from the state budget 1 250 000 lei,
- Doctoral student Petrica TURTOI responsible partner (ACTTM- Research Agency for Military Technology and Technology)
 - Amount for 2016 - 136,000 lei
 - Amount for 2017 - 143,000 lei
- Document for COMOTI doctoral students - **RzC_VB_CC_ME_5.07.2021.docx**, PN-II-PT-PCCA- 2013-4-0466, contract no. 76/01/07/2014 01.07.2014-30.09.2017,
 - Doctoral student Razvan Carlanescu
 - 2016: 15405.52 lei + 3004.96 lei
 - 2017: 15301.09 lei + 8189.93 lei
 - Doctoral student Viorel Berbece
 - 2016: 2041.48 lei
 - 2017: 1201 lei
 - Doctoral student Cristina Mihaela Ciobanu
 - 2016: 2041.48 lei
 - 2017: 1201 lei
 - And also, material expenses for 2016: 1216.70 lei + 1718.4 lei + 698.47 lei + 6912 lei
- STAR PROGRAM contract no.175 / 20.07.2017, period 2017-28.06.2019 Development of water electrolysis systems with applications for small satellites – ELySSA
 - Doctoral student Razvan Carlanescu
 - 2018: 5719.00 lei
 - Doctoral student Marius Enache
 - 2017: 7183.00 lei
 - 2018: 4406.00 lei
 - Plus material expenses 2017-2019: 53082 lei

Adin all funding for the total number of 71 PhD students enrolled in the scholarship budget = 46 (SD- IMM) + 14 (SD-ISB) + 11 (SD-IIR) gives in the end percentage

$19/71 * 100 = 26.7 \%$ that more than needed of 20% that is defined in this indicator.

Recommendations: other funding sources are needed for the students.

The indicator is fulfilled.

Performance Indicator *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.).

- 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

This indicator was hard to define since there is not much information in the self-evaluation report regarding the payments for attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.

Over the interviews I found out that there were this kind of payments, but they are not systematic, and each PhD student or graduate got different amount paid. This is understandable knowing the diversities of conferences, trainings and papers that have diverse fee amount.

Later we asked for extra information and we got this table **Situatie contabila ARACIS 28.06.2021**

Cheltuieli pentru doctoranzi din venituri proprii si contracte institutionale					
Denumire	2020	2019	2018	2017	2016
PubART	1,150,745.98	359,720.42			
Inginer in Europa	199,038.12	871,806.16			
TOTAL din care:					
taxa participare	99,882.32	248,872.04			
Servicii de publicare	99,155.80				
transport		223,811.33			
cazare		275,590.79			
diurna		123,532.00			
GEEX		633,314.01	1,453,352.66	1,284,621.52	
ANELIS TOTAL	894682.82	855,751.86	815,080.14	85,898.00	303,207.82
TOTAL	2,244,466.92	2,720,592.45	2,268,432.80	1,370,519.52	303,207.82
				Total	8,907,219.51

Indicator ARACIS* (Raport intre sume cheltuite si sume primite) x 100 (%)	An	Nr doctoranzi	Valoarea grant (lei)	Total granturi (lei)	Valoarea grant pentru doctorand** (lei)	Total suma granturi pentru doctoranzi (lei)
22.12	2020	1409	29000	40861000	7200	10144800
32.67	2019	1322	25300	33446600	6300	8328600
29.13	2018	1236	25300	31270800	6300	7786800
18.23	2017	1193	25300	30182900	6300	7515900
4.06	2016	1186	25300	30005800	6300	7471800
					Total	41247900

And here the total percentage is $8,907,219.51 / 41247900 * 100 = 21.59\%$. This is way more than the defined 10% in this indicator.

Recommendations: /

The indicator is fulfilled

Criterion A.2. Research infrastructure

The university has research infrastructure composed of equipment and devices for measurement and control at the highest technical-scientific standards. In their specific objectives it is included the importance of international capitalization of the research and exhibition infrastructure of the university for the purpose of international development of the university.

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

The self-evaluation report defines research infrastructure in detail. The research

infrastructure is presented from page 22 to 34 and in annexes 1D, 2D, 3D, 5D, 7D, 39D, 47D. We asked for clarification for the age of the equipment, and we received all necessary files for the last 5 years. All necessary information was clarified over the meetings with the IOSUD.

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.*

- 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

From the self-evaluation report we see that the doctoral students receive access to the research laboratories from the doctoral schools from UPB. This is in support of what we find out over the meetings with doctoral students, graduates, doctoral supervisors and CSD members. Their involvement in research centres and laboratories is crucial for the doctoral students. (**Annex 5D**).

In **Annex 1D** and **annex 2D** research centres are presented for Thermal Research Center and Center for Mechatronics.

In **Annex 3D** the laboratory for Tribology, Biotribology, Information technology and its centres. In **Annex 47D** Research Infrastructure for doctoral school for IIR and laboratories is presented.

In **Annex 39D** and **Annex 47D** research Infrastructure for Biotechnical engineering is presented. In **Annex 39D_FIMM** research infrastructure of IM is shown.

In **Annex 39D** and **Annex 47D** equipment for IIR-ISB is presented.

Another files were asked as clarification of the age of the equipment and it was all send. We analysed the received documentation and all equipment well satisfy this indicator.

During the site visit the international evaluators were not present, but over the work in the evaluation team I found out that all documents were supported with what was seen in the centres and laboratories by prof. Domnisoru Leonard and student representative Ovidiu Constantin Fudulache.

Recommendations: /

The indicator is fulfilled.

Criterion A.3. Quality of Human Resources

At University POLITEHNICA of Bucharest the innovative university is valued in both human and research form. All of this is key for innovation capacity of the country and is key for producing knowledge, create innovation and technological adaptations for economic growth.

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

The doctoral school of Mechanical and Mechatronics Engineering also undertakes the concept of innovative doctoral school, both in terms of human capital formation and in terms of scientific research, producing knowledge, and through creation, innovation, and technological adaptations.

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.

- 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

Annex 31D defines Evolution of the number of PhD supervisors at all departments. From all versions of Annex 31 D and from self-evaluation report we can see that there are total of 42 doctoral supervisors active in the academic year 2020-2021.

There are 6 PhD supervisors that no longer have PhD students in the last 5 years. This is defined in **Annex 14D**. By all means if we check the criteria for this indicator, it will be more than the defined of 50%.

Here the real situation is $27/36 * 100 = 75\%$ that is much bigger than 50%

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.

- 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

From the self-evaluation report we can see that the number of supervisors is 42 and 17 are retired supervisors (page 50). In the end the number of PhD supervisors active in the UPB-IM divided by the number of PhD supervisors that are active is $24/36 * 100 = 66.67\%$. This is greater than the defined indicator of minimum of 50%.

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.

- 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

As stated in the self-evaluation report, the training program in advanced Mechanical Engineering university studies includes 5 disciplines - 2 specialized with the topic appropriate to the subject of the doctoral thesis and 3 common disciplines at IOSUD-UPB level: Ethics, Research methodology and scientific authorship and Project management (**Annex 15D**). These disciplines are taught by at least associate professor with proven expertise in the field of taught subjects (**Annex 24D**).

All specialty disciplines are prepared by each student under the guidance of doctoral supervisors and guidance committees or combined by individual study and activities taught in master programs in IOSUD-UPB.

All of this was proven over meetings organised with doctoral students, graduates, doctoral supervisors and CSD members.

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 programs¹ does not exceed 20%.*

- 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

Annex 14D defines the list of doctoral supervisors with the number of coordinated students during the 3-year period. This data was analysed excel file twice during the evaluation. The second time was done because of the updated information regarding the supervisors.

In the end the number of doctoral supervisors coordinating more than 8 doctoral students at the same time divided with number of doctoral supervisors is $= 7/42 * 100 = 16.67\%$. This is less than 20% defined for this indicator.

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 doctoral school perceives the supervisors as key for development of partnerships with laboratories in the country and abroad to provide doctoral students with a high-level research infrastructure. (Self-evaluation report page 14) This international cooperation is in support to the visibility 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.

- 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

Annexes 23D, 23D_C have listed publications of 31 doctoral supervisors out of the 42 in the field of Mechanical Engineering at UPB. This was analysed in excel file by the working group. From the number of doctoral supervisors specifying the list with relevant publications and number of doctoral supervisors we can say that $31/42 * 100 = 73.81\%$ that is much more than the 50% defined in this indicator.

Even if we check this indicator with only active supervisors the number is still satisfying the indicator of more than 50%.

Over the meetings we found out that the work of the supervisors is all the time in support of internationalisation of their work and their PhD students.

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.*

- 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

From the analysis done in the evaluation group in excel file with information from **Annex 22D** and **Annex 22_C** we found out that the number of doctoral supervisors who have at least 25% of the minimum CNATDCU score in the last 5 years divided by the

number of doctoral supervisors = $29/42 * 100 = 69.05\%$ that is more than the 50% defined in this indicator.

Recommendations: /

The indicator is fulfilled.

¹ 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.

Domain B. EDUCATIONAL EFFECTIVENESS

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

Doctoral school director and doctoral school council have the key role in carrying out the procedures for organizing the admission to doctoral studies. They have major role in monitoring of the activities of doctoral students. (SER page 14).

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.

For these indicators we have checked evolution of the number of doctoral students and the number of graduated students in the last 5 years from the self-evaluation report. Clarification was made over the meetings.

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.*

- *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*

We have analysed information from different sources:

- The tables with numbers for students (1.3.5. The evolution of the number of doctoral theses defended publicly)
- Table in section B.1.1.1. from self-evaluation report, and
- Meetings with PhD students and graduates.

The summed table is

Nr. budget candidates	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
SD-IMM	28	25	33	34	31
SD-ISB	12	12	16	8	6

SD-IIR	11	17	5	10	13
Total budget	51	54	54	52	50
Candidates from other universities	8	15	8	13	8
Indicator	0.16	0.28	0.15	0.25	0.16

And in the end, we can say that - Number of candidates from other universities in relation to the number of candidates for budget positions = $52/261 = 0.20$. This is exactly on the indicator value.

Recommendations: /

The indicator is fulfilled.

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

One of the specific objectives of the university is to attract a critical mass of top students that is done at the doctoral school. From that mass of students attracted to the doctoral school, with well defined procedures, great educational and research support it is ensured to have a great 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.*

- 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

Annex 7D describes this indicator where we can see the normative acts for organizing, carrying, and assuring the quality of doctoral university studies. The document is in Romanian language.

Annex 6D in detail defines the admission process from registration, competition test, discussion with candidate for their interest in research, the grading system with minimum of average 8 points. This document is in Romanian language and basic google translate was used to evaluate.

The meetings with PhD students and graduates, as well as professors from the doctoral school confirmed the process defined in annex 7D and 6D.

This indicator is not specified in the Self-evaluation report.

Recommendations: For the purpose of internalisation of the doctoral schools this kind of documents should be also available in English.

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 admission² does not exceed 30%.*

- 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

The information regarding the dropping of students per year is presented in the self-evaluation report on page 54. We can see that the percentage is below 30% as defined in the indicator.

Doctorand students		dropping out	In %
2016-2017	58	12	20.69 %
2017-2018	59	6	10.17 %
2018-2019	54	5	9.26%
Total	171	23	13.45 %

Recommendations: Questionary for drop out students will help define key reasons for dropping out.

The indicator is fulfilled.

Criterion B.2. The content of doctoral programs

At University Politehnica of Bucharest, there is a continuous process of redesigning the content of the curricula within the limits allowed by ARACIS. Also new study programs are developed in accordance with the requirements of the labour market and priorities generated by the European Union's strategies.

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.*

- 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

In the self-evaluation report it is clearly defined that the study programme for PhD students includes 5 disciplines - 2 specialized with the topic appropriate to the subject of the doctoral thesis and 3 common disciplines at IOSUD-UPB level: Ethics, Research methodology and scientific authorship and Project management (**Annex 15D**).

It is clear that there is a subject dedicated to the research methodology and/or the statistical data processing.

This was confirmed over meetings organised with doctoral students, graduates, doctoral supervisors and CSD members.

Recommendations: /

The indicator is fulfilled.

² 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.

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.*

- *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*

In **Annex 15D** it is defined that Ethics, Research methodology and scientific authorship and Project management are 3 common disciplines at IOSUD-UPB level.

From the meetings with the doctoral students and the doctoral supervisors we have found out that this indicator is fulfilled.

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 activities³.*

- *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*

In **Annex 25D** we can see the specialized competencies where it is clear what are the discipline data and what are the professional and transversal competencies. Our meetings with the doctoral students and the doctoral supervisors prove the importance of the disciplines in work later after graduation.

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.*

- *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*

During the evaluation questionnaire was delivered to the PhD students. One of the questions was related to this indicator – To what extent do you benefit from the support of the members of the guidance committee for your research activity and the realization of the doctoral thesis (online meetings, on-site meetings, asynchronous communication)?

We can say that that over 90% appreciate the support provided to them by the doctoral school.

The questionnaire was delivered, answered, and analysed in Romanian language. Google translation was used to see the results. Evaluation team helped understand the results.

We had the same filling over the interviews with the PhD students and graduates.

Annex 7D also regulates this and **Annex 10** defines the contacts for doctoral students and what are the obligation of students and supervisors.

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.

- 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

We have analysed and checked the data in the self evaluation report and this table came as a result.

Doctoral school /		2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
year						
SD-IMM	Candidates	108	113	126	133	145
	Supervisors	60	56	48	46	50
	B.2.1.5.	1.80	2.02	2.63	2.89	2.90
SD-ISB	Candidates	64	59	49	50	47
	Supervisors	26	28	34	31	30
	B.2.1.5.	2.46	2.11	1.44	1.61	1.57
SD-IIR	Candidates	28	39	39	47	52
	Supervisors	35	35	35	35	35
	B.2.1.5.	0.80	1.11	1.11	1.34	1.49

From the table it is obvious that each year the number is in the ratio of 3:1.

Recommendations: /

The indicator is fulfilled

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

It is one of the key goals of the university and of the doctoral school to develop research directions with performance potential that can bring a competitive advantage of the university and this all is done in line with procedures and ethical norms.

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

and service orders.

³ 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.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.*

- *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*
-

All **Annexes 26D** present the research work done by the PhD students. We have analysed that data and over the meeting with person in charge of the evaluated doctoral school, we chose randomly some papers from each school. They were sent to us and we checked their significant original contributions.

1. Mohanad Aldhaidhawia, Radu Chiriac, Viorel Badescu, Ignition delay, combustion and emission characteristics of Diesel engine fueled with rapeseed biodiesel – A literature review, *Renewable and Sustainable Energy Reviews* 73 (2017) 178–186, www.elsevier.com/locate/rser
<http://dx.doi.org/10.1016/j.rser.2017.01.129>
2. Pavinia Grosu, Andreea Marin, Alexandru Dobrovicescu, Diogo Queiros-Conde, Exergy analysis of a solar combined cycle: organic Rankine cycle and absorption cooling system, *Int J Energy Environ Eng, Original Research*, DOI 10.1007/s40095-015-0168-y, Open access at Springerlink.com
3. Madalina Dumitriu, Dragos Ionut Stanica, Effect of the Anti-Yaw Damper on Carbody Vertical - Vibration and Ride Comfort of Railway Vehicle, *Applied Sciences*, 2020, 10, 8167; doi:10.3390/app10228167, www.mdpi.com/journal/applsci
4. Augustina Pruteanu, Mihaela Nitu, Catalin Persu, Dan Cujbescu, Chapter 28 Application of Mechanical Oscillations in Medicinal Plants Sorting Process, *Acoustics and Vibration of Mechanical Structures—AVMS-2017*, Springer Proceedings in Physics 198, Springer International Publishing AG 2018, https://doi.org/10.1007/978-3-319-69823-6_28
5. Raul Cormos, Horia Petrescu, Anton Hadar, George Mihail Adir, Horia Gheorghiu, Finite Element Analysis of the Multilayered Honeycomb Composite Material Subjected to Impact Loading, *MATERIALE PLASTICE*, 54, No.1, 2017, <http://www.revmaterialeplactice.ro>

I can say that all 5 selected articles present significant original contributions in the

field of Mechanical Engineering.

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.*

- *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*

We have analysed all the versions of **Annex 27D** from all events organised for the doctoral students. There is number of participations in events (in the country and abroad). Also, there is information for publicly defended thesis in the self-evaluation report.

Overall, the ratio for the last 5 years is $122/61 = 2$ that is satisfying this indicator.

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.*

It is one of the main objectives of the university and the doctoral school to attract internationally renowned researchers in their fields of activity for increasing the value of the research done by the PhD students.

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.*

- *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*

With analysis of **Annex 28D** and all the information presented there in each different file it was figured out that 6 specialists participated in public defending of doctoral theses and they did not exceed the indicator of maximum 2.

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.

- 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

This indicator was analysed basing on the information from **Annex 32D** for each school. The information shows that specialists from other IOSUDs participated between 1 and 5 public support commissions for the doctoral theses at UPB during 2016-2020. Maximum number of participations of a specialist from another IOSUD divided by the number of theses completed in the last 5 years in the field of Mechanical Engineering at UPB is $5/61 = 0.082$ that is much less than the defined indicator.

Recommendations: /

The indicator is fulfilled.

Domain C. QUALITY MANAGEMENT

At University Politehnica of Bucharest it is there is a continuous process of redesigning the curricula and establishing new study programs all in line with ARACIS requirements and as an answer to the needs of labour market and European Union's strategies. Quality management is seen as one of the key objectives of the university and at UPB they believe that establishing a system of evaluation and quality assurance in all areas of academic life is needed to achieve academic excellence in teaching, learning and scientific research. At the university this is lifted to the level of culture of quality.

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

At university level it is well defined that Quality assurance must be straighten and must be reliable, useful, clearly established, applied consistently and transparent. This is well distributed in the doctoral schools and they are all included in the quality assurance procedures ensuring high quality level in all work done.

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.

- 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

There are many annexes dedicated to the QA at the doctoral school: **Annex 34D, Annex 35D, Annex 42D, Annex 45D, Annex 37D, Annex 40D, Annex 38D, Annex 41D, Annex 43D, Annex 44D, Annex 7D**. There is a dedicated annex for QA - **Annex 4D** for Quality management. All these documents are in Romanian language.

On the Romanian version of the site there are information for the QA as well.

What we have learned is that internal evaluation of the Doctoral Schools is performed annually according to the defined procedures in organised cross-checking system between these units. If needed auditors develop an action plan to address any deficiencies found and to ensure the quality of doctoral studies. This was commented over the meetings, and it ensures us of the dedication of the Doctoral school in QA.

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.

- 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

Annex 35D explains the evaluation and internal monitoring of doctoral schools. **Annex 43D** presents the satisfaction questionnaire of doctoral students and **Annex 44D** (PPA) is also a questionnaire for student satisfaction regarding the scientific research (PCS).

All of this was commented over the meetings with PhD students and Doctoral school professors. **Recommendations:** Questionary for drop out students can show some additional information. **The indicator is fulfilled.**

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

Transparency is one of the key elements for ensuring quality work at the doctoral school. All documents are available to all students and key actors, internal and external to the school are included in the decision-making process.

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;*
- (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.*

- *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*

From the self-evaluation report and from the internet site we can see that institutional regulation for the organization and development of doctoral university studies can be reached on their site.

- a) **Annex 7D** and **Annex 5D** defines regulation of operation of the Doctoral School of Mechanical and Mechatronics Engineering.
- b) **Annex 7D** and **Annex 6D** define admission regulation;
- c) Doctoral study contacts are defined in **Annex 10D**.
- d) There is information on the internet site for the methodology for organization and development of the thesis defence.
- e) **Annex 15D** and **annex 16D** define the disciplines and advanced study programs and **annex 25D** defines the specialised disciplines part of the studies.
- f) The profile of supervisors is present on the internet site in few files.
- g) The list is also available on their internet site.
- h) **Annex 7D** defines in detail the standard of developing thesis.
- i) There is a part of the internet site dedicated to presenting doctoral theses' summaries with all other necessary information.

All data that was available was in Romanian language. The information on the internet site is in Romanian as well. The evaluation working team helped a lot in understanding the documents.

Recommendations: For the purpose of internationalisation of the doctoral school key documents should be in English and available on the internet site.

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.

- 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

There is an information in **Annex 48D** about access to ANELIS PLUS 2020. There is a list with databases available for students.

Over the meeting with the PhD students, we were assured that they have access to databases.

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.

- 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

There is a system for this, and it is one of the key requirements by 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.

There is an **Annex 5D** defining the check for degree of similarity with other existing scientific or artistic works and over the interviews we have proven that this is in practice and no fraud or plagiarism is common.

Annex 11D defines the evaluation similarity result with Soft Turnitin and in 32 theses similarity coefficient is between 1% - 17%. This is also explained in **Annex 46D**.

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.

- 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

From the meetings with the students, we have been informed that they have access to research laboratories or other facilities. For this they have a regulation presented in **Annex 5D** where the rights and obligations of the doctoral student derive from Law 1/2011, from Government Decision No. 681/2011. Also, **Annex 7D** defines the regulation on the organization and conduct of Doctoral Studies at the Polytechnic University of Bucharest.

There are Annexes dedicated to some centres and there is information on the Romanian version of the internet site:

Annex 1D Thermal Research Center - Thermal Research Center - CCT – UPB

Annex 2D Center for Mechatronics - Research and Development Center for Mechatronics **Annex 3D** Laboratory CESIT - Faculty of Mechanical and Mechatronics Engineering

Recommendations: /

The indicator is fulfilled

Criterion C.3. Internationalization

Internationalization is seen as one of main objectives at the university level. This is seen to strengthening the university's position within the European Area of Higher Education and Research and help promote the university as a centre of excellence in education and research.

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.*

- *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*

Annex 17D defines the signed Erasmus + agreements at UPB for study mobility. From this annex there is an information where 29 doctoral students were part of the mobility.

There is no information in self-evaluation report for the number of participants in training courses abroad or other mobility forms. In **Annex 27D** there is information for 30 participations in international conferences from SD-IMM, 36 participations in conferences international - doctoral students from SD- ISB, 16 participations in international conferences - doctoral students from SD-IIR. All in total of 82 participations in international conferences.

In the end the total $(29 + 82) / 245 * 100 = 45.31\%$. This is more than the defined indicator if 35%.

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.*

- *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*

In **Annex 18D** all this information is presented. There is information on co-supervision from France, list of theses supported by international commission and list of theses defended in English. IOSUD-UPB provided the transport and accommodation expenses for the foreign members of the doctoral theses evaluation commissions.

As for the inviting leading experts to deliver courses/lectures for doctoral students, there is example for some experts being part of conferences organised by the school (**Annex 19D**).

Recommendations: More leading experts can be invited during the studies of the PhD students. This can be done outside of the conferences.

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.).*

- *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*

In **Annex 51D** it is shown that IOSUD-UPB participates in international fairs to attract doctoral students. This was done in 21 different countries.

Professors were included in the guidance or doctoral committees at the school as explained in **Annex 18D**.

Recommendations: Clear written measures are needed for internationalization.

The indicator is fulfilled.

IV.SWOT Analysis

<p><u>Strengths:</u></p> <ul style="list-style-type: none"> - good E-Systems that are easily accessed and used by students - Build reputation over the years for the doctoral schools - Connection with industry - Access to key internet research bases - Financial support for students from grants - Laboratories and centres ready for research - Biotech research area brings new possibilities for research - Applicability of PhD students research - Transversal skills are developed - Quality assurance system in place 	<p><u>Weaknesses:</u></p> <ul style="list-style-type: none"> - More grants options for PhD students are needed - Only 1/5 of students come from outside of the university. - English version of the internet site - Bureaucracy
<p><u>Opportunities:</u></p> <ul style="list-style-type: none"> - Following the fast-changing environment - Research is done in some top-notch priorities in the world (hydrogen vehicles, e-vehicles, and other areas) - Entrepreneurship training in combination with project management subject is encouraging for new students businesses starting - Collaboration with research institutes in the country and abroad - International students - Employ the best students - Patents from students research 	<p><u>Threats:</u></p> <ul style="list-style-type: none"> - Popularity of other areas of interest for research for students other than mechanical engineering - Aging of equipment - Investment intense laboratory and centres maintenance - Workload pressure that some full time working students have - Publication in top journals is time, money and energy consuming - Pandemic influence on research now and unknown length of this situation - Industry cooperation is profit oriented; university work is research oriented - Small base of bachelor and master students

V. Overview of judgments awarded and of the Recommendations

No	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations
1	C	A.1.1.1	Fulfilled	<ul style="list-style-type: none"> - Clear regulation translated into English must be clearly positioned on the internet site. This is not much needed for managing the institution, but for internalization of the doctoral studies. - Clear procedure for elections by the students of their representative in CSD is needed.

2	C	A.1.2.1.	Fulfilled	Probably the system can produce a list of PhD students and topic of research and all this information can be available to the employers. In this way they will have insight in the topic and establish a connection during the studies and afterwards.
3	*	A.1.3.2.	Fulfilled	Other funding sources are needed for the students.
4	*	B.1.2.1	Fulfilled	For the purpose of internalisation of the doctoral schools this kind of documents should be also available in English.
5	C	B.1.2.2	Fulfilled	Questionary for drop out students will help define key reasons for dropping out.
6	*	C.1.1.2.	Fulfilled	Questionary for drop out students can show some additional information.
7	C	C.2.1.1.	Fulfilled	For the purpose of internationalisation of the doctoral school key documents should be in English and available on the internet site.
8	C	C.3.1.2.	Fulfilled	More leading experts can be invited during the studies of the PhD students. This can be done outside of the conferences.
9	C	C.3.1.3.	Fulfilled	Clear written measures are needed for internationalization.

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

From the analysis of the domain of Doctoral Studies in Mechanical Engineering at the Polytechnic University of Bucharest we can say that the doctoral school and the university are providing high quality education and research for the PhD students.

All the work is supported by proper regulation that is developed in line with the country regulation and ARACIS guidelines. Students are well aware of all the procedures and they price the knowledge, opportunities and support that they get at the doctoral school.

All research is done in proper laboratories and centres and there is a connection with research institutes in the country and abroad. There are investments in new equipment that satisfies the needs. There are possibilities for mobilities, and research done in foreign institutions. There is involvement of foreign professors in the thesis

defending.

There are proper Quality assurance measures that in well define way are addressing the situation and at the same time they propose improvements continuously.

There is a e-system available for the students and there is access to base with high quality journals. Research support is present for producing high quality papers that are published in high quality journals.

Plagiarism is well addressed and there are mechanisms for following the research, work on thesis and papers writing.

There is a good transversal skills development that supported by the entrepreneurship training offered to the students it will help produce more start up businesses.

Cooperation with industry is on high level and there is a mutual understanding between the researchers and professors from one side and companies and institutes on the other side.

Recommendation can be given to develop a proper internationalisation strategy that will help open the doctoral school for more international students. This will require translation of all key documents in English or other language that will make the education process easy for the foreign students.

Grant opportunities have to be increased so that all students have opportunities for well supported research.

In the end the Domain of Doctoral Studies in Mechanical Engineering, from the Polytechnic University of Bucharest provides a high-quality doctoral education and research for the students. The teaching is done over well-designed curriculum that supports transversal skills development with clear outcomes and notion for commercialisation of the research. The research is done with great support in well developed conditions and in line with all ethical principles. The results are presented in high quality journals that well represents this doctoral domain but also the education and research level of country.

International Evaluator

Prof. Mishko Djidrov, PhD

Goce Delcev University – Stip, N. Macedonia

VII. Annexes

* All other annexes that are in Romanian language are part of the final version

Annex 1. Schedule for online meetings

ÎNTÂLNIRI PRELIMINARE / PRELIMINARY MEETING

Vizita de evaluare instituțională - IOSUD / domenii de studii universitare de doctorat a
Universității Politehnica București
The institutional evaluation visit - IOSUD / doctoral study domains of the
Politehnica University of Bucharest

Data/ora Date/hour (Bucharest time)	Activitate / Activity	Participanți / Participants	Observații/ Responsabil Observations/ Responsible
EVALUAREA STUDIILOR UNIVERSITARE DE DOCTORAT / DOCTORAL STUDIES EVALUATION			
10 of June, 17:00 – 19:00	Întâlnirea echipei de evaluare pentru discutarea principalelor aspecte metodologice legate de activitatea de evaluare a studiilor universitare de doctorat Meeting of panel members for discussing main methodological aspects related to the evaluation of doctoral studies	Toți membrii echipei de evaluare All evaluation panel members	platforma ARACIS CiscowebeX/ZOOM <i>ARACIS CiscowebeX /ZOOMplatform</i>

Programul⁴ vizitei de evaluare instituțională - IOSUD / domenii de studii universitare de doctorat a
Universității Politehnica București
The timetable of the institutional evaluation visit - IOSUD / doctoral study domains at the
Politehnica University of Bucharest

Perioada de derulare a vizitei: 14.06.2021 – 25.06.2021
The evaluation period: 14.06.2021 - 25.06.2021

Evaluarea Externă Periodică a IOSUD

Periodical External Evaluation of the Institution Organising Doctoral Study Programs (IOSUD)

Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil Comments/ Responsible
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Marti/ Tuesday, 15.06.2021			
Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil Comments/ Responsible
09:00-09:45	Întâlnire preliminară online pentru pregătirea și armonizarea etapelor de evaluare, în modul	Comisia de evaluare IOSUD/domenii <i>IOSUD evaluation panel</i>	Înregistrare audio-video/ platforma ARAC IS Ciscowebex/ZOOM
10:00-10:45	Întâlnirea online a comisiei de experți evaluatori cu reprezentanții conducerii universității și ai CSUD <i>Online meeting with representatives of the institution and of the Council for Academic Doctoral Studies (CSUD)</i>	Comisia de evaluare IOSUD/domenii <i>IOSUD/domains evaluation panel</i> - toți membrii echipei de evaluare <i>all evaluation panel members</i> - reprezentanți ai conducerii <i>representatives of the University's management</i> - reprezentanți ai CSUD și ai școlii/școlilor doctorale <i>representatives of the CSUD and of the Doctoral School /Schools</i> - persoana de contact IOSUD/domenii <i>the contact person for IOSUD / doctoral domains</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform Zoom</i> Join Zoom Meeting: https://bit.ly/3qjHlhw <i>Meeting ID: 938 4137 4697</i> <i>Passcode: 687829</i>
11:30-12:30	Activități de evaluare <i>Evaluation activities</i> <u>IOSUD</u> : Întâlnire online a comisiei de experți evaluatori cu directorul CSUD/directorii școlilor doctorale din IOSUD supus procesului de evaluare și cu echipa care a realizat raportul de evaluare internă <i>IOSUD: Online meeting with the director of CSUD / directors of doctoral schools and the team who drafted the internal evaluation report</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - membrii comisiei de experți evaluatori IOSUD <i>members of IOSUD evaluation panel</i> - reprezentanți ai CSUD și ai școlii/școlilor doctorale/ IOSUD <i>representatives of CSUD and of doctoral school(s)/IOSUD</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform</i> Join Zoom Meeting https://bit.ly/3xfRFMw <i>Meeting ID: 992 0800 4872</i> <i>Passcode: 409077</i>

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15:00 – 16:00	<p>Activități de evaluare <i>Evaluation activities</i></p> <p><u>IOSUD</u>: Întâlnire online a comisiei de experți evaluatori cu personalul didactic aferent școlilor doctorale din IOSUD <i>IOSUD: Online meeting with IOSUD academic staff</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- membrii comisiei de experți evaluatori IOSUD <i>Members of IOSUD evaluation panel</i></p> <p>- cadre didactice cu titlul de conducător de doctorat</p>	<p>Înregistrare audio-video/ platforma <i>Audio-video recording / ... platform</i></p> <p>Join Zoom Meeting https://bit.ly/2SpH9Uv</p> <p>Meeting ID: 944 0923 3783</p>
Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil <i>Comments/ Responsible</i>
		<i>Doctoral coordinators</i>	Passcode: 594870
17:00-18:00	<p>Continuarea activităților de evaluare a domeniilor de studii universitare de doctorat și IOSUD <i>Continuation of the doctoral study domain and IOSUD evaluation activities</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- la nivel de IOSUD <i>at IOSUD level</i></p> <p>- la nivel de domenii de doctorat <i>at doctoral study domain level</i></p>	Se lucrează separat. ⁵ <i>Independent evaluation activities.</i>
Miercuri/ Wednesday, 16.06.2021			
09:00-11:00	<p>Continuarea activităților de evaluare a domeniilor de studii universitare de doctorat și IOSUD <i>Continuation of the doctoral study domain and IOSUD evaluation activities</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- la nivel de IOSUD <i>at IOSUD level</i></p> <p>- la nivel de domenii de doctorat <i>at doctoral study domain level</i></p>	Se lucrează separat. <i>Independent evaluation activities.</i>
11:00– 12:00	<p>Activități de evaluare <i>Evaluation activities</i></p> <p><u>IOSUD</u>: Întâlnire online a comisiei de evaluare cu studenții doctoranzi <i>IOSUD: Online meeting with PhD students</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- membrii comisiei de experți evaluatori IOSUD <i>members of IOSUD evaluation panel</i></p> <p>- studenții doctoranzi <i>PhD students</i></p>	<p>Înregistrare audio-video/ platforma ARACIS Ciscowebex / ZOOM <i>Audio-video recording /ARACIS Ciscowebex / ZOOM platform</i></p>
12:00-13:00	<p>Continuarea activităților de evaluare a domeniilor de studii universitare de doctorat și IOSUD <i>Continuation of the doctoral study domain and IOSUD evaluation activities</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- la nivel de IOSUD <i>at IOSUD level</i></p> <p>- la nivel de domenii de doctorat <i>at doctoral study domain level</i></p>	Se lucrează separat. <i>Independent evaluation activities.</i>

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16:00– 17:00	Întâlnire online cu membrii Comisiei de Etică a universității <i>Online meeting with the members of the Ethics Commission</i>	Comisia de evaluare IOSUD/domenii <i>IOSUD/domains evaluation panel</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform</i>
Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil <i>Comments/ Responsible</i>
		- toți membrii echipei de evaluare <i>all evaluation panel members</i> -membrii Comisiei de Etică <i>Ethics Commission members</i>	Join Zoom Meeting https://bit.ly/3xkayxZ Meeting ID: 918 6158 8647 Passcode: 300116
17:00-18:00	Continuarea activităților de evaluare a domeniilor de studii universitare de doctorat și IOSUD <i>Continuation of the doctoral study domain and IOSUD evaluation activities</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - la nivel de IOSUD <i>at IOSUD level</i> - la nivel de domenii de doctorat <i>at doctoral study domain level</i>	Se lucrează separat. <i>Independent evaluation activities.</i>
Joi / Thursday, 17.06.2021			
09:00-10:30	Activități de evaluare <i>Evaluation activities</i> Întâlnire online cu membrii Comisiei pentru Evaluarea și Asigurarea Calității (CEAC) / Departamentul de asigurare a calității <i>Online meeting with the Commission for Quality Evaluation and Assurance (CEAC) members / Quality Assurance Department</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - toți membrii echipei de evaluare <i>all evaluation panel members</i> - reprezentanți ai CEAC/Departament AC <i>representatives of Commission for Quality Evaluation and Assurance (CEAC) / Quality Assurance Department</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform</i> Join Zoom Meeting https://bit.ly/3gsAAd3 Meeting ID: 927 6878 6869 Passcode: 531103
12:00 – 13:00	Activități de evaluare <i>Evaluation activities</i> IOSUD: Întâlnire online cu directorii/responsabilii centrelor/laboratoarelor de cercetare IOSUD <i>IOSUD: Online meeting with the Directors/ persons in charge of the research centers/laboratories within IOSUD</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - membrii comisiei de experți evaluatori IOSUD <i>members of IOSUD evaluation panel</i> - directorii centrelor / laboratoarelor de cercetare <i>Directors of the research centers/laboratories</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform</i> Join Zoom Meeting https://bit.ly/3pZRKIm Meeting ID: 997 0444 9612 Passcode: 568477

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15:00 – 16:00	<p>Activități de evaluare <i>Evaluation activities</i></p> <p><u>IOSUD</u>: Întâlnire cu membrii Consiliului Studiilor Universitare de Doctorat al IOSUD <i>IOSUD: Online meeting with Doctoral University Studies Council (CSUD) members</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- membrii comisiei de experți evaluatori IOSUD <i>members of IOSUD evaluation panel</i></p> <p>- membrii CSUD <i>CSUD's members</i></p>	<p>Înregistrare audio-video/ platforma <i>Audio-video recording / ... platform</i></p> <p>Join Zoom Meeting: https://bit.ly/2RVLhv6</p> <p>Meeting ID: 992 7659 8042 Passcode: 851899</p>
Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil Comments/ Responsible
17:30-18:30	<p>Activități de evaluare <i>Evaluation activities</i></p> <p><u>IOSUD</u>: Întâlnire online a comisiei de evaluare cu reprezentanți ai angajatorilor absolvenților <i>IOSUD: Online meeting with employers of doctoral graduates</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- membrii comisiei de experți evaluatori IOSUD <i>members of IOSUD evaluation panel</i></p> <p>- reprezentanți ai angajatorilor <i>employers' representatives</i></p>	<p>Înregistrare audio-video/ platforma <i>Audio-video recording / ... platform</i></p> <p>Join Zoom Meeting https://bit.ly/3zpm3WS</p> <p>Meeting ID: 980 9934 4468 Passcode: 523577</p>
Vineri/ Friday, 18.06.2021			
09:00-10:30	<p>Întâlnire tehnică online, pentru identificarea aspectelor specifice care trebuie clarificate, dacă este cazul, pe parcursul vizitei la fața locului <i>Online technical meeting to identify specific issues that need to be clarified, if necessary, during the on-site visit</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- toți membrii echipei de vizită <i>all evaluation panel members</i></p>	<p>Înregistrare audio-video/ platforma <i>Audio-video recording / ... platform</i></p>
11:00-13:00	<p>Continuarea activităților de evaluare a domeniilor de studii universitare de doctorat și IOSUD <i>Continuation of the doctoral study domain and IOSUD evaluation activities</i></p>	<p>Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i></p> <p>- la nivel de IOSUD <i>at IOSUD level</i></p> <p>- la nivel de domenii de doctorat <i>at doctoral study domain level</i></p>	<p>Se lucrează separat. <i>Independent evaluation activities.</i></p>
Luni / Monday, 21.06.2021			
10:00-18:00	<p>Reuniuni de lucru față în față⁶, vizitarea bazei materiale didactice și de cercetare <i>Face-to-face working meetings, visiting the educational and research infrastructure</i></p>	<p>- directorul de misiune și coordonatorul, un student doctorand evaluator <i>the Evaluation Director and the coordinator of the IOSUD evaluation panel, one student</i></p> <p>- reprezentanți ai universității <i>university's representatives</i></p>	<p>Vizită UNIVERSITATE <i>Site visit to the university</i></p>
Vineri / Friday, 25.06.2021			

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09:00-11:30	Finalizarea documentelor <i>Completion of the evaluation documents</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - la nivel de IOSUD <i>at IOSUD level</i>	Se lucrează separat. <i>Independent evaluation activities.</i>
Intervalul orar / Hour	Activitate / Activity	Participanți / Participants	Observații/ Responsabil <i>Comments/ Responsible</i>
11:45-12:45	Întâlnire online pentru concluzii <i>Online meeting for conclusions</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - toți membrii echipei de evaluare <i>all evaluation panel members</i>	Înregistrare audio-video/ platforma ARACIS Ciscowebex/ ZOOM <i>Audio-video recording /ARACIS Ciscowebex / ZOOM platform</i>
13:00-14:00	Întâlnire finală online în vederea prezentării principalelor constatări rezultate în urma evaluării IOSUD și a recomandărilor de îmbunătățire a calității <i>Meeting with representatives of the institution under review to discuss on the conclusions of the evaluation process and the main recommendations</i>	Comisia de evaluare IOSUD <i>IOSUD evaluation panel</i> - toți membrii echipei de evaluare <i>all evaluation panel members</i> - reprezentanții universității <i>university's representatives</i>	Înregistrare audio-video/ platforma <i>Audio-video recording / platform</i>