

## **The External Evaluation Report of a Doctoral Study Domain**

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### **I. Introduction<sup>1</sup>**

The evaluation of the university doctoral studies in the field of Chemistry for the Babes-Bolyai University (UBB) of Cluj-Napoca was conducted in the period of November 2-5, 2021. The evaluation committee for the chemistry field was composed of 4 persons, Prof. Catinca Secuianu, CERNUȘCĂ Bianca-Denisa (Student) and Prof. Stephane Parola (ENS Lyon, France) as international expert. Prof. Catinca Secuianu did the visit on site. The meetings and internal discussions were made together with the Chemical Engineering experts (Prof. Olav Aarna from Estonian Business School, Estonia ; and Adriana-Mariana Asoltanei (Student)).

The doctoral studies in the field of Chemistry are carried out within the Doctoral School of Chemistry (DSC) which operates at the Faculty of Chemistry and Chemical Engineering (FCCE). The doctoral studies in the field of Chemistry is linked to the establishment of the Romanian university in the capital of Transylvania resulting at that time in the attraction to Cluj of some of the personalities in the field of chemistry, professors Adriano Ostrogovich, Dan Rădulescu, and Gheorghe Spacu, who inaugurated the doctoral studies in the field of Chemistry at the University of Cluj. Then important persons joined the group of doctoral supervisors, such as Ion Tănăsescu, Raluca Ripan, Maria Ionescu, Constantin Macarovici, Sorin Mager. The Doctoral School of Chemistry (DSC) was nominated as an active doctoral school at the Faculty of Chemistry and Chemical Engineering-BBU in 2005.

### **II. Methods used**

The method used for this report evaluation is based on :

- The analysis of the internal evaluation report of the Chemistry doctoral study under review and its Annexes;
- The analysis of documents made available by UBB, in physical format,;
- The information available on the website;

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<sup>1</sup> Each time when applicable the information shall be presented gender-wise.



- Meeting with doctoral students in Chemistry;
- Meeting with the graduates of the Chemistry doctoral study;
- Meeting with members of the contact person and team responsible for the internal evaluation reports;
- Meeting with PhD supervisors;
- Meeting with employers representatives of the doctoral study domains;
- Meeting with representatives of the institution and of the Council for Academic Doctoral Studies
- Meeting with academic staff of chemistry doctoral study

### III. Analysis of ARACIS's performance indicators

#### **Domain A. INSTITUTIONAL CAPACITY**

*\*general description of domain analysis.*

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

This analysis is based on the doctoral studies organization, the student selection rules, the quality assessment, the way decisions are taken, the level of interactions between students and university representatives or research staff, relationship between the different functional organs, and the financial management dedicated to doctoral studies, the scientific quality of scientific staff, the quality of infrastructures, the safety conditions.

*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 in Chemistry:*

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

*The DSC follows the relevant laws, the BBU Regulation and the its own regulation. The DSC Regulation and its appendices are approved by the General Assembly of the Doctoral supervisors on 22 January 2019, while their updates made in accordance with the latest legislative changes were adopted at the meeting of the DSC Council in March 2021.*

*(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;*

*The Regulation sets out the mechanism for electing the members of the DSC Council and for nominating candidates for the position of Director of the DSC are clear and were provided as well as the minutes from the 2017 elections and their validation by the IDS.*



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

The report refers to the internal regulation which describes the methodology for the distribution of admission places per supervisor, the methodology for the admission process, and the guideline for the elaboration of the doctoral thesis. They also describe the appointment and role of the Appeal Committees, and the DSC criteria for the award of the PhD title and of various grades. All documents are provided and relevant.

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

The recognition of the status of doctoral supervisor and the equivalence of doctoral degrees obtained in other countries is done according to the legislation in force and the BBU IDS regulations.

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

The full organization of the DSC is given. The DSC Council consists of the Director of the DSC (Prof. Ion Grosu, PhD, Corresponding Member of the Romanian Academy), a member elected from among the doctoral supervisors of the DSC (Prof. Cristian Silvestru, PhD, Member of the Romanian Academy), an elected member who is not affiliated to the DSC (Prof. Dr. Marius Andruh, PhD, Member of the Romanian Academy), and the representative of the doctoral students (Sabina-Madalina Vieriu, doctoral student). The DSC Council meets as often as necessary, but also periodically for the approval of the curricula, the programme for advanced studies and the allocation of places for the admission exams. Communication takes place both in physical meetings and on MS TEAMS, ZOOM or Skype platforms. Minutes of the meetings are provided (in Romanian) for the period 2017-2020 with an increasing number of meetings for the past two years.

f) the contract for doctoral studies;

The doctoral students' study contracts are provided and contain data on their obligations and rights.

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

The topics of the courses and seminars in the advanced study programme are proposed by the doctoral supervisors in accordance with the needs of the doctoral students' doctoral programmes, and they cover the major areas of Chemistry. They are approved by the DSC Council. Proposals for new courses are considered by the DSC council.

Recommendations: Open the courses towards transdisciplinarity, in particular scientific ones (Physics, biology..) but also non-scientific (management, law, industrial property..).

**The indicator is fulfilled.**

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



**The indicator is fulfilled.**

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

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

BBU has a computer system to keep record of doctoral students and of their fulfilment of their teaching and administrative obligations (AcademicInfo). The storage of data related to the fulfilment of the doctoral programme by doctoral students is carried out by the IDS staff, using the AcademicInfo resource (internal BBU platform), as well as by using the national platform Unique Academic Record - rei.gov.ro. Since 2012, the record of the defence of doctoral theses has been done electronically through the online platform, while the submission of doctoral theses and of the related files in electronic format to MEN and CNATDCU has been done through the rei.gov.ro platform. All criteria are perfectly addressed for this indicator.

**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.

BBU proposes logistical resources to fulfil the mission of doctoral studies. Since 2016, BBU has purchased and annually renewed the software license to check the similarity percentage in all doctoral theses (iThenticate textual similarity detection software provided by Turnitin).

The doctoral supervisor analyses the similarities and writes a report on whether or not these similarities are acceptable, on the basis of which the public defence procedures are continued or not. The process proposed here is perfectly adapted to ensure no plagiarism in the thesis manuscript.

**The indicator is fulfilled.**

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

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

Doctoral studies at UBB are supported through doctoral grants, research projects, and university-wide programmes dedicated to supporting and diversifying the training of doctoral students. Thus, in the POCU/380/6/13/123886 programme (Entrepreneurship for innovation through doctoral and postdoctoral



research) implemented with the help of the Ministry of European Funds, eight (8) doctoral students from the DSC have benefitted from a grant of 1,500 RON/month for one year.

*Recommendations: Improve the number of grants and the amount of each grant.*

**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%.*

37 doctoral students (out of 80 in the period 2016-2020) were employed on grants for periods of at least 6 months (46%).

*Recommendations: Financial support to PhD students is crucial to ensure their motivation of the best students and full time work on the research project, and increasing the ratio to 70 % would strongly benefit to the quality and quantity of the scientific production.*

**The indicator is fulfilled.**

**Performance Indicator \*A.1.3.3.<sup>2</sup>** *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.).*

1,919,200.00 RON was spent for the research fund (for the direct benefit of doctoral students), which represents a percentage of 43% of the total doctoral grants(4,394,547).

*Recommendations: The way the funding is spread over different expenses dedicated to doctoral studies should be more detailed and clear.*

**The indicator is fulfilled.**

## **Criterion A.2. Research infrastructure**

*The evaluation is based on the quality of equipment devoted to research projects and the renewal plans, infrastructures, and the safety regulations.*

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

**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*

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



presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.

The overall research infrastructure is of very high quality. Chemistry laboratories are equipped at the state-of-the-art in term of safety issues with appropriate experimental rooms and chemistry hoods. Regarding equipments, all facilities required for running research project at the international level are available on site (NMR, GC-MS, LC-MS, X-ray diffractometers, AFM, TEM spectroscopies, HPLC). PhD students have easy access to bibliography through Scopus and Web of Science databas ; and access to Reaxys and/or SciFinder. They also may download PDF version of articles published by Wiley, Elsevier, and ACS. There is library with collections of some journals and a reading room.

*Recommendations: Maintain and anticipate the update of the equipment.*

**The indicator is fulfilled.**

### **Criterion A.3. Quality of Human Resources**

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

*The scientific quality and the capacity of the research PhD advisor staff is evaluated here based on their involvement in research (publications, projects, recognitions), in teaching aspects and on the level of their availability (number of coordinated students).*

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

*The Doctoral School of Chemistry has 11 active members, 9 are full professors at the Faculty of Chemistry and Chemical Engineering. Two doctoral supervisors are from the Technical University of Cluj. 5 emeritus professors from the FCCE and 1 from the Faculty of Orthodox Theology are still active and supervise their doctoral students who have not yet defended the thesis. Eight of the doctoral supervisors from the Faculty of Chemistry and Chemical Engineering (FCCE) are members of the Department of Chemistry, and one is a member of the Department of Chemistry and Chemical Engineering, the Hungarian line of study (PC). One of them is a member of the Romanian Academy, and one is a corresponding member of the Romanian Academy. All supervisors present very good scientific achievements and qualifications. The main areas of Chemistry are covered. All supervisors (10) are active on 31/12/2020 and meet the habilitation criteria.*

*Recommendations: Maintain the level of qualification by supporting the yougest staff.*

**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.*



Among the ten supervisors, eight are full professors at BBU, and two are teaching staff at the Technical University of Cluj-Napoca (TUCN). The ratio is of 80%.

*Recommendations: Increase to 100% if possible.*

**The indicator is fulfilled.**

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

*The courses and seminars within the advanced training programme are held by full professors, the Member of the Romanian Academy and the Corresponding Member of the Romanian Academy. They are all qualified, they all meet the CNADTCU requirements for habilitation and are renowned scientific personalities in their field.*

*Recommendations: Include external high level lecturer (even international ones if possible).*

**The indicator is fulfilled.**

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

*Among the supervisors active on 31 December 2020, two had more than eight doctoral students. The ratio of 2/10 represents 20%. By including recently one more advisor, the ratio is now 2/11, below 20%.*

*Recommendations: Reduce the ratio by increasing the number of accredited supervisors.*

**The indicator is fulfilled.**

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

*\*general description of the standard analysis.*

**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*

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<sup>3</sup> 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.



universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.

The average quality of publication is very good and the criteria of 50% with 5 important publications is achieved. However some given references are quite old (2001, 2002, 2004, 2013, 2014...) and should be updated by more recent published work.

Recommendations: Improve the average impact factor of the publications, which appears possible regarding the quality of the staff, students, infrastructures and the research projects.

**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.

All advisors of the DSC fulfil the criteria.

**The indicator is fulfilled.**

## **Domain B. EDUCATIONAL EFFECTIVENESS**

*\*general description of domain analysis.*

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

*The level of candidates, the number of candidates, selection criteria, the origin of candidates, the behavior of PhD students after graduation, are evaluated.*

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

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

*The ratio between the number of graduates from other universities and the number of places funded from the state budget is  $16 / 72 = 0.22$ . The attractivity for graduates from other universities is good.*

Recommendations: Increase the ratio to 0.3 by improving communication on the quality of the BBU Doctoral studies, and by attracting more international students.





**The indicator is fulfilled.**

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

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

There is a written exam for the evaluation of the scientific level of the candidates. However the provided report is not clear. In particular it's not mentioned if the academic records are taken in consideration and at which level compared to the written exam. Regarding the interview with the candidate, there is no detail about who is running the interview. The provided appendix (Addendum A 1.1.1.) is in Romanian.

Recommendations: Clarify the weight Academic records/Exam/ interview in the admission process.

**The indicator is fulfilled.**

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

The dropout rates are 5.26% (2015), 15.38% (2016), 4.76% (2017), 0% (2018 and 2019).

**The indicator is fulfilled.**

## **Criterion B.2. The content of doctoral programs**

The evaluation takes in consideration the proposed training courses during the PhD program, its scientific level and variety.

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.

Between 12 and 10 courses are proposed, some of them in English during the two last years.

Recommendations: Open the possibilities towards other scientific disciplines (and respectively open chemistry courses to PhD students from other Schools) such as Physics or Biology. The research is often interdisciplinary and this would give an added value for the students. Open also to non scientific courses (Management, Law, Regulations, Safety...).

**The indicator is fulfilled.**

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<sup>4</sup> 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.*

*The course “Ethics and research methodology and intellectual property rights” has been compulsory for all doctoral students since 2018.*

**The indicator is fulfilled.**

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

*The existing procedure ensures that the training program addresses “learning outcomes” (the knowledge, the skills, the responsibility, and the autonomy) that doctoral students should acquire after completing research activities. All tutors obtain a feedback on how the taught subject was assimilated by the learners and can adjust the course content and the teaching methods. The interactions within this systems are good and allow monitoring the students performances and answering any request or solving any problem they might have.*

**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.*

*There is a guidance committee proposed by the doctoral advisor, composed of three academics. The members of the committee and the PhD students are most of the time from the same team or research center. Meetings are at least once a year but intermediate ones are possible depending on the situation. Oftently the members of the committee and the student are coauthor of publications.*

*Recommendations: Adding one or two external members to the project or the team to the committee as a mandatory condition may improve the quality of the monitoring. Having an external overview may help to solve relationship issues or scientific problems. Moreover, an external member having interview of the advisor and the student without the second party may help in solving working or relationship issues.*

**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.*

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<sup>5</sup> 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.



The 80 students are followed by 37 professors from the guidance committees, and 10 active doctoral supervisors giving a ratio of  $80/47 = 1.70$ .

*Recommendations:* There is a room to increase the number of PhD students in good conditions, this could be an objective for the next 5 years.

**The indicator is fulfilled.**

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

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

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

150 articles are reported and the criteria is fulfilled.

*Recommendations:* The quality of the research should allow some publications in higher impact factor journals in the chemistry fields and perhaps journals with broader audience, while most of publications are in specialized journals. This could be an interesting objective for the next 5 years.

**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.*

Doctoral students that have completed their studies have made 58 presentations in international conferences, giving a ratio of  $58/37 = 1.56$ .

*Recommendations:* Increase the possibilities and fundings for student to make presentation in international conferences, encourage oral presentations when possible.

**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.*

*\*general description of the standard analysis.*

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

**The indicator is fulfilled.**



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

**The indicator is fulfilled.**

## **Domain C. QUALITY MANAGEMENT**

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

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

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

*(a) the scientific work of Doctoral advisors;*

*When discussing the distribution of places for admission, the publications of the doctoral supervisors [from Scopus or Web of Science databases as well as the cumulative ISI factor and the number of publications in the red and yellow classifications] were counted by the DSC council, taking into account the activity from the last three calendar years. These data are accessible from the "Managementul Cercetarii" platform which records research results at BBU. Recently (2021) a more detailed internal evaluation methodology has been introduced by the IDS taking into account also the performance of doctoral students. This evaluation is very positive and confirms the very good results of the DSC. The value of theses are discussed in the DSC Council.*

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

*This aspect is not much addressed in the report, while the on site visit showed really good infrastructures. There are discussions with the doctoral supervisors and grant directors to ensure optimal conditions for the doctoral projects and preventing from duplicating existing equipments.*

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

*This is organized by the doctorate school council.*

*d) the scientific activity of doctoral students;*

*the DSC doctoral students' organisation conducts surveys to identify the doctoral students' problems, wishes, and level of satisfaction towards their activity during their doctoral studies.*

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

*See criteria d).*



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

Not directly addressed in the report (at least for social part). See criteria c) and d).

*Recommendations: Including students performances in the evaluation of the doctoral advisors is good and should be maintained.*

**The indicator is fulfilled.**

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

*the DSC doctoral students' organisation conducts surveys to identify the doctoral students' problems, wishes, and level of satisfaction towards their activity during their doctoral studies.*

**The indicator is fulfilled.**

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

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

### **Performance Indicator C.2.1.1.**

*On the website of the higher education institution, in compliance with the regulations in force on data protection, the DAI publishes information useful to doctoral students regarding:*

- a) the regulation of the doctoral school;*
- b) the admission regulation;*
- c) a template of the doctoral studies contract;*
- d) the regulation for the completion of studies, including the procedure for the public defence of the thesis;*
- e) the content of training programmes based on advanced university studies;*
- f) the academic and scientific profile, thematic areas/research themes of the doctoral supervisors in the field, as well as their institutional contact details;*
- g) the list of doctoral students in the field with basic information (year of registration, supervisor);*
- h) information about the standards for the elaboration of the doctoral thesis;*
- i) links to the abstracts of doctoral theses to be publicly defended, as well as the date, time, and place where they will be defended, at least 20 days before the defence.*

*An e-mail containing the weekly news is sent by the research management department to all teaching and research staff at BBU, together with an announcement regarding all the lectures for the following week. The doctoral students send the announcement regarding the defence of their thesis to a common FCCE email address.*



**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.*

*Doctoral students have access to Scopus and Web of Science journals on the faculty computers (with BBU IP) through the Anelis Plus contract. They had also access to Reaxys and/or SciFinder as well as to the PDF files of articles published from Wiley, Elsevier, and ACS.*

**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.*

*Recommendations: Keep strong incitations to use the software and to ensure sensibilization of PhD students regarding plagiarism issues.*

**The indicator is fulfilled.**

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

*The infrastructures and the available equipment in chemistry is of high quality.*

*Recommendations: Maintain the quality of the equipment and anticipate for updates and new techniques not yet available. European project are interesting calls to fund equipment but there are probably national or regional calls. The university is an important partner for such important investment. Companies have also contributed and are interesting partner to generate opportunities.*

**The indicator is fulfilled.**

### **Criterion C.3. Internationalization**

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

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



DAI has concluded mobility agreements in Chemistry with foreign universities, research institutes, companies working in the field of study, to allow the mobility of doctoral students and professors. Fifty-three ERASMUS agreements have been active for the doctoral cycle. In addition, numerous international collaborations are reported including large number of mobilities. Several doctoral students have participated in research placements abroad. 100 mobilities are recorded. 50% of enrolled doctoral students were involved in placements. The analysis of the situation at the DSC shows that the limitations of research placements in the last period are due to the excessive bureaucracy related to obtaining the necessary documents for travel and joint doctorates, the lack of funding through research grants (lack of competitions), the pandemic situation in 2020. These are important parameter to consider, in particular the bureaucratic aspect which could be improved.

*Recommendations: Improve international mobility (research placements, conferences) by simplifying the bureaucratic issues. This is a critical parameter on which the university should be attentive and posses the tools for improvement. Fundings shouls also be improved. The large amount of Erasmus agreement appears as too broad. A rationalisation and perhaps more focused strategy would probably help in particular on the bureaucratic aspects. Few but strong and long term agreements with selected high level universities and continuous exchanges may be more interesting than numerous agreements with only few students from time to time. This should be discuss together between the UBB international office and DSC.*

**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.*

*3 international joint doctorates were active in 2016-2020. From the discussions with PhD advisors and students, bureaucracy is excessive, approaches are rigid and discourage the conclusion of joint doctorates. There is no real support for joint doctorates.*

*Recommendations: Joint doctorates are essentials to ensure long term and efficient collaborations with high level institutes. Discussion with UBB is crucial at that point to ensure better access and easier procedure for cotutelles and financial support when needed. This criteria is highly relevant to ensure international visibility, and high level collaborations. Invite more international experts and potential cosupervisors for scientific short stays, and lectures.*

**The indicator is fulfilled.**

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

*The DSC is active in BBU's promotional activities. The doctoral students' association organises annual exchanges with their colleagues from the universities in the consortium. The list of doctoral students from other countries is provided and there is a table containing information on the international experts who are members in the thesis defence committees (6 defences), and most of the DSC theses are written and defended in English (19 out of 37 / 51,3%).*



*Recommendations: Increase the number of international experts for thesis defences.  
The indicator is fulfilled.*

#### IV. SWOT Analysis

<p><b><u>Strengths:</u></b></p> <p>- the strengths identified throughout the report will be resumed as part of the indicators' analysis. Other general strengths that do not fall within a particular indicator may be formulated.</p>	<p><b><u>Weaknesses:</u></b></p> <p>- the weaknesses identified throughout the report will be resumed as part of the indicators' analysis. Other general weaknesses that do not fall within a particular indicator may be formulated.</p>
<p><b><u>Opportunities:</u></b></p> <p>- possible lines of action for the development of the institution under review shall be identified; - examples of opportunities: a favorable economic environment in the proximity of the assessed institution, the uniqueness of the study programs and their relevance to the local/national market, the overall attractiveness of the study programs etc.</p>	<p><b><u>Threats:</u></b></p> <p>- the possible causes of the deficient aspects (the causes of the identified weaknesses), which are practically the threats to the proper functioning of the institution, shall be identified; - besides, there may be external threats, such as: the inopportune economic environment in the proximity of the assessed institution, the conduct of low attractiveness study programs for both candidates and the labor market etc.</p>

#### V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	<p><b>A.1.1.1.</b> The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:</p> <p>a) the internal regulations of the Doctoral School;</p> <p>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;</p> <p>c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);</p> <p>d) the existence of mechanisms for recognizing the status of a Doctoral advisor</p>	<b>Fulfilled</b>	<i>Open the courses towards transdisciplinarity, in particular scientific ones (Physics, biology..) but also non-scientific (management, law, industrial property..).</i>



		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.		
2.	PI	<b>A.1.1.2.</b> 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.	<b>Fulfilled</b>	
3.	PI	<b>A.1.2.1.</b> The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.	<b>Fulfilled</b>	
4.	PI	<b>A.1.2.2.</b> The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.	<b>Fulfilled</b>	
5.	IP	<b>A.1.3.1.</b> 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.	<b>Fulfilled</b>	<i>Improve the number of grants and the amount of each grant.</i>
6.	PI *	<b>A.1.3.2.</b> 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%.	<b>Fulfilled</b>	<i>Financial support to PhD students is crucial to ensure their motivation of the best students and full time work on the research project, and increasing the ratio to 70 % would strongly benefit to the quality and quantity of the scientific production.</i>

7.	PI *	<b>A.1.3.3.</b> 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.).	<b>Fulfilled</b>	<i>The way the funding is spread over different expenses dedicated to doctoral studies should be more detailed and clear.</i>
8.	CPI	<b>A.2.1.1.</b> 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	<b>Fulfilled</b>	<i>Maintain and anticipate the update of the equipment.</i>
9.	CPI	<b>A.3.1.1.</b> 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.	<b>Fulfilled</b>	<i>Maintain the level of qualification by supporting the youngest staff.</i>
10.	PI *	<b>A.3.1.2.</b> At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.	<b>Fulfilled</b>	<i>Increase to 100% if possible.</i>
11.	PI	<b>A.3.1.3.</b> 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	<b>Fulfilled</b>	<i>Include external high level lecturer (even international ones if possible).</i>

		the aforementioned teaching and research functions, as provided by the law.		
12.	PI *	<b>A.3.1.4.</b> The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs does not exceed 20%.	<b>Fulfilled</b>	<i>Reduce the ratio by increasing the number of accredited supervisors.</i>
13.	CPI	<b>A.3.2.1.</b> 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.	<b>Fulfilled</b>	<i>Improve the average impact factor of the publications, which appears possible regarding the quality of the staff, students, infrastructures and the research projects.</i>
14.	PI *	<b>A.3.2.2.</b> 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	<b>Fulfilled</b>	
15.	PI *	<b>B.1.1.1.</b> The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral	<b>Fulfilled</b>	<i>Increase the ratio to 0.3 by improving communication on the quality of the BBU Doctoral studies,</i>

		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.		<i>and by attracting more international students.</i>
16.	<b>PI *</b>	<b>B.1.2.1.</b> 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.	<b>Fulfilled</b>	<i>Clarify the weight Academic records/Exam/ interview in the admission process.</i>
17.	<b>PI</b>	<b>B.1.2.2.</b> The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission does not exceed 30%.	<b>Fulfilled</b>	
18.	<b>PI</b>	<b>B.2.1.1.</b> 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.	<b>Fulfilled</b>	<i>Open the possibilities towards other scientific disciplines (and respectively open chemistry courses to PhD students from other Schools) such as Physics or Biology. The research is often interdisciplinary and this would give an added value for the students. Open also to non scientific courses (Management, Law, Regulations, Safety...).</i>
19.	<b>PI</b>	<b>B.2.1.2.</b> 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.	<b>Fulfilled</b>	
20.	<b>PI</b>	<b>B.2.1.3.</b> The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.	<b>Fulfilled</b>	

21.	PI	<b>B.2.1.4.</b> 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.	<b>Fulfilled</b>	<i>Adding one or two external members to the project or the team to the committee as a mandatory condition may improve the quality of the monitoring. Having an external overview may help to solve relationship issues or scientific problems. Moreover, an external member having interview of the advisor and the student without the second party may help in solving working or relationship issues.</i>
22.	CPI	<b>B.2.1.5.</b> 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.	<b>Fulfilled</b>	<i>There is a room to increase the number of PhD students in good conditions, this could be an objective for the next 5 years.</i>
23.	CPI	<b>B.3.1.1.</b> 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	<b>Fulfilled</b>	<i>The quality of the research should allow some publications in higher impact factor journals in the chemistry fields and perhaps journals with broader audience, while most of publications are in specialized journals. This could be an interesting objective for the next 5 years.</i>
24.	PI *	<b>B.3.1.2.</b> 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.	<b>Fulfilled</b>	<i>Increase the possibilities and fundings for student to make presentation in international conferences, encourage oral presentations when possible.</i>
25.	PI *	<b>B.3.2.1.</b> 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.	<b>Fulfilled</b>	

26.	PI *	<p><b>B.3.2.2.</b> 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.</p>	Fulfilled	
27.	PI	<p><b>C.1.1.1.</b> 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:</p> <ul style="list-style-type: none"> <li>a) the scientific work of Doctoral advisors;</li> <li>b) the infrastructure and logistics necessary to carry out the research activity;</li> <li>c) the procedures and subsequent rules based on which doctoral studies are organized;</li> <li>d) the scientific activity of doctoral students;</li> <li>e) the training program based on advanced academic studies of doctoral students;</li> <li>f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.</li> </ul>	Fulfilled	<p><i>Including students performances in the evaluation of the doctoral advisors is good and should be maintained.</i></p>
28.	PI *	<p><b>C.1.1.2.</b> 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.</p>	Fulfilled	
29.	CPI	<p><b>C.2.1.1.</b> The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:</p> <ul style="list-style-type: none"> <li>a) the Doctoral School regulation;</li> <li>b) the admission regulation;</li> <li>c) the doctoral studies contract;</li> </ul>	Fulfilled	

		<p>d) the study completion regulation including the procedure for the public presentation of the thesis;</p> <p>e) the content of training program based on advanced academic studies;</p> <p>f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;</p> <p>g) the list of doctoral students within the domain with necessary information (year of registration; advisor);</p> <p>h) information on the standards for developing the doctoral thesis;</p> <p>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.</p>		
30.	PI	<b>C.2.2.1.</b> All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.	<b>Fulfilled</b>	
31.	PI	<b>C.2.2.2.</b> 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.	<b>Fulfilled</b>	<i>Keep strong incitations to use the software and to ensure sensibilization of PhD students regarding plagiarism issues.</i>
32.	PI	<b>C.2.2.3.</b> 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.	<b>Fulfilled</b>	<i>Maintain the quality of the equipment and anticipate for updates and new techniques not yet available. European project are interesting calls to fund equipment but there are probably national or regional calls. The university is an important partner for such important investment. Companies have also contributed and are interesting partner to generate opportunities.</i>
33.	PI *	<b>C.3.1.1.</b> 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	<b>Fulfilled</b>	<i>Improve international mobility (research placements, conferences) by simplifying the bureaucratic issues. This is a critical parameter on which the</i>

		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.		<i>university should be attentive and posses the tools for improvement. Fundings shouls also be improved. The large amount of Erasmus agreement appears as too broad. A rationalisation and perhaps more focused strategy would probably help in particular on the bureaucratic aspects. Few but strong and long term agreements with selected high level universities and continuous exchanges may be more interesting than numerous agreements with only few students from time to time. This should be discuss together between the UBB international office and DSC.</i>
34.	PI	<b>C.3.1.2.</b> 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.	<b>Fulfilled</b>	<i>oint doctorates are essentials to ensure long term and efficient collaborations with high level institutes. Discussion with UBB is crucial at that point to ensure better access and easier procedure for cotutelles and financial support when needed. This criteria is highly relevant to ensure international visibility, and high level collaborations. Invite more international experts and potential cosupervisors for scientific short stays, and lectures.</i>
35.	PI	<b>C.3.1.3.</b> 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.).	<b>Fulfilled</b>	<i>Increase the number of international experts for thesis defences.</i>

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





## **VI. Conclusions and general recommendations**

*The overall quality of the DSC of UBB is extremely good and all criteria are fulfilled. Despite this good situation there are rooms for improvement and go far beyond the expected criteria. In particular, improving the publication quality (aiming at more generalist journals for instance) is possible with respect to the quality of the research staff and the infrastructures. Another essential aspect which can be improved is the internationalization of the research and facilitating cooperation and joint PhD by (i) lighten administrative procedure and (ii) rising more fund for supporting initiatives in this direction. Moreover, a policy from UBB towards invited professors positinsn (1 month for instance) would bring opportunities of strong international collaborations.*

*Finally, improvement on the courses given to the PhD students would open their mind and certainly help them both in their PhD project and after in their future professional life. For instance opening the courses to other scientific discipline would be an added value. That was positively discussed with the PhD students during the meetings. Moreover non scientific courses could be of interest for some of them aiming at a carrier in the industry for instance.*

## **VII. Annexes**

*The following types of documents shall be attached:*

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