



The External Evaluation Report of a Doctoral Study Domain

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Introduction

Type of Evaluation: Periodical External Evaluation

Department: Babes-Bolyai University of Cluj-Napoca, Doctoral study domain Mathematics

Period of the evaluation visit: 2 November – 5 November 2021

Committee: Paltânea Radu (Coordinator), Ajda Fošner (International expert), Sebastian-Aurelian Ștefăniță (PhD student)

Babeș-Bolyai University (UBB) is the oldest university in Romania and it offers study programmes that aim at increasing career opportunities. UBB has 250 undergraduate study programmes, of which 160 undergraduate programmes are in Romanian, 67 in Hungarian, 9 in German, 14 in English and 1 in French. Doctoral programmes - represents the highest form of specialization and includes activities such as seminars, workshops, preparing and mentoring doctoral theses. Admission to the doctoral programme is conditional upon prior acceptance of a scientific advisor, mastery of two foreign languages and a master's degree.

The University's primary goal is to create and distribute knowledge. The UBB mission is reflected in the following:

- a) ensuring the creation of knowledge through an intensive research process;
- b) providing training to students and researchers, active and responsible citizens, promoting education and research in accordance with the requirements of a society based on knowledge and values through initial training, continuing education and integration into the circuit of universal values;
- c) providing a framework for multicultural, multilingual and interfaith interferences and provides training on equal terms, in Romanian, Hungarian, German, as well as in international languages;
- d) contributing to the local, regional and national development from a social, economic, cultural, political point of view through involvement in line with the needs of the community.

The Faculty of Mathematics and Computer Science from BBU offers 3rd cycle academic studies in the form of PhD programmes in Mathematics and Computer Science, organized by the Doctoral School of Mathematics and Computer Science. The degrees offered are PhD in Mathematics and PhD in Computer Science, respectively. The main purpose of the programmes is to develop advanced research skills and to produce valuable and internationally visible scientific results in the fields of Mathematics and Computer Science. Their programmes are promoting high-quality fundamental and applied research in Mathematics and Computer Science, as well as interdisciplinary research, by involving the PhD students in the most important and recent research projects of the faculty, including international cooperation with academic and industrial partners.



Methods used

Before the evaluation visit we analysed:

- the internal evaluation report of the doctoral study domain under review and its Annexes (those, available in English);
- the documents, data and information available on the IOSUD/Doctoral School(s) website.

Before the evaluation visit we also had an online meeting (12 October 2021) with all evaluation panel members for instructions.

During the evaluation visit, we had the online discussions with:

- doctoral students in the doctoral study domain under review;
- employers of the graduates of the doctoral study domain under review;
- academic staff of the doctoral study domain under review;
- school officials of the doctoral school(s) in which the doctoral study domain under review is operating;
- representatives of the various structures (the council of the doctoral school, the university senate, the board of directors, the quality assessment and assurance commission, the ethics commission) of the doctoral schools in which the doctoral study domain under review is operating.

We also had a technical meeting with all evaluation panel members to identify specific issues that needed to be clarified during the evaluation. Visit of the buildings included in the institution's property was not possible because of the pandemic situation and, as a consequence, the remote evaluation.

On the last day of the evaluation we had an online meeting with all evaluation panel members for conclusions and a meeting with representatives of the institution under review to discuss on the conclusions of the evaluation process and the main recommendations.

Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

A general description of the field as well as its particularities are highlighted in this section. Here we used analysis of the internal evaluation report and information available on IOSUD website.

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

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

The analysis of the standard is based on the self-assessment file submitted to ARACIS as well as on the discussions held online during the visit.

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.

Babeş-Bolyai University initiated doctoral studies in 1966, with 50 doctoral supervisors from 14 fields of science and 119 candidates enrolled. Babeş-Bolyai University reorganised its doctoral studies in 2002 by implementing the solution of doctoral schools, which was further adopted by other universities in the country in 2005. In February 2002, the Administrative Council of Babeş-Bolyai University established that faculties should organise doctoral schools and provide courses and seminars to doctoral students, with the history of organising doctoral studies in the form of doctoral schools outlined in Addendum 1.2.7. As of 1 April 2002, there were 210 doctoral supervisors coordinating doctoral degrees in 24 doctoral fields.

A series of regulatory reforms were enacted in Romania's doctoral studies programmes in 2005. To organise the doctoral degree as a third cycle of university studies, normative regulations were created. As a result, UBB started the process of developing regulations and policies for the organisation and implementation of doctoral studies in accordance with the Bologna system. In the 2005-2006 academic year, courses for doctoral students were organised in 22 doctoral schools.

Today, UBB has 31 doctoral schools in 32 doctoral fields. The objective of the quality assurance system (Addendum 1.3.1) is to inspire a quality culture in the university. To achieve this goal, a collection of operational structures required to organise and implement quality assurance activities were developed and initiated:

- The Senate Quality Assurance and Academic Development Committee
- The Evaluation and Quality Assurance Committee (CEAC-UBB) at the institutional level, which is an advisory body of the Rector's Office in compliance with its own reorganisation and operating legislation (amended in 2020, by Senate Decision 13353/21.09.2020).
- The Curriculum Committee, which according to its own organisation and operating framework, represents the Senate's specialised structure responsible for harmonising and aligning the study programmes with the European practice and the demands of Romania's social economic and cultural development.
- The Qualities Centre (CQ) is an administrative unit that reports directly to the vice-rector responsible for quality and competitiveness. CQ operates under its own regulation and was established by restructuring the Centre for University Development and Quality Management (CDUMC), through Senate Decision 9471/13.07.2020.

The vice-rector responsible for Quality Assurance develops the policy and basic specifications for the implementation and development of the Quality Management System, as well as the guidelines and methodology for its assessment and audit, with the assistance of the structures. These mechanisms seek to create and reinforce a quality culture at UBB, both at the academic and administrative levels, as well as among students. They also ensure the dissemination of knowledge on quality culture, develop standards, initiate assessments and evaluations based on quality criteria by faculties, departments, administrative services, respectively on teaching-learning processes, research and academic



services, provide input from students and employers, they propose internal and external audits and make their results public. The quality management structures, in accordance with the law, work closely with ARACIS, with other competent agencies and bodies or similar institutions in the country or abroad, carry out scientific research aimed at quality assurance, which generates the publication of quality assurance documents at UBB, and publishes quality assurance and competitiveness materials in the institution.

Internal decisions on quality standards, guidelines, and metrics, as well as competitiveness standards and indicators, regulate quality assurance and competitiveness at UBB. CQ produces an annual quality assurance programme at the university level. In their turn, faculties implement their own annual quality assurance programmes, by deriving quality-related objectives from the operational plans. Both the university-level programme and those established by faculties relate to the quality of teaching-learning, scientific research, internal services, and community service.

Beginning with the 2020-2021 academic year, teachers and researchers on fixed-term contracts are required to develop an individual career/academic development plan for the duration of the contract, but no longer than three years. The management's evaluation of teachers' and researchers' professional activity, as well as peer evaluation (which is carried out in accordance with the operational procedures PO-CDUMC-AC 15, PO-CDUMC-AC 05, respectively, both revised in 2019) refers to the results achieved in the didactic, research, administrative, and community-oriented activities.

Recommendations: /

The indicator is fulfilled.

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

The field of Mathematics has been established as a field in which doctoral studies can be organized by OMEC No. 4843/2006. The correspondence between the names of the doctoral fields, as they have been published in various legislative documents, has been regulated by OMEN No. 5037/2013. UBB organizes doctoral studies in the field of Mathematics.

The doctoral program in Mathematics within SDMI gives doctoral students a quality scientific training, at international standards, results validated also by the presence of the Mathematics field on leading positions (for Romania) in the most important international rankings by fields:

- <http://www.cs.ubbcluj.ro/domeniul-de-stiinta-matematica-din-ubb-ramane-lider-in-romania-in-clasamentul-shanghai/>
- <http://www.cs.ubbcluj.ro/o-noua-recunoastere-a-valorii-scolii-de-matematica-din-universitatea-babes-bolyai/>
- <http://www.cs.ubbcluj.ro/matematica-si-informatica-de-la-ubb-sunt-cele-mai-bine-clasate-domenii-din-romania-in-clasamentul-leiden-2017/>

The main objective of the PhD program in Mathematics within SDMI is to promote high quality fundamental and applied research in the field, and to produce valuable and internationally visible scientific results. The doctoral program in Mathematics within SDMI aims to offer doctoral students the opportunity to conduct high quality research in the scientific field of Mathematics, as well as improving the scientific quality of doctoral students' guidance and the scientific quality of doctoral theses in Mathematics. Interdisciplinary collaborations with fields such as: medicine, physics, chemistry, operational research and management science, environmental science are promoted and encouraged



Recommendations: /

The indicator is fulfilled.

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

The analysis of the standard was based on the self-assessment file submitted to ARACIS, as well as on the meetings held during the visit.

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

The records of the doctoral students and of their entire activity within the doctoral study program is ensured through personal files and in electronic form. The storage of data regarding the doctoral program of doctoral students is performed by the staff of ISD, using as logistical resources: AcademicInfo (internal platform of UBB - <https://academicinfo.ubbcluj.ro/Info/> - an information system developed by the Computerization Department of UBB.) which contains the records of doctoral students enrolled in doctorate and the national platform Registrul Matricol Unic (RMU). The Integrated Educational Register (REI) is a platform that provides access to a person's educational path, by interconnecting the management systems in the educational sector. Through REI, the RMU is accessed, a platform that ensures the integrated management of data on students of state and private universities in Romania. Starting with 2012, the recordings of the defenses of the doctoral theses is done electronically through the online platform and the transmission to the MEN and CNATDCU of the doctoral theses and of the afferent files in electronic format is done through the platform rei.gov.ro.

Recommendations: /

The indicator is fulfilled.

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

UBB has the necessary logistical resources to fulfill the mission of doctoral studies, our university having, among others, one of the most efficient similarity analysis programs at international level. IOSUD UBB, as well as SDMI promote the observance of the ethical and deontological norms in the research-development activity, of the norms of integrity, rigor and correctness imposed by the scientific research. In order to avoid intellectual fraud, since 2016, IOSUD-UBB purchased and renewed annually the software license in order to verify the percentage of similarity in all doctoral theses (iThenticate textual similarity detection software provided by Turnitin, which contains one of the largest databases of works at international level and has high-performance algorithms for identifying the similarity ratio) (Annex UBB 1.2.16-2). According to the procedure established at the UBB level and regulated in the UBB Regulation for organizing and conducting doctoral studies, in order to accept doctoral theses for public defense, all doctoral theses are verified through the iThenticate program to identify similarities. The reports are presented to the doctoral advisors who will decide on the correct use of the bibliographic sources and the conception of the doctoral theses before they are defended in the guiding commissions.

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.

The analysis of the standard is based on the documents requested by the commission during the visit because of unclear data in the self-assessment file.

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

The financial resources of SDMI are used optimally, and the revenues from doctoral studies are supplemented by additional funding to that provided by the government. The use, within UBB, of the research funds from the doctoral grants is regulated according to the UBB Methodology regarding the use of the research funds from the doctoral grants approved by the Board of Directors of UBB on 2.12.2014 and the Decision 6184 / 10.04.2017 of the Board of Directors of UBB distribution of the doctoral grant. As presented in Section 2.7, the amount allocated at the IMF level for a doctoral grant was 10200 lei until the academic year 2018-2019 (inclusive), and starting with the academic year 2019-2020 the amount allocated to a doctoral grant in the fields of Mathematics and Computer Science (D2) is 12,000 lei.

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%.

There were 28.57% of the 14 budget doctoral students, in stage, in the field of Mathematics, existing at the time of evaluation (Annex MATEMATICA C.3.1), benefit for a minimum of 6 months from sources of funding other than government funding, through scholarships granted by individuals or legal entities or are financially supported by research or institutional development grants / human resources.

Recommendations: /

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.).



There were 9% of the total amounts related to doctoral grants and tuition fees collected from doctoral students in the form of paid education in the period 2016-2019 were used to settle the training expenses of doctoral students (participation in conferences, schools summer, courses, internships abroad, publication of research papers). The reason for the lower percentage is that there are no publication fees and the conference fees are lower comparing to other fields.

Recommendations:

We recommend that a higher percentage of total amount from doctoral grants and tuition fees should go for participation at the international conferences, internships abroad etc.

The indicator is partly fulfilled.

Criterion A.2. Research infrastructure

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

The analysis of the standard is based on the self-assessment file submitted to ARACIS.

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

The research activities specific to the doctoral program in the field of Mathematics are carried out in educational spaces equipped with equipment corresponding to the imposed research requirements. The buildings belong to Babeş-Bolyai University and are given for use to the Faculty of Mathematics and Computer Science, being located in the Mathematica building. These spaces contain the material and technical equipment necessary to carry out the activities sustained within the doctoral program: video projectors, computers, specific software. The doctoral students from the domain Computer Science also have access, through FMI, to the high performance computing infrastructure of UBB (<http://hpc.cs.ubbcluj.ro/>), the HPC cluster acquired through the MADECIP project. Furthermore, FMI offers SDMI doctoral students the IoT Lab (Internet of Things Lab, <http://www.cs.ubbcluj.ro/inaugurarea-iotlab-internet-of-things-lab/>), a lab that offers doctoral students an adequate and supporting environment where they can create, experiment and apply new ideas, working on innovative themes and projects. Thus, the initiatives and projects of the faculty and the doctoral school are continued, leading to a quality specialized training, to the introduction and development of creative solutions, encouraging both research topics and innovative projects of doctoral students, in collaboration with other institutions. education or industry. The laboratory was made with the support of UBB and equipped exclusively with sponsorships offered by industrial partners, namely: Arobs, Endava, Evozon, Fortech, Montran, Siemens, Accesa, Yonder, Frequentis, Garmin, Qubiz, REBS, Sage Intacct, Transart.



Through the Central University Library and the FMI library, a substantial book fund is provided, through free access to books and specialized magazines in printed or electronic format (access to databases such as JSTOR, EBSCO – Academic Search Complete, EBSCO – Business Source Complete, EBSCO – Art Full Text, SpringerLink Journals, Emerald Management Journals, ProQuest Central, Cambridge Journals, Science Direct Freedom Collection, American Institute of Physics Journals, American Chemical Society Journals, Institute of Physics Journals, SciFinder (CAS), Wiley Journals, MathSciNet, Zentralblatt MATH; baze de date bibliometrice și bibliografice: Clarivate Analytics, Scopus).

Recommendations: /

The indicator is fulfilled.

Criterion A.3. Quality of Human Resources

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

The analysis of the standard is based on the self-assessment file submitted to ARACIS.

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

The indicator is fulfilled according to the data given by UBB department.

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.

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

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

The disciplines in the training program based on advanced university studies related to the field of Mathematics are delivered by teachers or researchers who have the quality of doctoral/qualified advisor, professor or associate professor with proven expertise in the field of subjects taught.



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 programs³ does not exceed 20%.

The indicator is fulfilled according to the data given by UBB department.

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 analysis of the standard was based on the CVs from the self-assessment file submitted to ARACIS.

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

³ 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No.1/2011 with subsequent amendments and additions, with additional extension periods approved as per Article 39, paragraph (3) of the Code of doctoral studies approved by the GD No. 681/2011 with subsequent amendments and additions.

prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

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



enabling certificate, based on their scientific results within the past five years.

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

Domain B. EDUCATIONAL EFFECTIVENESS

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

The analysis of the standard is based on the self-assessment file submitted to ARACIS as well as on the discussions held online during the visit.

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

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

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

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

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

Admission to the doctoral study programs within SDMI, in the fields of Mathematics and Computer Science is based on selection criteria that include: the previous professional performance of the candidates, their interest in scientific research, publications in the field and a proposal for a topic. research. The second test of the admission contest (weight 40% of the admission contest) is an interview with the candidate in which the scientific preoccupations of the candidate and the proposed topic for the doctoral thesis are analyzed.

Recommendations: /

The indicator is fulfilled.



Performance Indicator B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission⁴ does not exceed 30%.

The indicator is fulfilled according to the data given by BBU department.

Recommendations: /

The indicator is fulfilled.

Criterion B.2. The content of doctoral programs

The analysis of the standard was based on the self-assessment file submitted to ARACIS, as well as on the discussions held online during the visit.

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

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

The disciplines offered by SDMI for the training program based on advanced academic studies of doctoral students in the Mathematics domain cover various topics (Algebra, Mathematical analysis, Fixed point theory, etc.), with the goal of improving the students' research competences (see the syllabi). The scientific quality of the disciplines from the training program based on advanced academic studies is confirmed by the scientific results obtained by the doctoral students in Computer Science, proved by their publications and participations in scientific events.

General research methods and methodology of elaboration of scientific papers, a compulsory discipline for doctoral students in the field of Mathematics, dedicated to ethics in scientific research, intellectual property and the methodology of elaboration of scientific papers.

Recommendations: /

The indicator is fulfilled.

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

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.

In the SDMI curriculum there is the discipline Ethics and academic integrity. General research methods and methodology of elaboration of scientific papers, a compulsory discipline for doctoral students in the field of



Mathematics, dedicated to ethics in scientific research, intellectual property and the methodology of elaboration of scientific papers.

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 activities⁵.

All the disciplines in the SDMI offer for the Training Program based on advanced university studies of PhD students in the field of Mathematics specify the knowledge, skills, abilities and aptitudes that doctoral students should acquire after completing each discipline or through research activities. The disciplines offered by SDMI for the training program based on advanced academic studies of doctoral students in the Mathematics domain cover various topics with the goal of improving the students' research competences. The scientific quality of the disciplines from the training program based on advanced academic studies is confirmed by the scientific results obtained by the doctoral students, proved by their publications and participations in scientific events.

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.

During the entire doctoral training period, students benefit (in addition to the guidance of the doctoral advisor) from the advice / guidance of guidance commissions consisting of 3 other teachers from Babeş-Bolyai University who hold at least the position of assistant professor (university lecturer). The members of the guidance commissions provide feedback to doctoral students, complementary to the feedback provided by the doctoral scientific advisor, on the occasion of the presentations of research projects and the annual research reports provided in the doctoral study plan. Also, the members of the guidance commissions have established regular consultation hours (two hours per week) in which meetings can be set up with the doctoral students they guide.

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.

In the field of Mathematics there is 1 doctoral student. The guidance commission is available in Annex B.2.1.5. Mathematics Guidance Committees.

Recommendations: /

The indicator is fulfilled.

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

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

The analysis of the standard is based on the self-assessment file submitted to ARACIS, as well as on the discussions held online during the visit.

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.

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

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

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

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

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

The indicator is fulfilled according to the data given by UBB department.



Recommendations: /

The indicator is fulfilled.

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

The indicator is fulfilled according to the data given by UBB department.

Recommendations: /

The indicator is fulfilled.

Domain C. QUALITY MANAGEMENT

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

The analysis of the field is based on the self-assessment file submitted to ARACIS, as well as on the discussions held online during the visit.

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.

IOSUD UBB has procedures for internal evaluation of the quality of study programs that are focused on evaluating the scientific activity of doctoral advisors and doctoral students in doctoral schools. The evaluation of the quality and progress of the schools of doctoral studies is performed periodically. IOSUD UBB has developed and applies the procedure for evaluation and internal monitoring of the evolution of doctoral schools, a procedure that contains the following criteria: the scientific activity of doctoral advisors; the infrastructure and logistics necessary to carry out the research activity; the procedures and subsequent rules on the basis of which the doctoral studies are organized; the scientific activity of doctoral students; training program based on advanced university studies of doctoral students.



At the SDMI level, there are internal procedures for analyzing the content of doctoral study programs and for evaluating their quality, as well as procedures for internal evaluation of doctoral advisors and doctoral students. According to these internal procedures:

1. at the beginning of each academic year, the doctoral advisors will provide the verification sheet of the CNATDCU minimum standards;
2. the evaluation of the activity of doctoral students is performed annually, after the end of a university year, based on a self-evaluation report of the research activity and will be performed by a commission appointed by the Doctoral School Council.

Also, at the level of the FMI council, the quality of the scientific activity of the teachers is regularly monitored, including those employed in the Doctoral School and of the doctoral students within SDMI. The faculty has a commission for evaluation and quality assurance. In order to assess the quality of teachers and researchers (including PhD advisors within the SDMI), the FMI has implemented a comprehensive evaluation model including self-evaluation, peer review, and evaluation of the department director.

At UBB level there is an application for the management of academic/ scientific activity in UBB (<https://infocercetare.ubbcluj.ro/>), being intended for teachers and research, and for the management of academic / scientific activity at the level of departments, research-development-innovation units, faculties and at the level of UBB. The objective is to highlight the academic/scientific activity of teachers and research, as well as its synthesis at the level of departments, research-development-innovation units, faculties and at the level of UBB. The application is accessible through a web interface and provides facilities for filling in academic / scientific activity by each teacher and researcher, including doctoral advisors and doctoral students.

The reports generated through the research management application are used at the level of the FMI's Quality Assurance Commission to assess the scientific and academic performance of faculty members. Both at the level of SDMI and IOSUD UBB, the evaluation of the scientific activity of doctoral students is performed by monitoring their progress, mainly by quantification of the results of the annual research activities within the doctoral program in the form of the number and quality of scientific publications (level of indexing in relevant databases, citations, awards), of the conferences in which they participate, etc. SDMI promotes and supports the participation of PhD students at scientific events (by a continuous dissemination of the relevant conferences in the field), publication of scientific papers, offering a social support in this regard.

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.

At the IOSUD UBB level, during the doctoral training internship feedback mechanisms are implemented by doctoral students to identify their needs, as well as their level of satisfaction with the doctoral program as a whole, in order to continuously improve the offered academic and administrative services. In order to evaluate the level of students' satisfaction with respect to the teaching-learning process, the material base and the services and facilities that UBB offers, starting with the academic year 2014 - 2015, CDUMC carries out, every two years, an extensive



survey that addresses all students of the three levels of study, including foreign ones. The results of this survey are used in the development of strategic and operational objectives as well as in quality assurance programs. At the SDMI level, the feedback provided by doctoral students is continuous, with regular meetings between them, their doctoral advisors and the members of their guidance committees.

Recommendations: /

The indicator is fulfilled.

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

The analysis of the field is based on the self-assessment file submitted to ARACIS, as well as on the discussions held online during the visit.

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

*general description of the standard analysis.

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;
the list of doctoral students within the domain with necessary information (year of registration; advisor);
- (g) information on the standards for developing the doctoral thesis;
- (h) 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.

The Doctoral School of Mathematics and Computer Science provides, through the faculty website (www.cs.ubbcluj.ro), information to doctoral students and any categories of persons interested in current and correct data, about doctoral programs offered within SDMI, doctoral advisors within SDMI, information provided through the Institute of Doctoral Studies. The information is reviewed and updated regularly to ensure transparency and reporting to the transparency policies of universities and faculties in the European Higher Education Area. The information of interest for the doctoral students, the future candidates, respectively the information of public interest are available for consultation in electronic format. Thus, SDMI, through IOSUD, publishes on the website of the organizing institution information about, in compliance with the general regulations on data protection:

- a) the regulations of the doctoral school (<https://doctorat.ubbcluj.ro/wp-content/uploads/2018/11/Regulament-Mate-Info-2018.pdf>) also available on the SDMI page at <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/regulamentul-scolii-doctorale-de-matematica-si-informatica/>;
- b) the admission regulation at UBB level (<https://doctorat.ubbcluj.ro/wp-content/uploads/2018/03/Metodologie-de-admitere-doctorat-2018.pdf>) as well as the specific criteria

applied in the SDMI (<http://www.cs.ubbcluj.ro/admitere/nivel-doctorat/criterii-tematica-matematica/> in the field of Mathematics and <http://www.cs.ubbcluj.ro/admitere/nivel-doctorat/criterii-tematica-informatica/> in the field of Computer Science);

- c) the doctoral studies contract (https://doctorat.ubbcluj.ro/wp-content/uploads/2018/09/Contract_de_studii_2018.pdf);
- d) the regulation for completing the studies, which also includes the procedure for public defense of the thesis (<https://doctorat.ubbcluj.ro/ro/pregatirea-si-desfasurarea-sustinerii-publice-a-tezei-de-doctoratin-conformitate-cu-codul-studiilor-universitare-de-doctorat/>) and the specific criteria applied in the SDMI (Art. 4, paragraph 4 of the SDMI Regulation available at <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/regulamentul-scolii-doctorale-de-matematica-si-informatica/>);
- e) the content of the study programs (<https://doctorat.ubbcluj.ro/wp-content/uploads/2018/10/Planuri-de-C3%AEEnv%C4%83%C8%9B%C4%83m%C3%A2nt-17.10.2018.pdf>) also available on the SDMI page at <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/oferta-scolii-doctorale/>;
- f) the scientific profile and research interests / topics of the doctoral advisors in the school, as well as their institutional contact data (available on the SDMI page at <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/conducatori-de-doctorat-in-matematica-si-informatica/>);
- g) the list of doctoral students in the school with the basic information (year of enrollment; leader) (available on the SDMI page at <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/lista-doctoranzilor/> with protected access)
- h) information on the standards for the elaboration of the doctoral thesis (Article 4, paragraph 4 and Annex I of the SDMI Regulation <http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctorat/regulamentul-scolii-doctorale-de-matematica-si-informatica/>);
- i) links to the abstracts of the doctoral theses to be defended publicly, as well as the date, time, place where they will be defended, at least 20 days before the defense (on the IOSUD page at <https://doctorat.ubbcluj.ro/ro/sustinerile-publice-ale-tezelor-de-doctorat/>). Information on the date, time and place of public support is also available on the SDMI page at <http://www.cs.ubbcluj.ro/anunturi/sustineri-teze-doctorat/>.

Recommendations: /

The indicator is fulfilled.

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

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

All doctoral students (including doctoral students of SDMI) have free access to a platform with academic databases relevant to the fields of organized doctoral studies, through the ANELIS program. The Central University Library "Lucian Blaga" from Cluj Napoca is a member of the Anelis Plus consortium within which are subscribed several scientific bases to which doctoral students have access. Regardless of this participation, the Lucian Blaga Central University Library has institutional subscriptions to other databases of scientific research, of which - scientific resources with access to the full text: JSTOR, EBSCO – Academic Search Complete, EBSCO – Business Source Complete, EBSCO – Art Full Text, SpringerLink Journals, Emerald Management Journals, ProQuest Central, Cambridge Journals, Science Direct Freedom Collection, American Institute of Physics Journals, American Chemical Society Journals, Institute of Physics Journals, SciFinder (CAS), Wiley Journals, MathSciNet, Zentralblatt MATH; bibliometric and bibliographic databases: Clarivate Analytics, Scopus.



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.

Each doctoral student from SDMI has access, through the research group in which he/she activates, upon request and with the approval of the doctoral advisor, to the electronic system TurnItIn for the verification of the degree of similarity with other existing scientific works. IOSUD UBB, as well as SDMI promote the compliance with ethical and deontological values in the activity of research and development, integrity rules, rigour and fairness imposed by scientific research. In order to avoid intellectual fraud, starting with the year 2016, IOSUD-UBB acquired and annually renewed the software license to facilitate verifying the similarity percentage in all doctoral theses (textual similarity detection software iThenticate supplied by Turnitin, which contains one of the largest databases of publications at international level and makes use of performant algorithms to identify similarities) (Annex UBB 1.2.16-2).

Recommendations: /

The indicator is fulfilled.

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

The FMI promotes an efficient and correct collaboration between SDMI and the research centers or groups from the Faculty of Mathematics and Computer Science accredited at Babeş-Bolyai University, to ensure access to advanced research infrastructure and to increase the scientific performance of PhD students in Mathematics and Computer Science (Annex SDMI C.2.2.3). Thus, SDMI collaborates with the research units and groups from the faculty accredited at UBB level (<http://www.cs.ubbcluj.ro/cercetare/grupuri-de-cercetare/>) according to <http://www.cs.ubbcluj.ro/evaluare-grupuri-cercetare/>.

According to Art. 3, paragraph 4, of the SDMI regulation (<http://www.cs.ubbcluj.ro/invatamant/programe-academice/doctordat/regulamentul-scolii-doctorale-de-matematica-si-informatica/>), doctoral students of a doctoral advisor member of a research group within the Faculty of Mathematics and Computer Science are implicitly members of the respective research group. PhD students may use the research infrastructure of research centers or groups, at the proposal of the scientific director and with the approval of the director of the research center/group. Also, within the research centers / groups it is possible to stimulate the performances in the scientific research of the doctoral students through activities and methods specific to the research centers and groups, at the proposal of the scientific leader and with the approval of the research center / group director. PhD students report the results of the scientific research activity (also) within the research center / group where the respective results were obtained. All PhD students from SDMI have access to the IoTLab laboratory (Internet of Things Lab), <http://www.cs.ubbcluj.ro/inaugurarea-iotlab-internet-of-things-lab/>), on the basis of the internal regulations available at <https://www.cs.ubbcluj.ro/wp-content/uploads/Regulament-IoTLab-EN.pdf>.

Recommendations: /

The indicator is fulfilled.

Criterion C.3. Internationalization



The analysis of the field is based on the self-assessment file submitted to ARACIS, as well as on the discussions held online during the visit.

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.

PhD students in Mathematics have the opportunity to benefit from study mobility within the European Erasmus and CEEPUS (Central European Exchange Program for University Study) programs for the doctoral study cycle. The FMI has concluded ERASMUS agreements for the doctoral studies cycle (available in the folder Annex SDMI/C.3.1.1).

In the period 2016-2020, PhD students in the field of Mathematics benefited from 3 mobilities through the European Erasmus and CEEPUS programs. According to Annex MATEMATICA C.3.1.1, 57% (16/28) of PhD students in Mathematics in the academic year 2020-2021 during their doctoral studies have completed at least a training period abroad or another form of mobility, such as participation in international scientific conferences.

Within the field of Mathematics studies, the organization of doctorates in international co-tutoring is supported, as well as the invitation of first-rate experts to give courses/lectures for doctoral students. According to Annex MATEMATICA C.3.1.2a, 1 doctoral student in the field of Mathematics carried out his doctoral studies in the period 2016-2020 in international co-supervision. According to Annex MATEMATICA C.3.1.2b, in the period 2016-2020, 18 international experts were invited to hold invited conferences in the field of Mathematics (3 in 2017, 8 in 2018 and 7 in 2019).

SDMI also supports the internationalization of activities within the doctoral studies in the field of Mathematics by including international experts in the commissions for guiding or defending doctoral theses. In this sense, in the period 2016-2020, 3 international experts were part of the commissions for the defense of doctoral theses in the field of Mathematics (see Annex MATEMATICA C 3.1.3). Also, the employees of the Institute of Doctoral Studies participate in activities to promote the doctoral programs offered by IOSUD UBB, within the ERASMUS + mobilities: International Staff Exchange week, Ljubljana, Slovenia 2017 and 1st International Staff Week June 4-8, 2018, Cardinal Stefan Wyszyński University in Warsaw, Poland and by participating in educational fairs. Leaflets and brochures containing information about doctoral programs were presented at the educational fairs (Annex 1.3.58-1, Annex 1.3.58-2, Annex 1.3.58-3, Annex 1.3.58-4).

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.



As written above, the indicator is fulfilled.

Recommendations: /

The indicator is fulfilled.

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

As written above, the indicator is fulfilled.

Recommendations: /

The indicator is fulfilled.

SWOT Analysis

<p><u>Strengths:</u> The doctoral program in Mathematics offers a quality scientific training at international standards.</p>	<p><u>Weaknesses:</u></p> <ul style="list-style-type: none"> – Decreasing number of PhD students in Mathematics. – Doctoral students who fail to complete their doctoral theses on time.
<p><u>Opportunities:</u></p> <ul style="list-style-type: none"> – National Research, Development and Innovation Plans. – CNCISIS – UEFISCDI programmes. – Horizon Europe programmes. – Erasmus + mobility programmes. – UBB scholarships and grants to support the competitiveness of students and teachers. – Attracting international doctoral students. 	<p><u>Threats:</u></p> <ul style="list-style-type: none"> – Relatively small number of master's degree graduates from the FMI who continue their doctoral studies in Mathematics. – We recommend that a higher percentage of total amount from doctoral grants and tuition fees should go for participation at the international conferences, internships abroad etc.

Overview of judgments awarded and of the recommendations

No.	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations
1.	IP	A.1.1.1	fulfilled	
2.	IP	A.1.1.2	fulfilled	
3.	IP	A.1.2.1.	fulfilled	
4.	IP	A.1.2.2	fulfilled	
5.	IP	A.1.3.1	fulfilled	
6.	IP	A.1.3.2	fulfilled	

7.	IP*	A.1.3.3	Partly fulfilled	We recommend that a higher percentage of total amount from doctoral grants and tuition fees should go for participation at the international conferences, internships abroad etc.
8.	IP	A.2.1.1	fulfilled	
9.	IP	A.3.1.1	fulfilled	
10.	IP*	A.3.1.2	fulfilled	
11.	IP	A.3.1.3	fulfilled	
12.	IP*	A.3.1.4	fulfilled	
13.	IP	A.3.2.1	fulfilled	
14.	IP*	A.3.2.2	fulfilled	
15.	IP*	B.1.1.1	fulfilled	
16.	IP*	B.1.2.1	fulfilled	
17.	IP	B.1.2.2	fulfilled	
18.	IP	B.2.1.1	fulfilled	
19.	IP	B.2.1.2	fulfilled	
20.	IP	B.2.1.3	fulfilled	
21.	IP	B.2.1.4	fulfilled	
22.	IPC	B.2.1.5	fulfilled	
23.	IPC	B.3.1.1	fulfilled	
24.	IP*	B.3.1.2	fulfilled	
25.	IP*	B.3.2.1	fulfilled	
26.	IP*	B.3.2.2	fulfilled	
27.	IP	C.1.1.1	fulfilled	
28.	IP*	C.1.1.2	fulfilled	
29.	IPC	C.2.1.1	fulfilled	
30.	IP	C.2.2.1	fulfilled	
31.	IP	C.2.2.2	fulfilled	
32.	IP	C.2.2.3	fulfilled	
33.	IP*	C.3.1.1	fulfilled	
34.	IP	C.3.1.2	fulfilled	
35.	IP	C.3.1.3	fulfilled	

Conclusions and general recommendations

- All the main indicators are fulfilled.
- The doctoral program in Mathematics offers a quality scientific training at international standards.
- We recommend that a higher percentage of total amount from doctoral grants and tuition fees should go for



participation at the international conferences, internships abroad etc.

Koper, 10 November 2021

Prof. dr. Ajda Fošner

Annexes

- The detailed schedule of the evaluation visit.