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# The External Evaluation Report of the Doctoral Study Domain of Biology Pitesti University Centre National University of Science and Technology Politehnica Bucharest

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

**University of Pitesti** has requested the periodic external evaluation of its Doctoral Study Domain in the field of Biology. The Doctoral Study Programme in Biology was organised in the scope of Interdisciplinary Doctoral School at the University of Pitesti.

The Internal Evaluation Report is prepared by the former contact person Professor Marian Petre who has been retired in the meanwhile.

The domain was evaluated by the domain evaluation panel:

- Professor Otilia Zarnescu, coordinator of the expert team (University of Bucharest)
- Professor Mladen Krajacic, international expert (University of Zagreb)
- Ms. Adela-Maria Hapca, a student team-member ("Babeş-Bolyai University, Cluj-Napoca)

The external evaluation process was accomplished at the University of Pitesti as a sitevisit in the period of April 10 to 12, 2024.

The doctoral study programmes started in 1997 when the university was accredited as an Institution Organising University Doctoral Studies. The doctoral study programme in biology started in 2005. So far, it has been accomplished and developed in the scope of the

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



Faculty of Sciences, Physical Education and Informatics – the Department of Natural Sciences. The department coordinates bachelor study programmes in Biology, Chemistry, Ecology, Environmental Protection, and Medical Chemistry. There are four master-degree programmes in Medical Biology, Monitoring and Protection of Environment, Interdisciplinary Applications in Natural Sciences, and Applications of Biotechnologies in Horticulture and Environmental Protection.

The Biology Doctoral Study Domain, as well as the Interdisciplinary Doctoral School and the whole University of Pitesti are recently passing a process of merging with a larger public university; thus, since now it will be a part of Pitesti University Centre in the scope of the National University of Science and Technology Politehnica Bucharest. Accordingly, further rearrangements are expected at all the organisational levels.

# II. Methods used

The evaluation process started with analysis of the Internal Evaluation Report prepared by the former contact person and a doctoral supervisor Professor Marian Petre, retired meanwhile. The Report was accompanied by a number of Annexes, covering all the organising, structural and governing issues. Documents, data and information available on the institutional websites (the University, the Faculty, the Doctoral School) has also been analysed.

In the scope of external evaluation, the Interdisciplinary Doctoral School was represented by the Rector of the University of Pitesti, as well as Vice-rector for research and representatives of the Doctoral School Council and the Committee for Quality Assurance. The Doctoral Study Domain was presented by the two recent supervisors — the main contact persons responsible for the study programme in the Biology domain: Professor Cristina Soare and Professor Anca Şutan. The on-site visit encompassed a communication and extensive discussion with a teaching staff and directors of research centres contributing to the study programme. Furthermore, the on-site visit encompassed a communication and extensive discussion with students, graduates and employers of graduates.

The research centres and the department's laboratories visit is also organised for the evaluation team members.

The evaluation process was conducted in line with Guidelines regarding the activities carried out during the on-site visit by the Experts' Panel to evaluate a Doctoral Study Domain (ARACIS), the List of the domains, criteria, standards, performance indicators, and the List of critical performance indicators for the periodical external evaluation of Doctoral Study Domains (ARACIS).

# III. Analysis of ARACIS's performance indicators

# Domain A. INSTITUTIONAL CAPACITY

The University Centre, including Faculty of Sciences, Physical Education and Informatics – the Department of Natural Sciences, as well as the Interdisciplinary Doctoral



School, provides all aspects of institutional capacity for an efficient delivery of the doctoral study programme in the domain of biology.

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

Standard A.1.1. The functional effectivnes is provided for in general legislation at the university level, as well as specific legislation at the doctoral school and the faculty level.

# Performance Indicator A.1.1.1.

The general functioning mechanisms of the Doctoral Study Programme in Biology is regulated at the University Centre level encompassing the Interdisciplinary Doctoral School to which study programme in the domain is subordinated. The University Centre ensures the necessary administrative and managerial structure including the competitive positioning of a director of the Council for Doctoral Studies.

Furthermore, there are mechanisms for doctoral students admission and doctoral study completion. Mechanisms for recognising the status of a doctoral advisor are developed. Equivalence of the doctoral degree to the relative ones, obtained abroad, is ensured.

The contract for doctoral studies is defined. Topics of the doctoral study programme and advanced research training are established through discussion between students and their supervisors, and analysed and approved by the Doctoral School Council and directors of research centres.

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator A.1.1.2.

Mandatory criteria, procedures and standards are defined by the Council for Doctoral Studies, regarding the structure and content of the programme, conflict mediation, fraud prevention (including plagiarism), attendance of doctoral students obligations and ensurance of their access to research resources and infrastructure.

References have been presented to:

- method of accepting the new PhD leading member
- mechanism related to opportunity, structure and content of the advanced research training
- procedures of changing a supervisor
- conditions under which the doctoral programme can be interrupted
- fraud prevention mechanisms
- students' obligations attendance
- students' access to the research resources

Recommendations: There are no recommendations



Standard A.1.2. Institution Organising University Doctoral Studies (IOSUD) has the logistical resources necessary to carry out the doctoral studies' mission

# Performance Indicator A.1.2.1.

At the University Centre level, in the scope of the Interdisciplinary Doctoral School, there is an operable IT system to keep track of doctoral students and their academic background. The evaluation team members witnessed that the failure, reported in the previous external evaluation report, has been fixed.

The system (Microsoft Access) includes: (1) record of doctoral students per year of studies; (2) the composition of the team of mentors for each doctoral student; (3) the doctoral student's advanced training program (study disciplines, scientific reports, etc.); (4) time planning of activities (exams, submission of reports, etc.); (5) management of situations of interruption of doctoral studies.

According to the transition, mentioned above, the computer system currently used at the Politehnica University, Bucharest, is expected to be implemented in the near future.

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator A.1.2.2.

The previous software used to verify similarities or plagiarism (SEMPLAG) is substituted with the new one (TURNITIN). It is available to all the teachers and supervisors, and evidence of its use is demonstrated by the representatives of the study domain. Plagiarism is an issue of permanent concern at the doctoral school, and a use of the verifying system is considered an obligation of the doctoral studies according to the regulation documents.

Similarity reports of doctoral thesis, defended in the study domain in the last 5 years, were presented to the evaluation team.

*Recommendations:* A usage of the programme by the students themselves would be recommended. This way, they could enhance their awareness of that issue, by checking their manuscripts (seminars, theses, articles).

# 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.

In the period 2017-2023, the doctoral study domain won 3 national research grants. The awarded grants (documented to the expert team through the relative annexes) have been carried out with an involvement of 5 doctoral students. In the grants, obtained by doctoral advisers and addressed relevant research topics, doctoral students have been regularly engaged.

Recommendations: There are no recommendations



## Performance Indicator \*A.1.3.2.

In the period of 5 years (till preparation of internal evaluation report, 2023), two PhD students benefited, for at least six months, from grants awarded to increase research capacity. Furthermore, one student was supported by the internal competitive grant offered by the doctoral school. In total, it makes 33.33% of the students in the doctoral domain (3 out of 9).

*Recommendations*: In spite of fixing the failor reported in the previous accreditation process, the doctoral study domain is expected to make additional efforts in applying for grants that could support as many PhD students as possible.

The indicator is fulfilled.

## Performance Indicator \*A.1.3.3.2

In the academic year 2020-2021, from the total of 29,000 lei related to a doctoral grant in the Biology domain, the sum of 8,730 lei (representing 30.1%) is allocated to the professional training of doctoral students. For fee-paying doctoral students (6000 lei for Romanian students and 12175 lei for students with their own currency account), the amounts related to the professional training of doctoral students are 1294 lei (21.57%) and 2717 lei (22.32%), respectively.

To pay for the publication accepted in the Foods, open-access journal, 6356.56 lei (21.19%) of the doctoral grant were paid from the funds of a doctoral student in 2020. In 2020, 10.80% of the total amounts related to doctoral grants and tuition fees collected from doctoral students were allocated for publication and material expenses. The material acquisitions, necessary to carry out the activities in doctoral students' research projects, were 13,468 lei in the year 2021, which is 15.2% of the total income (doctoral grants + fees).

Recommendations: We recommend additional efforts in increasing funds allocated to professional training of students (attending conferences, summer schools, research trainings abroad), or any form of result dissemination.

The indicator is fulfilled.

## Criterion A.2. Research infrastructure

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

The University Centre with the Interdisciplinary Doctoral School has proper infrastructure to support research activities in the domain of biology. Some equipment-items could even be considered outstanding, however, it is questionable how much those items are really used in biology research (the two scanning electron microscopes, of which one is equipped to function as a semi-transmission microscope).

<sup>&</sup>lt;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.



## Performance Indicator A.2.1.1.

The venues and the equipment available to the doctoral students enable research activities in the domain. The equipment range is broad enough to support the particular range of topics that produce scientific outcome in biology at the University Centre.

The research infrastructure is represented by:

- Regional Research-Development Center for materials, processes and innovative products intended for the Automobile industry (CRC&D-Auto), where there are laboratories where doctoral students can carry out their research (Advanced Materials Laboratory, Electron Microscopy Laboratory, Light Microscopy Laboratory, X-ray Characterization Laboratory, Advanced Plant Processing Laboratory).
- Research Center for Nature Protection.
- 8 research laboratories (Annex II.A.2.1.1.2).

The service offers of the two research centers and their research infrastructure are publicly posted on the EERTIS platform: https://eeris.eu/ERIF-2000-000P-0896; https://eertis.eu/errf-2300-000v-1679.

The doctoral students have access to the lending and reading rooms of the Pitesti University Center Library, including access to online international databases (http://cat-biblioteca.upit.ro/bibl/Pagina%20WEB/Site nou/ Databases.htm).

In the last 5 years, a series of equipment was purchased for research activity through research projects: NANOGELEXPLORE, PN-III-P4-ID-PCE-2020-0620, PN-III-P1-1.2- PCCDI-2017-033, FDI 2021, 2023, CIPCS Internal Project 2021, 2022. Centrifuges, incubators, flow cytometer, microscopes (phase contrast, fluorescence, stereomicroscope), UV-VIS spectrophotometer, etc. were purchased (*Annex A.2.1.1 .The research infrastructure, acquired and developed in the last 5 years*).

Recommendations: There are no recommendations

The indicator is fulfilled.

# Criterion A.3. Quality of Human Resources

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

# Performance Indicator A.3.1.1.

Within the doctoral study domain (Biology), there are currently 4 doctoral supervisors, of which 2 are tenured and 2 are retired supervisors. Among the 4 doctoral supervisors, 2 (50%) doctoral supervisors meet the CNATDCU minimum standards in force at the time of the evaluation (*Annex A.3.1.1*). Retired doctoral supervisors only partially meet the CNATDCU minimum standards that are currently in force.



Recommendations: A strong initiative and support is expected in increasing the number of doctoral thesis supervisors. The University Centre management and the Interdisciplinary Doctoral School Council are both recommended to be aware of having satisfactory human resources – proper number of qualified supervisors affiliated to the doctoral domain in Biology.

# The indicator is partially fulfilled.

#### Performance Indicator \*A.3.1.2.

Among the 4 doctoral supervisors in the field of Biology, 2 (50%) have a full-time employment contract for an indefinite period with IOSUD.

Recommendations: Increasing the number of supervisors is still a recommendation of the evaluation team. With a comfortable, and not tight, number of affiliated supervisors, it would be easier to enhance research performances or possibly introduce a new interesting topic.

# The indicator is fulfilled.

#### Performance Indicator A.3.1.3.

The subjects in the training program based on advanced university studies related to the field of Biology are delivered by teaching staff who have the quality of doctoral supervisors, professors or lecturers with provided expertise in the field. The subjects "University Ethics" and "Statistical Processing of Data in Biology" are taught by teaching staff with an associate degree (Self-evaluation report) with an expertise in the subjects taught. They also meet the standards established by the Pitesti University Center for the teaching and research functions they carry out.

The curriculum (https://www.upit.ro/\_document/172877/plan\_de\_invatamant\_2021-2022\_sc.\_doc.\_biol..pdf) and discipline sheets (https://www.upit.ro/ro/academia-reorganizata/studii) -doctorate/doctoral-schools/interdisciplinary-doctoral-school/biology-2021) are available for consultation on the website of the doctoral school.

Recommendations: There are no recommendations

## The indicator is fulfilled.

# Performance Indicator \*A.3.1.4.

The number of doctoral students, coordinated by one single supervisor, varies between 2 and 8. There is no supervisor in the Biology domain who simultaneously coordinates more than 8 doctoral students.

Recommendations: Although a number of simultaneously coordinated doctoral students is limited by the Romanian law to be 8, we would recommend trying to be even less. In this way, it would be much more in line with principles respected in the European Research Area and the European Higher Education Area (no matter if other teaching staff members



contribute in supporting students' research training – a supervisor is the only one who is fully responsible).

# The indicator is fulfilled.

Standard A.3.2. The doctoral advisors within the study domain of biology are carrying out a scientific activity visible at international level.

#### Performance Indicator A.3.2.1.

Two doctoral supervisors (50% of total number) in the doctoral domain present at least 5 Web of Science or ERIH indexed publications in journals with an impact factor (*Annex 3.2.1*).

The total number of WOS-indexed scientific articles published by PhD supervisors in the last 5 years is 30.

One of the PhD supervisors was a member of 2 scientific committees of international conferences, thus being visible at the international level (*II. International Agricultural Science Congress, 03-06 June 2020, Van, Turkey, 6th International symposium "Environment and Sustainable Development" Under the general topic: Soil, water and energy governance as key factors for sustainable development in rural and urban zones in developing countries, October 2nd -4th, 2019, Rabat, Morocco* 

https://revues.imist.ma/public/site/images/admin/2st\_circular\_VF2.pdf).

Two of the doctoral supervisors are members of the scientific committee of international journals (*Vegetos*, *Journal of Biological Studies*, *Caryologia*, *Journal of Nanomaterials* (Guest Editor for Special Issue Advances in Antimicrobial Nanomaterials, <a href="https://www.hindawi.com/journals/jnm/si/783259/">https://www.hindawi.com/journals/jnm/si/783259/</a>).

The doctoral advisors in the domain enjoy international awareness and their international-level contribution could be recognised.

Recommendations: When succeeding to have a satisfactory number of internationally recognised publications, I would recommend trying to reach even higher-impacted journals.

# The indicator is fulfilled.

## Performance Indicator \*A.3.2.2.

Out of the total of 4 doctoral supervisors, 2 (50%) are active scientifically and have obtained more than 25% of the score corresponding to the CNATDCU minimum standards in the last five years ( $\underline{Annex A.3.2.2}$ ).

Recommendations: The doctoral study domain can use, but not rely on retired supervisors. Thus, fresh forces (new younger supervisors) are expected to be recruited to ensure as many as possible supervisors to fulfill this condition.



# Domain B. EDUCATIONAL EFFECTIVENESS

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

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

#### Performance Indicator \*B.1.1.1.

In the last 5 years, 3 graduates at the master's level of other higher education institutions in the country have registered for the admission competition for doctoral university studies (Self-evaluation report), which in relation to the total number of 2 places financed from the state budget out for competition in the field of Biology represents 1.5.

The ratio between the number of candidates in the last five years (9) and the number of places financed from the state budget (2) put up for competition in the field of Biology was 4.5.

Recommendations: We recommend additional efforts in promoting the importance of biology in general and research topics of the doctoral supervisors in particular to attract more doctoral students from aside. Of course, a refreshment and enlargement of the human resources has to grow in parallel.

# 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 the doctoral study programme is based on the Methodology regarding the organization and conduct of the admission competition to doctoral university study programs within the doctoral schools of the University of Pitesti in the academic year 2023-2024

(https://www.upit.ro/\_document/300380/metodologia\_privind\_organizarea\_si\_dispasurare a\_concursului\_de\_admitere\_la\_programele\_de\_universitare\_de\_doctorat\_2023-2024.pdf). The specialized test for admission to the doctorate consists of the oral presentation of one's own scientific research concerns, the bibliography studied and a direction in which the doctoral thesis would be completed. Candidates are appreciated in relation to the level of training and information in the field, with the ability to highlight the major directions of the research and with the ability to formulate solutions (theoretical and experimental) for a research topic.

Recommendations: There are no recommendations



# Performance Indicator B.1.2.2.

In the last 5 years in the field of Biology, there were 25 doctoral students of which 7 were expelled or gave up their studies, which corresponds to a percentage of 28% (*Annex B.1.2.2. Exmatriculation rate of doctoral students*).

**Recommendations:** Reducing the dropout of doctoral students by identifying the reasons and circumstances might probably be helpful. That would be a proper job for the quality assurance system that is claimed by the University Centre and the Interdisciplinary Doctoral School to be developed and efficient.

The indicator is fulfilled.

# Criterion B.2. The content of doctoral programs

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

## Performance Indicator B.2.1.1.

The training program includes the following subjects: Scientific Research Methodology in Biology, Management of Scientific Research Projects, University Ethics, Optional Discipline 1: Medical Biotechnologies, Optional Discipline 2: Biochemical Analysis of Biologically Active Compounds from Fungal and Plant Extracts, Optional Discipline 3: Methods and advanced cellular and molecular biology techniques, Optional Discipline 4: Statistical data processing in biology, Specialized Discipline 1 – adapted to the doctoral topic, Specialized Discipline 2 – adapted to the doctoral topic (Annex II.B.2.1.3.1; https://www.upit.ro/ro/academia-reorganizata/studii-de-doctorat/scoli-doctorale/scoala-doctorala-interdisciplinara/biologie-2021)

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator B.2.1.2.

A compulsory course in "Academic Ethics and Integrity" is included in the doctoral training program. Furthermore, intellectual property rights are properly addressed in the course "Management of Scientific Research Projects".

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator B.2.1.3.

IOSUD-UPIT has created mechanisms that ensure that the training program based on advanced university studies of a doctoral field aims at "learning outcomes", at level 8 EQF/CNC, according to the Recommendation of the Council of the European Union of 22.05.2017, regarding the European Framework of Qualifications (*Annex.I.1.2.1 Procedure\_level\_8\_EQF\_CNC and Annex I.1.6.1 Education plan*).



For each discipline provided in the curriculum, a discipline sheet is drawn up (by the head of the discipline together with the head of applied activities), in which the competences, skills and attitudes that doctoral students should acquire after completing it or through research activities.

Credit points are provided for each study discipline (*Annex II.B.2.1.3.1. Fise discipline*). The forms of evaluation of study subjects are exams, which are held at the end of the semester in which the subject is taught.

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator B.2.1.4.

During the entire duration of the doctoral training internship, doctoral students benefit from the advice and guidance of a guidance committee made up of 3 specialists in the field, with a complementary/coordinating role of a doctoral supervisor (Self-evaluation report). The committee has periodical meetings with students who elaborate their research progress and discuss achievement with the committee members. The progress reports are approved by all members of the committee.

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator B.2.1.5.

For the doctoral study domain in Biology, the ratio between the number of doctoral students (9) and the number of teaching staff/researchers (5) providing guidance does not exceed 3:1.

Recommendations: There are no recommendations

The indicator is fulfilled.

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

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

## Performance Indicator B.3.1.1.

In the evaluated 5-year period, 3 doctoral theses were defended in the field of Biology. PhD students published 6 articles, 3 of which are published in journals with impact factor and influence score (AIS): *Bulletin of Environmental Contamination and Toxicology* (IF: 1.650; AIS: 0.278), *Caryologia* (IF: 0.918; AIS: 0.141), *Carpathian Journal of Earth and Environmental Sciences* (IF: 0.918; AIS: 0.141) (*Annex B.3.1.1 Articles published by PhD students*).

Recommendations: Concern on publishing in high-impact journals is recommended.



## Performance Indicator \*B.3.1.2.

The three doctoral students, who completed their doctoral study programme during the last 5 years, participated in 6 scientific events in the country and abroad, where they gave oral presentations or presented posters. (*Annex B.3.1.2 Conferences attended by doctoral students*).

Recommendations: There are no 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.

In the evaluated interval of 5 years, 3 doctoral theses were defended in the field of Biology. In the public defense of those doctoral theses, 5 external referees participated as members of the committees for public defense of theses. There were no cases in which an external referee was assigned to more than 2 doctoral theses, coordinated by the same doctoral supervisor in one year (*Self-evaluation report*).

Recommendations: There are no recommendations

The indicator is fulfilled.

# Performance Indicator \*B.3.2.2.

As the number of doctoral theses that have been presented in the last 5 years, is below ten, this indicator is not applicable.

Recommendations: There are no recommendations

The indicator is not applicable.

# 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.

In the scope of transition to the University Centre of the National University of Science and Technology Politehnica Bucharest, this indicator, as well as the whole standard, can be assessed by taking into account that IOSUD-UPIT is going to introduce the quality assurance system, developed at Politehnica Bucharest. Thus, the system, that has already existed at the University of Pitesti, is expected to be improved by implementing manners of the larger, stronger and more prominent university.



There is a methodology for a periodic self-evaluation of doctoral study programs, assessing the quality of supervisors and their performances, content of the curricula, operational ability of research centres/units and infrastructure, doctoral students, including monitoring of content, progress and final result of their research training.

**Recommendations:** As a result of the internal evaluation, periodic measures are recommended to be proposed with the aim of improvement of the research programme. As it is usual at many universities across Europe, there is a rich legislative with plenty of wording, but not enough action and real achievement.

The indicator is fulfilled.

#### Performance Indicator \*C.1.1.2.

A questionnaire is used to enable feedback from students and identify their needs and satisfaction in order to ensure improvement of the academic and administrative processes.

The questionnaires indicate a high degree of satisfaction of the doctoral students with the research training and the level of knowledge acquired during the doctoral school. They appreciate the guidance offered by the doctoral supervisors, the communication with the secretariat, and the existing material base within the Doctoral School. Furthermore, they appreciate the support of research activities and the stimulation of participation in various scientific events. They also recognise the value of a career guidance module available at the doctoral school.

Recommendations: There are no recommendations

The indicator is fulfilled.

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

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

# Performance Indicator C.2.1.1.

Information of interest to doctoral students and information of public interest are available on the University Centre website. This information concerns the doctoral school regulations, admission regulations, doctoral studies contract, the regulations for completing the studies including the procedure for public defense of the thesis, the content of the study programme, and the research topics of potential supervisors. Institutional contact data, list of PhD students in the field with basic information, and information about the standards for elaboration of a doctoral thesis are also available. There are also links to summaries of the doctoral theses to be defended.

Recommendations: In the scope of general information presenting the University Centre and the Interdisciplinary Doctoral School, more detailed information on the Biology domain in particular would be recommended (including more detailed personal web-pages of PhD supervisors).



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.

Doctoral students have access to the Pitesti University Center Library which has 5 reading rooms (2 rooms with direct access to publications – Building I and 3 rooms with indirect access to publications – Building B), a room for consulting the computerized catalog (Building I) and a home loan section (Building I). The reading rooms (books and periodicals) and the computerized catalog room have a total capacity of 406 seats, where they can consult approximately 130,000 documents (not only books and periodicals, but also other types of documents: manuscripts, rare books, electronic documents, etc.), and the home loan section can provide its users with approximately 94,000 documents.

Through the Digital Library, access to a series of databases useful for doctoral research is ensured. UPIT is a member of ANELIS and has access to the following databases: ScienceDirect Freedom Collection, SpringerLink Journals, Clarivate Analytics, Scopus. All doctoral students have free access to the Anelis PLUS platform.

Recommendations: There are no recommendations

The indicator is fulfilled.

#### Performance Indicator C.2.2.2.

Each doctoral student has access, upon request, with the consent of the doctoral supervisor, to an electronic system for checking the degree of similarity with other existing scientific creations through the SemPlag program. Transition to the Turnitin programme is expected to also include students' access.

Recommendations: Access to the system enabling their own progress reports check and access to articles published by doctoral students is recommended.

The indicator is fulfilled.

# Performance Indicator C.2.2.3.

Doctoral students in the field of Biology carry out research, mainly in laboratories belonging to the Regional Research-Development Center for materials, processes and innovative products intended for the automobile industry - CRC&D-Auto, as well as in those belonging to the Automotive Engineering Research Center, and access to them takes place according to the CRC&D-Auto infrastructure access procedure, available at (<a href="https://www.upit.ro/ro/cercetare-stiintifica/centrul-regional-crcd">https://www.upit.ro/ro/cercetare-stiintifica/centrul-regional-crcd</a>).

Recommendations: There are no recommendations



# **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.

The Pitesti University Center has signed agreements with various universities, research institutes, NGOs or other institutions in order to facilitate mobility or to carry out the research program. The University of Pitesti has a series of Erasmus+ mobility agreements, at the level of doctoral studies. Thus, between February 1, 2016 and July 28, 2016, a PhD student in the Biology PhD field benefited from such mobility at the Universidad Politécnica de Valencia. Doctoral students of the Biology doctoral field participated in the Francophone International Doctoral School September 26-29, 2017. Two PhD students participated in international conferences (*More than neurons: towards a less neuronocentric view of brain disorders, Il Edition*, November 29-December 1 2018, Turin, Italy; *The 4th International Conference on Green Chemistry and Sustainable Engineering (GreenChem-18)*, 23-25 July 2018, Madrid, Spain). The financial support of these trips was made from projects and from the funds of the Doctoral School allocated for this purpose.

The percentage of students who have had some form of international mobility is 22%.

Recommendations: This performance indicator can relatively easily be fulfilled by attending conferences. However, a research intensive university/doctoral school has to put emphasis on research training of doctoral students. Additional efforts are expected to ensure funds, and introduce policies and measures aiming at increasing the duration of doctoral students' internships in advanced laboratories of the internationally recognised scientific institutions. International collaborations would also help in establishing a fruitful environment for long-term internships. The latter would additionally contribute to doctoral supervisors' international visibility.

# The indicator is partially fulfilled.

# Performance Indicator C.3.1.2.

During the evaluated period, a specialist in the field, Professor Telat Yanik from Ataturk University, Turkey, delivered a lecture "Some general aspects in fish farming nutrition and feed properties, Factors affecting biodiversity. Projection = extinction?" The lecture was supported by the Interdisciplinary Doctoral School of the University Centre.

Recommendations: It would be useful and attractive for doctoral students to invite more leading international experts to deliver courses/lectures in the scope of doctoral study programme.



# Performance Indicator C.3.1.3.

Professor BOŞCAIU Tereza Monica from the Polytechnic University of Valencia, Spain, participated in the public defense of two doctoral theses in the scope of the doctoral school in Biology domain.

Recommendations: It would be necessary to intensify international collaboration in which doctoral students actively participate. Collaborations always generate positive movements and contribute enormously in developing a productive research environment, beneficial for both supervisors and doctoral candidates. Every collaboration is a nice opportunity for international experts to be included in guidance committees or doctoral committees.

Additional efforts are recommended to enhance international visibility of the Doctoral School and to attract doctoral candidates from neighbouring countries.



# **IV. SWOT Analysis**

# Strengths:

- the strengths identified over the entire indicators' analysis report the will be reproduced. Some other general strengths that can be included in the given indicators' analysis can also be included.
- emerging of a new generation of supervisors representing fresh forces capable of advanced achievements
- ambitious research staff, skilled in topics that are smartly chosen in agreement with available research environment
- good laboratories equipped with a number of items that could be considered excellent

# Weaknesses:

- 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.
- small team with limited number of research topics
- limited number of doctoral students (and probably post-doc staff members) who are expected to be an "engine" of a research-intensive university.
- weak international collaboration resulting in generally decent internationalisation features

# **Opportunities:**

- 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.
- merging with a stronger and more prominent university, Politehnica Bucharest, is expected to provoke new movements and, most probably, positively contribute to research development.

# Threats:

- 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.
- strong technical environment in which biology and natural sciences might be shadowed by the majority
- a leadership with a majority of "technical" peopled is always a potential threat of misunderstanding needs, potential and importance of biology



# V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	A.1.1.1. The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:  a) the internal regulations of the Doctoral School;  b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;  c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);  d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;  e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;  f) the contract for doctoral studies;  g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.	Indicator is fulfilled.	There are no recommendations
2.	PI	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.	There are no recommendations
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.	The indicator is fulfilled.	There are no recommendations
4.	PI	<b>A.1.2.2.</b> The existence and use of an appropriate software program and evidence	The indicator is fulfilled.	A usage of the programme by the students themselves would be recommended. This way, they could



No.	Type of	Performance indicator	Judgment	Recommendations
	indicator (PI, PI *, CPI)			
		of its use to verify the percentage of similarity in all doctoral theses.		enhance their awareness of that issue, by checking their manuscripts (seminars, theses, articles).
5.	IP	A.1.3.1. Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.	The indicator is fulfilled.	There are no recommendations
6.	PI*	A.1.3.2. The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.	The indicator is fulfilled.	In spite of fixing the failor reported in the previous accreditation process, the doctoral study domain is expected to make additional efforts in applying for grants that could support as many PhD students as possible.
7.	PĮ*	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.).	The indicator is fulfilled.	We recommend additional efforts in increasing funds allocated to professional training of students (attending conferences, summer schools, research trainings abroad), or any form of result dissemination.
8.	СРІ	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	The indicator is fulfilled.	There are no recommendations



No.	Type of	Performance indicator	Judgment	Recommendations
	indicator (PI, PI *, CPI)			
		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		
9.	СРІ	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 partially fulfilled.	A strong initiative and support is expected in increasing the number of doctoral thesis supervisors. The University Centre management and the Interdisciplinary Doctoral School Council are both recommended to be aware of having satisfactory human resources – proper number of qualified supervisors affiliated to the doctoral domain in Biology.
10.	PĮ*	<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.	The indicator is fulfilled.	Increasing the number of supervisors is still a recommendation of the evaluation team. With a comfortable, and not tight, number of affiliated supervisors, it would be easier to enhance research performances or possibly introduce a new interesting topic.
11.	PI	A.3.1.3. The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.	The indicator is fulfilled.	There are no recommendations
12.	PI*	A.3.1.4. The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than	The indicator is fulfilled.	Although a number of simultaneously coordinated doctoral students is limited by the Romanian law to be 8, we would recommend trying to be even less. In



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	indicator (PI, PI *, CPI)			
		12, who are themselves studying in doctoral programs does not exceed 20%.		this way, it would be much more in line with principles respected in the European Research Area and the European Higher Education Area (no matter if other teaching staff members contribute in supporting students' research training – a supervisor is the only one who is fully responsible).
13.	CPI	A.3.2.1. At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or coleading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.	The indicator is fulfilled.	When succeeding to have a satisfactory number of internationally recognised publications, I would recommend trying to reach even higher-impacted journals.
14.	PI*	A.3.2.2. At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based	The indicator is fulfilled.	The doctoral study domain can use, but not rely on retired supervisors. Thus, fresh forces (new younger supervisors) are expected to be recruited to ensure as many as possible supervisors to fulfill this condition.



No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		on their scientific results within the past five years		
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 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.	We recommend additional efforts in promoting the importance of biology in general and research topics of the doctoral supervisors in particular to attract more doctoral students from aside. Of course, a refreshment and enlargement of the human resources has to grow in parallel.
16.	PI*	<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.	The indicator is fulfilled.	There are no recommendations
17.	PI	<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%.	The indicator is fulfilled.	Reducing the dropout of doctoral students by identifying the reasons and circumstances might probably be helpful. That would be a proper job for the quality assurance system that is claimed by the University Centre and the Interdisciplinary Doctoral School to be developed and efficient.
18.	PI	B.2.1.1. The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.	The indicator is fulfilled.	There are no recommendations
19.	PI	<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	The indicator is fulfilled.	There are no recommendations



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		these subjects within a discipline taught in the doctoral program.		
20.	PI	B.2.1.3. The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses "the learning outcomes", specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.	The indicator is fulfilled.	There are no recommendations
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.	The indicator is fulfilled.	There are no recommendations
22.	СРІ	<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.	The indicator is fulfilled.	There are no recommendations
23.	СРІ	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.	Concern on publishing in high-impact journals is recommended.
24.	PI*	B.3.1.2. The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.	The indicator is fulfilled.	There are no recommendations



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
25.	PI*	B.3.2.1. The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.	The indicator is fulfilled.	There are no recommendations
26.	PI*	B.3.2.2. The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.	The indicator is not applicable.	There are no recommendations
27.	PI	C.1.1.1. The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory:  a) the scientific work of Doctoral advisors; b) the infrastructure and logistics necessary to carry out the research activity; c) the procedures and subsequent rules based on which doctoral studies are organized; d) the scientific activity of doctoral students; e) the training program based on advanced academic studies of doctoral students; f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.	The indicator is fulfilled.	As a result of the internal evaluation, periodic measures are recommended to be proposed with the aim of improvement of the research programme. As it is usual at many universities across Europe, there is a rich legislative with plenty of wording, but not enough action and real achievement.
28.	PI*	C.1.1.2. Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the	The indicator is fulfilled.	There are no recommendations



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		analysis of the results, there is evidence that an action plan was drafted and implemented.		
29.	СРІ	C.2.1.1. The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:  a) the Doctoral School regulation; b) the admission regulation; c) the doctoral studies contract; d) the study completion regulation including the procedure for the public presentation of the thesis; e) the content of training program based on advanced academic studies; f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data; g) the list of doctoral students within the domain with necessary information (year of registration; advisor); h) information on the standards for developing the doctoral thesis; i) links to the doctoral theses' summaries to be publicly presented and the date, time, place	The indicator is fulfilled.	In the scope of general information presenting the University Centre and the Interdisciplinary Doctoral School, more detailed information on the Biology domain in particular would be recommended (including more detailed personal web-pages of PhD supervisors).
		where they will be presented; this information will be communicated at least twenty days before the presentation.		
30.	PI	C.2.2.1. All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.	The indicator is fulfilled.	There are no recommendations
31.	PI	C.2.2.2. Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.	The indicator is fulfilled.	Access to the system enabling their own progress reports check and access to articles published by doctoral students is recommended.
32.	PI	C.2.2.3. All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.	The indicator is fulfilled.	There are no recommendations



No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
33.	PI*	C.3.1.1. IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.	The indicator is partially fulfilled.	This performance indicator can relatively easily be fulfilled by attending conferences. However, a research intensive university/doctoral school has to put emphasis on research training of doctoral students. Additional efforts are expected to ensure funds, and introduce policies and measures aiming at increasing the duration of doctoral students' internships in advanced laboratories of the internationally recognised scientific institutions. International collaborations would also help in establishing a fruitful environment for long-term internships. The latter would additionally contribute to doctoral supervisors' international visibility.
34.	PI	C.3.1.2. In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.	The indicator is fulfilled.	It would be useful and attractive for doctoral students to invite more leading international experts to deliver courses/lectures in the scope of doctoral study programme.
35.	PI	C.3.1.3. The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).	The indicator is fulfilled.	It would be necessary to intensify international collaboration in which doctoral students actively participate. Collaborations always generate positive movements and contribute enormously in developing a productive research environment, beneficial for both supervisors and doctoral candidates. Every collaboration is a nice opportunity for international experts to be included in guidance committees or doctoral committees. Additional efforts are recommended to enhance international visibility of the Doctoral School and to attract doctoral



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				candidates from neighbouring countries.

# VI. Conclusions and general recommendations

The Interdisciplinary Doctoral School, with the Doctoral Study Domain of Biology, is based on regulations that comply with the national laws and legal provisions. It has all the necessary logistical resources and research infrastructure to provide research training for doctoral students.

A strong initiative and suport is expected in increasing the number of doctoral thesis supervisors. A new leadership is advised to make additional efforts about this issue. They are recommended to be aware of having proper number of qualified supervisors affiliated to the doctoral domain in Biology. As we learned from discusion with the Institution representatives, they will have new supervisors soon, thus the Doctoral School in Biology domain is expected to have satisfactory human resources in the near future.

In the scope of transition to the University Centre of the National University of Science and Technology, Politehnica Bucharest, the existing quality management system is expected to be improved by implementing manners of stronger and more prominent university.

Addditional efforts are expected in establishing international collaboration which would amplify all the aspects of internationalisation.

The evaluation team appreciates efforts and respects achievements of the small Biology team (in particular their scientific production). They need and deserve stronger attention and support from the institutional management to further improve their research capacity.

In agreement with the opinion, presented above, we recommend the Doctoral Study Domain in Biology at the University Centre Pitesti, Politehnica Bucharest, to be accredited.

Zagreb, April 23, 2024.

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