



ROMANIAN AGENCY FOR QUALITY ASSURANCE IN HIGHER EDUCATION

Member of the European Association for Quality Assurance in Higher Education - **ENQA**

Registered in the European Quality Assurance Register for Higher Education - **EQAR**

nr.900/26.02.2024

Annex 3

External evaluation report for the setting up (establishment) of the doctoral study domain in Chemistry at the Technical University of Cluj Napoca.

Jordi Villà-Freixa (jordi.villa@uvic.cat)

February 11th 2024

Contents

I. Introduction.....	3
Context	3
The Doctoral School (SD-UCTN).....	3
The Doctoral Program in the Domain of Chemistry at UTCN	3
II. Methods used	4
Documentation	4
Site visit	5
III. Analysis of ARACIS's performance indicators.....	6
Domain A. INSTITUTIONAL CAPACITY	6
Criterion A.1. Administrative and managerial institutional structures, and financial resources	6
Criterion A.2. Research infrastructure.....	12
Criterion A.3. Quality of human resources.....	13
Domain B. EDUCATIONAL EFFECTIVENESS.....	15
Criterion B.1. The number, quality and diversity of the candidates enrolled for the admission contest	15
Criterion B.2. The content of the doctoral programs.....	16
DOMAIN C. QUALITY MANAGEMENT	18
Criterion C.1. Existence and periodic implementation of the internal quality assurance system	18

No. 59, Mărăști Bvd., district 1, Bucharest, phone 021.206.76.00, fax 021.312.71.35

Email: secretariat@aracis.ro, www.aracis.ro



Criterion C.2. Transparency of information and accessibility of learning resources.....	20
IV. SWOT analysis.....	24
V. Overview of judgments awarded and of the recommendations	25
VI. Conclusions and general recommendations.....	31
VII. Annexes.....	32
VIII. Agenda of the visit.....	32
Wednesday 31.01.2024.....	32
Thursday, 01.02.2024,.....	33
Friday, 02.02.2024.....	35



I. Introduction

Context

This report includes the findings, analysis and recommendations by the international expert on the process of authorization of the PhD program in the domain of Chemistry at the Universitatea Tehnică din Cluj – Napoca (from now on, UTCN). The authorization process consisted in a three days visit, from January 31st until February 2nd 2024, to the UTCN by a panel composed of four evaluators:

1. Prof. Aurel Pui, coordinator of the panel, from the Universitatea UAIC.
2. Prof. Catinca Secuianu, from the Universitatea Politehnica din București.
3. Prof. Jordi Villà i Freixa, international expert, from the Universitat de Vic – Universitat Central de Catalunya.
4. Student Bianca-Denisa Cernușcă, from the Universitatea de Vest din Timișoara.

The contact person during the visit was Prof. Lorentz Jäntschi from the Department of Physics and Chemistry, in the Faculty of Materials and Environmental Engineering, and the panel was hosted by the director of the Council for Doctoral Studies (CSUD), Prof. Doina Pîslă. The detailed agenda of the site visit can be found in page 32.

The Doctoral School (SD-UCTN)

The panel had the chance to understand in detail the structure and functioning of the UCTN Doctoral School, whose programs were mostly accredited during the 2021 global accreditation process conducted in Romania, following the changes in the Law. The tradition of doctoral training at the UTCN goes back to beginning of the last century. The panel learned that during that period, the Doctoral School advanced in different fronts that helped consolidating the different PhD programs the UCTN offers. This implies that all major requirements of the PhD program authorization are already in place, and the main concerns regarding this site visit were to assess the way internal quality assurance was taken into account, and to understand in situ the capacities within the specific domain of chemistry.

The Doctoral Program in the Domain of Chemistry at UTCN

The PhD Domain in chemistry has a precedent in UTCN. Between 1990 and 1993, Prof. Gavril NIAC was a PhD supervisor in Chemistry at the Polytechnic Institute (until 1992) and later at UTCN (until 1993). Since then, this Domain has been active in training and research within the structure of Faculties of UTCN. Now the requirements to start a PhD Domain in Chemistry under the terms of the Law are fulfilled and UTCN started the process for the authorization of this new Domain in the SD-UCTN.

The doctoral school in chemistry is proposed by the CSUD as a relevant tool to



consolidate the role of basic chemistry research within the of the Doctoral School, the Faculty of Materials and Environmental Engineering and the Faculty of Science, which include the Department of Physics and Chemistry and the Department of Chemistry and Biology. Academically, the PhD Program will be subordinated to the SD-UTCN.

Details on the different aspects explored during the site visit are provided in the different sections below.

II. Methods used

Documentation

Prior to the visit, this evaluator received from the panel coordinator the information related to the authorization procedure. In particular, the Internal Evaluation Report (from now on, IER) presented to the ARACIS Accreditation department by the IOSUD-UTCN.

The IER exhaustively presents, in section 1, the structure and history of the UTCN, discussing in detail the topics:

- Institutional Capacity of the IOSUD-UCTN: here topics as the organization of the doctoral studies, ethics and integrity of research, internal quality assurance, the evolution of the doctoral school, as well as human resources and research facilities, among others, are presented in detail.
- The field of doctoral studies in chemistry: in this section, the establishment, objectives, mission, curriculum, doctoral supervisors, research activity and research centers and labs are introduced.
- The internal quality assurance system for doctoral studies at the IOSUD-UTCN is presented next, including the staff structure, the policies.

In section 2, the IER provides information by the IOSUD to help in the assessment of the different criteria, standards and performance indicators related to the authorization procedure. The section is accompanied by an extensive collection of links to external documents and web sites aiming at showing the capacities of the IOSUD to conduct this new PhD program in the domain in Chemistry. In particular, the section maps the general information provided in Section 1 of the IER onto the criteria for the authorization of the PhD program:

- A. Institutional capacity:
 - A1. The institutional, administrative, managerial structures and financial resources;
 - A2. The research infrastructure;
 - A3. Quality of Human Capital
- B. Educational effectiveness:
 - B1. Number, quality and diversity of PhD candidates;
 - B2. The content of the doctoral programmes;



- C. Quality management:
 - C1. Existence and regular operation of the internal quality assurance system;
 - C2. Transparency of information and accessibility of learning resources;

The IER is complemented by a Section 3, in which the specific details on the implementation of the PhD program in the domain in chemistry are given.

Most of the material provided in sections 1 and 2 of the IER is generic, while Section 3 includes the specific information on the development of the program and the resources devoted to it.

The IER contains a large collection of annexes and web sites easily accessible from the main document and providing a comprehensive view of all needed details during the site visit and for the evaluation. In particular, the panel got very satisfied with the quality of the annexed documentation as well as the degree of accessibility of the web site regarding the SD-UTCN activities, programs and administration, including access to new students.

Site visit

The site visit to the UTCN consisted of a 3 days collection of meetings and the visit to the rectorate (day 1) and to the dependencies where most of the research activities related to the PhD program in Chemistry will be conducted (day 1 too). Most of the site visit was spent in an aula provided by the IOSUD to conduct interviews with different representative members of the university and stakeholders (see detailed agenda in page 32).

The atmosphere of the meetings was respectful and very informative, with strong commitment shown by the invited stakeholders to share their thoughts with the authorization panel. The meetings were mostly conducted in English, except for some instances in which a translator was kindly provided by the university. Overall, the degree of comprehension between the panel and the members of the university during the meeting was excellent and the discussions were transparent in order for the panel to grasp the details of the proposal being analysed.

During the site visit, the panel had the opportunity to visit the research infrastructures of the Faculty of Materials and Environmental Engineering, where the activities of the PhD program in Chemistry at the UTCN in Cluj will be conducted. It was not possible to visit the installations in the Baia Mare campus, and all references to such campus were provided by the IER and from the discussions with the members of the proposed PhD program, in particular with Prof. Thomas DIPPONG (Dept. of Chemistry – Biology). During the visit to the Faculty of Materials and Environmental Engineering, the panel visited different labs with modern equipments for molecular characterization (among them, optical spectroscopy, X-ray diffraction, electrochemical and NMR characterization, in addition to computational chemistry software, as well as basic computational power resources).

The panel did not have the chance to visit student's residences, although their details were described in several meetings with the university officials.



During the site visit, a comprehensive list of meetings was taken with relevant stakeholders, including (see the detailed agenda in the Annexes):

- Meeting/discussions with members of the management of the Doctoral School where the doctoral study domain under review will operate;
- Meeting/discussions with doctoral advisors in the doctoral study domain under review;
- Meeting/discussions with representatives of various structures of the IOSUD/Doctoral School where the doctoral study domain under review is operating. In particular:
 - o the Council of the Doctoral School,
 - o the Board of Directors of the research centers and departments,
 - o the Evaluation and Quality Assurance Commission,
 - o the Quality Assurance Department,
 - o and the Ethics Commission (including with the student representatives of these structures).

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

As explained in the introduction, the IOSUD has already conducted a collection of PhD accreditation processes in the near past. The IER includes a detailed and comprehensive description of the capacities of the university to hold PhD studies and the relevant structures are in place.

Criterion A.1. Administrative and managerial institutional structures, and financial resources

Standard A.1.1.

The institution organising doctoral studies (IOSUD) has implemented the effective functioning mechanisms provided for in the specific legislation on the organisation of doctoral studies.

As stated above the mechanisms for the organization and financial support of PhD programs are in place in the UTCN. Regulations are followed and the IER provides extensive documentation proving this fact. The panel had the chance during the site visit to observe the professionalism of the managerial approach to the conduction of Phd studies.



Performance indicator A.1.1.1.

The existence of specific regulations and their application at the level of the doctoral school that the doctoral domain is a part of:

- 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 the CSD, and evidence that such elections were conducted;*
- c) methodologies for organising and conducting doctoral studies (admission of doctoral students, completion of doctoral studies);*

The referenced documents outlined in points a) to g) are available at the institutional level and are presented as annexes to the REI (Regulations on Institutional Evaluation). Furthermore, they are accessible on the websites of UTCN (<https://www.utcluj.ro/>) and IOSUD - UTCN (<https://iosud.utcluj.ro/admitere.html>, <https://iosud.utcluj.ro/index.php>).

According to the IER, the activity of doctoral studies within the IOSUD-UTCN is carried out in compliance with the national legislation in the field and the internal legislation, approved in the UTCN Senate meetings available in the Regulations section of the IOSUD-UTCN page, <http://iosud.utcluj.ro/regulamente.html>. The manner of organizing and conducting the activities of doctoral students is provided for in the Institutional Regulation regarding the organization and conduct of doctoral university studies in the Technical University of Cluj-Napoca (annex HS 1235) adopted for the first time by University Senate Decision no. 268 of June 20, 2014 and periodically updated by the several Senate Decisions. These are available for consultation on the website of UTCN. The Regulations of the Doctoral School of the Technical University of Cluj-Napoca within IOSUD-UTCN (annex HCA 68-5 of the IER are added to the institutional regulations. In the annex SD-RMH are the operational regulations and procedures that are the basis of the doctoral activity within IOSUD-UTCN, also available on the website of IOSUD-UTCN.

UTCN has established a [calendar](#) and a transparent, rigorous student recruitment and admissions strategy, adhering to the principle of equal opportunities for all applicants without discrimination. These regulations undergo annual updates to align with legislative revisions (annex HS1467 of the IER, also accessible on the university's website at <http://iosud.utcluj.ro/regulamente.html>). As per Article 9 of HS1467, the admission session schedules, application requirements, and competition assessments are publicly disclosed at least six months before the admission process, published on the IOSUD-UTCN website in both Romanian and English.

Admission to doctoral studies (as stated in art. 27(1) of HS1467) involves a minimum of two examinations conducted before an admission committee, comprised of the PhD supervisor who offered the doctoral placement and at least two other Technical University of Cluj-Napoca specialists holding positions of university lecturer or scientific researcher grade II. The chair of the admission committee is the PhD supervisor. One examination entails a language proficiency test in an international language, administered by the Department of Modern Languages and Communication of UTCN or the Faculty of Letters of CUNBM. The composition of admission committees is proposed by the Doctoral



Program Coordinating Councils and the Doctoral School Council, subject to approval by the CSUD Director. The second examination is an interview assessing the candidate's educational background, research aptitude, and proposed doctoral thesis topic. Depending on the field's specifics, additional tests may be included in the PhD admission process, upon request of the PhD supervisors and with the agreement of the Doctoral School Council. A candidate must achieve a minimum average score of 7.00 for admission, with averages calculated to two decimal places without rounding.

Also according to the IER, doctoral studies culminate in the defense of the doctoral thesis in a public presentation before the doctoral thesis analysis and public defense committee. The framework for completing doctoral studies comprises the Institutional Regulations governing the organization and execution of doctoral studies and postdoctoral advanced research programs at the Technical University of Cluj-Napoca and the Procedure for completing doctoral studies at IOSUD-UTCN, approved in the C.A. of 12.11.2019). To assist and inform doctoral candidates throughout their studies, IOSUD-UTCN has developed and provided the Guide for the elaboration of the doctoral thesis, along with the thesis format and cover, and other necessary forms for the doctoral thesis defense session, accessible on the UTCN website.

Several annexes were provided in the IER demonstrating these facts.

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

Following the IER, as per OM no. 5921/06.12.2016 (pertaining to doctoral leadership), OM no. 5922/06.12.2016 (regarding teaching functions), and OM no. 5923/06.12.2016 (relating to doctoral titles), IOSUD-UTCN automatically acknowledges the qualification of doctoral supervisor obtained from accredited higher education or research and development institutions within the European Union, the European Economic Area, and the Swiss Confederation. This recognition also extends to accredited higher education or research and development institutions listed in the register of esteemed universities in other countries, as endorsed by ministerial decree and regularly updated, as well as to accredited higher education or research and development institutions covered by international mutual recognition agreements concluded at intergovernmental or inter-university levels.

At the IOSUD-UTCN level, the procedure for acknowledging the status of PhD supervisor is governed by the Regulation for obtaining the habilitation certificate and affiliation with the Doctoral School of the Technical University of Cluj-Napoca. This regulation delineates the prerequisites for acquiring the status of PhD supervisor and affiliation with the UTCN Doctoral School. Pertinent documentation is accessible on the IOSUD-UTCN website. Equivalency determinations concerning doctoral degrees, teaching positions, and doctoral supervision adhere to methodologies recognized by the Technical University of Cluj-Napoca.

e) functional management structures (Council of the doctoral school), including proof of the regular frequency of convening their meetings;

According to the IER, UTCN oversees accredited doctoral schools, providing institutional support through functional management structures. The Doctoral School Council,



managed by its Director, operates under a five-year mandate. With a maximum of seven members, the council comprises 50% PhD supervisors, 20% PhD students, and external members from esteemed scientific and socio-economic sectors. Council members are elected following established methodologies. Relevant documentation and additional support documents are accessible from the CSUD and IOSUD secretariat.

f) the contract for doctoral studies;

Doctoral students' rights and responsibilities are defined in the doctoral studies contract, which is signed with IOSUD-UTCN after admission. This contract, along with a Discipline Contract, is updated annually on the IOSUD-UTCN website. The latest versions are tailored to each field of study, incorporating minimum standards for doctoral degree attainment specified in Order no. 5110/2018. Recent updates related to thesis publication have been made following Ministry of Education and Research directives.

Additionally, doctoral students complete a document on personal data processing in compliance with data protection regulations. The doctoral studies contract is executed in triplicate and signed by the doctoral student, PhD supervisor, legal advisor, economic director, and Rector. The Discipline Contract outlines the subjects of the Advanced University Training Programme and Scientific Research Programme, signed by the doctoral student, supervisor, program council coordinator, doctoral school director, and CSUD director. Templates for these contracts are developed by the Doctoral School, approved by the Doctoral School Council, and ratified by the CSUD.

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

As per the regulations (outlined in Annex HCA 68-5 in the IER) of the IOSUD-UTCN Doctoral School, the coordination of doctoral programs falls under the purview of the Doctoral Programme Coordination Councils. These councils are tasked with various responsibilities, including validating scientific research programs for doctoral students, proposing the content of doctoral study programs for CSUD approval, and ensuring the quality and ethical conduct of doctoral studies. Additionally, they oversee external evaluation processes for accreditation or reaccreditation of doctoral schools.

The Coordinating Council of each doctoral program field develops and proposes the structure and content of the general doctoral program, subject to CSUD approval. The responsibility for the doctoral program's content lies with the doctoral supervisor, who collaborates with the doctoral student to determine the research project topic aligned with university policies and programs.

Each PhD student is supported by a committee comprising three teaching or research staff members from UTCN, along with an optional external member with relevant expertise. The committee assists the student in preparing the doctoral thesis throughout the program.

Mechanisms for reviewing and approving research topics are implemented continuously during the doctoral activity, including evaluation during the admission process, examination by an examination committee, and regular review by a mentoring committee.

IOSUD-UTCN encourages development projects to enhance doctoral studies and research outcomes, providing support for proposing and executing research themes. The



research topic proposed by the PhD supervisor aligns with the center/college's specific research topics.

The allocation of doctoral places, funding requests, and distribution are proposed by CSUD, endorsed by the Administrative Council, and approved by the University Senate each academic year, considering factors such as supervisor availability, performance, and field-specific criteria.

Recommendations: No recommendations

The indicator is **fulfilled**

Performance indicator A.1.1.2.

The doctoral school's Regulations include mandatory criteria, procedures and standards concerning the aspects specified in art. 17, para. (5) of Government Decision no. 681/2011 on the approval of the Code of Doctoral Studies, as further amended and supplemented.

The UTCN Doctoral School Regulations outline mandatory criteria, procedures, and standards in accordance with Art.17, para. 5 of Government Decision no. 681/2011, covering the following aspects:

1. Conditions related to habilitation, acceptance of new doctoral supervisors, and retirement are detailed in Chapter 7 of the Regulations (HCA 68-5), along with operational procedures for habilitation within IOSUD-UTCN. Application forms are available on the IOSUD-UTCN website.
2. Decision-making mechanisms regarding the structure and content of advanced degree-based training programs are governed by the Regulations (HCA 68-5), Art. 9(12) and Art. 9(13), as well as Chapter 4 of the Institutional Regulation (HS 1235).
3. Procedures for changing a doctoral student's supervisor are delineated in Art. 17 and Art. 18 of Chapter 5 of the Regulations (Annex A.1.1.1._Regulamento_Şcolleii_Doctorale.UTCN), with relevant forms available on the IOSUD-UTCN website.
4. Conditions for interrupting the doctoral program are specified in Chapter 4 of the Regulations (Annex A.1), with approval by the CSUD Director upon request by the student, in consultation with the doctoral supervisor and Doctoral School Council.
5. Measures to prevent and address fraud in scientific research, including plagiarism, are addressed in various documents, including the Ethics Procedure (HCA din 9.03.2021), Doctoral School Regulations (HCA 68-5), Institutional Regulation (HS 1235), and UTCN's strategy to prevent plagiarism.
6. Access to research resources is outlined in Art. 9(14 a-d) of the Regulations (HCA 68-5) and specified in additional documents such as the Ethics Procedure and the Doctoral Studies Contract.



7. Attendance obligations of doctoral students are described in Chapter 4 of the Regulations (HCA 68-5) and detailed in the Doctoral Study Contract.

Annex HG 681 of the IER contains the code for doctoral studies.

Recommendations: No recommendations

The indicator is **fulfilled**.

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

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 Doctoral School Digitisation Platform, accessible via <http://doctorat.utcluj.ro>, comprises 10 modules for efficient electronic management of Doctoral School processes. It includes features like role management, admission, document generation, thesis submission, and more. Currently serving over 200 PhD students, it ensures secure access with role-based authorization and offers email notifications for important events. Additionally, SIMAC (<http://research.utcluj.ro/index.php/simac.html>) evaluates academic performance, including that of PhD students, based on various criteria.

Recommendations: No recommendations

The indicator is **fulfilled**.

Performance indicator A.1.2.2.

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

The Technical University of Cluj-Napoca (UTCN) upholds deontological and ethical principles in scientific research, fostering a culture of integrity across all academic levels. To combat plagiarism effectively, the university has implemented Turnitin, an anti-plagiarism software, since 2016. This tool is accessible to all PhD supervisors.

Operating procedures for Turnitin are outlined in the Regulations of the Doctoral School within IOSUD-UTCN, which mandate the anti-plagiarism check for all doctoral theses. A designated member of the Coordination Council oversees this process. Additionally, detailed procedures are specified in the Anti-Plagiarism and Doctoral Studies Completion Procedures.

IOSUD-UTCN holds a subscription to Turnitin, facilitating thorough similarity checks for all doctoral theses before public defense. Both the doctoral candidate and supervisor assume responsibility for the verification results by signing a dedicated form.

Encouraging the widespread adoption of Turnitin for all scholarly works, UTCN fosters a culture of plagiarism prevention and accountability. This approach ensures adherence to



internationally recognized academic ethics standards and enhances the quality of scientific output.

The university has documented its software subscription and its utilization for verifying the similarity of doctoral research outputs, including theses, with existing academic works. Turnitin generates a Similarity Report within 30 days of thesis submission, aiding the verification process.

The acceptance report by the doctoral supervisor confirms the use of Turnitin for plagiarism analysis, underscoring the university's commitment to academic integrity. Following public defense, the similarity report is uploaded to the national platform for documentation and review.

Recommendations: No recommendations

The indicator is **fulfilled**.

Criterion A.2. Research infrastructure

Standard A.2.1. The IOSUD has a modern research infrastructure to support the performance of specific doctoral study activities.

Performance indicator A.2.1.1.

The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are 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.

PhD students in Chemistry will primarily conduct their research within the teaching and research laboratories of their respective supervisors. Relevant information provided includes details on teaching and research spaces, computer facilities, software resources, library holdings, journal subscriptions, recent equipment acquisitions, subscribed electronic resources, and institutional mobility opportunities.

These laboratories are equipped with furniture and apparatus necessary for conducting discipline-specific practical activities. Additionally, PhD supervisors are affiliated with internally accredited research entities, with services promoted on the ERRIS platform, facilitating collaborations with the private sector.

Notably, collaborations with ITIM, facilitated by Conf. Simona Rada, provide additional infrastructure support. UTCN allocates a significant portion of its budget toward equipping laboratories with cutting-edge instrumentation. Details of research infrastructure acquired within the last five years are provided in an annex provided within the IER (SheetSpatthi).

Recommendations: To update the link where the research infrastructure can be found is available on the ERRIS platform, specifically for UTCN.



The indicator is **fulfilled**.

Criterion A.3. Quality of human resources

Standard A.3.1. For each domain, there is qualified staff having the experience required for carrying out the doctoral program.

As outlined in the REI and its annexes, UTCN appoints teaching staff with the requisite skills for field-specific objectives through public competitions, in compliance with legal regulations and the Regulation on the Occupation of Teaching Positions. Competency-based selection criteria are applied to both full-time and associate teaching staff (HS 1450, HS 652, HS 1005).

Performance indicator A.3.1.1.

Minimum three doctoral thesis advisors work 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.

Three professors are currently fulfilling the requirements and standards of the CNATDCU: professors Jäntschi, Rada and Dippong. The degree and quality of publications provided by these researchers is remarkable and ensures their deep involvement in the program. Other researchers are in the process of acquiring the standards and, thus, providing more critical mass and supervisors to the program.

Despite these positive indicators, there is an urgent need for a comprehensive strategy to enhance critical mass and create a cohesive research environment for Chemistry at the university level. Currently, research efforts are fragmented, highlighting the necessity for a more cohesive research strategy.

Recommendations: to develop a specific strategy for the research Domain in Chemistry at the university level

The indicator is **fulfilled**

Performance indicator* A.3.1.2.

At least 50% of the doctoral advisors in the doctoral domain under review are tenured professors within the IOSUD and have a full-time employment contract for an indefinite period.

The three professors mentioned in the previous indicator fulfil these criteria.

Recommendations: to progress in the evolution of other tenured professors in the Chemistry domain at UTCN.

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 associate professors / 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 Advanced Degree-Based Training Programme (PPUA Plan) consists of the following disciplines:

- Discipline D16-1, supported by Assoc. Prof. Dr. Eng. Giurgiulescu Liviu-Laurențiu.
- Discipline D16-2, supported by Assoc. Prof. Dr. Eng. Leonard Mihaly Cozmuța.
- Discipline D16-3, supported by the PhD supervisor.
- Discipline D16-4, supported by Assoc. Prof. Dr. Eng. Leonard Mihaly Cozmuța.
- Discipline D16-5, supported by Assoc. Prof. Dr. Eng. Leonard Mihaly Cozmuța.
- Discipline D16-6, supported by Assoc. Prof. Dr. Eng. Mariana Pop.

For Discipline D16-3 (research activity), the doctoral supervisor oversees the student. Proof of the supervisor's status is provided through centralized habilitation records and Senate affiliation decisions.

Recommendations:

To enhance the research environment, the following actions are proposed:

1. Inviting international experts to collaborate.
2. Offering courses in English to facilitate broader participation.
3. In the doctoral training program, besides research (Discipline 3), it is advised to have at least one more discipline supported by qualified Chemistry experts.
4. Each doctoral supervisor in the Chemistry field should engage in didactic activities within the training program.

The indicator is **fulfilled**.

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

The PhD supervisors specializing in Chemistry, as per the REI and accompanying CVs, possess significant teaching and research expertise, notably recognized internationally for their scientific contributions.

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 visibility within the past 5 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 commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past 5 years by their membership on the boards of professional associations, membership in organising committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.

The CVs of the three academics that form the basis of the PhD Program highlight their robust teaching and research backgrounds, qualifying them to serve as PhD supervisors.

Recommendations:

The current publications of the researchers are somehow too much based on open-source journals (MDPI, for example) that are becoming rejected for accreditation and evaluation purposes in several processes through Europe. It is advisable to establish an internal strategy to publish in better recognized journals in the field of expertise of the researchers.

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 5 years.

Based on the REI and the associated CNATDCU minimum standards fulfilment sheets for Chemistry, it is evident that all three teaching staff members meet the mandatory requirements outlined by CNATDCU for obtaining the qualification certificate.

Recommendations: No recommendations.

The indicator is **fulfilled**.

Domain B. EDUCATIONAL EFFECTIVENESS.

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

Standard B.1.2.

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



UTCN intends to establish a new doctoral field in Chemistry, and thus this analysis does not correspond.

Performance indicator* B.1.2.1.

Admission in the doctoral study programmes is based on selection criteria including the academic, research and professional performance of the candidates; their interest for scientific or artistic/sports research; publications in the domain, and a proposal of a research subject. Interviewing the candidate is mandatory as part of the admission procedure.

Article 27 of the Regulation governing admission to doctoral studies at UTCN mandates an interview for all candidates. Admission criteria include previous professional performance, research interest demonstrated in the CV and publications, and a proposed research topic. Annex B121 provides supporting evidence, including admission selection criteria and a compilation of theses defended at UTCN, showcasing successful candidates' achievements.

Recommendations: No recommendations

The indicator is **fulfilled**.

Criterion B.2. The content of the doctoral programs

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

The doctoral training program in Chemistry is well-structured, combining advanced education with scientific research over a 3-year period. It adheres to the Institutional Regulation (HS 1235), comprising two essential components: the advanced university studies curriculum and the individual scientific research program (PPUA Plan).

Performance indicator B.2.1.1.

The training program based on advanced academic studies includes at least 3 disciplines relevant for the scientific research training of doctoral students, out of which at least one discipline focuses on the in-depth study of research methodology and/or statistical data processing.

The advanced undergraduate training program in Chemistry spans 3 years and comprises two compulsory components as per the Institutional Regulations (HS 1235): the Advanced Degree-based Training Program and the Individual scientific research program (Plan PPUA). Notably, Plan PPUA includes the advanced undergraduate-based training program, with subject D16-2 focusing on statistical data processing.

This curriculum includes relevant disciplines for PhD students, such as Electrochemical Analysis Methods and Analysis by Atomic and Molecular Spectrometry, drawn from both the Chemistry and Materials Engineering Master specializations. These subjects encompass both theoretical and practical components, including laboratory work. Research activities are also integral to the curriculum, fostering the development of



research skills. To support students in data analysis, the curriculum includes Statistical Processing of Experimental Data. Throughout the program, students can accumulate 30 transferable study credits (art. 34(1) in HS 1235).

Recommendations:

A new discipline focusing on research methodology is proposed to be introduced into the PPUA plan. It is imperative that disciplines included in the PPUA plan are tailored to the Doctoral School's needs and delivered by doctoral supervisors affiliated with the school.

The indicator is **partially fulfilled**

Performance indicator B.2.1.2.

At least one discipline is dedicated to ethics in scientific research and intellectual property, or there are well-defined topics on these subjects within a discipline taught in the doctoral program.

The Chemistry PPUA curriculum incorporates a mandatory course titled "Ethics and Academic Integrity" (Subject D16-1), which addresses ethical considerations in scientific research and intellectual property. This subject is detailed in the Plan PPUA annex, emphasizing its importance in the training program. The course pertains to a professional Master's degree in Didactic Chemistry. It is taught by Prof. Dr. Eng. GIURGIULESCU Liviu-Laurentiu and consists of 14 hours per semester, covering the following topics:

1. Introduction to ethics and deontology: Historical overview (2 hours).
2. Ethics, morals, and deontology: Interrelated concepts (2 hours).
3. Transition from moral, legal, and deontological norms to educational norms (2 hours).
4. The nexus between the teaching profession and the socio-political sphere (2 hours).
5. Ethical aspects of the teaching profession and teaching professionalism (2 hours).
6. Professionalism and the process of ethical decision-making in education (2 hours).

To ensure a cohesive journey for PhD students, the Chemistry PPUA Plan mandates 5 oral presentations before the PhD supervisor and the supervisory committee. These presentations, as outlined in the Institutional Regulations (HS 1235 art. 52(1)), include a scientific research project (Year I, Semester I), a progress report in Year I (Semester II), two progress reports in Year II (Semester I and Semester II), and a progress report in Year III (Semester I). Each presentation carries 30 transferable credits, aligning with Institutional Regulations (HS 1235 art. 34(2)).

The scientific research project, initiated in the first semester of the first year, is collaboratively developed by the doctoral student and the supervisor. It encompasses the general and specific objectives of the thesis, research methodology, risk assessment, alternative solutions, and a timeline of research activities (Gantt chart), adhering to the guidelines set forth in the Institutional Regulations (HS 1235 art. 50(2)).

Recommendations:

To develop an specific subject oriented to PhD students on Ethics and academic integrity,



with subjects differentiated from those in the Master level subject.

The indicator is **partially fulfilled**

Performance indicator B.2.1.3.

The IOSUD has the mechanisms in place to ensure that the academic training program based on advanced higher education studies related to the evaluated domain addresses the “learning outcomes”, specifying the knowledge, skills, and the responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities¹.

The Institutional Regulation stipulates that doctoral degree programs are aimed at developing professional, cognitive, and research competencies, as well as transversal competencies. Subjects such as "Ethics and Academic Integrity" and "Statistical Processing of Experimental Data" in the Chemistry PhD Curriculum contribute to transversal competencies, while specialized subjects focus on professional knowledge. Faculty members coordinate subjects in the Advanced Degree Program in Chemistry, ensuring expertise in respective fields.

Mentoring committees oversee students' acquisition of knowledge, skills, and autonomy through research projects and progress reports. The curriculum structure includes lectures, practical applications, and research activities linked to doctoral topics.

Upon completion of each subject, students receive certificates of attendance, confirming fulfillment of program obligations. Detailed subject sheets outline objectives, competencies, content, study hours, bibliography, and assessment methods.

Recommendations:

Ensure the learning outcomes are related to the PhD studies level

The indicator is **fulfilled**

DOMAIN C. QUALITY MANAGEMENT

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

Standard C.1.1.

¹ Or by what the graduate should know, understand and be able to do, according to the provisions of the Methodology for the listing and registration of higher education qualifications in the National Register of Qualifications in Higher Education (RNCIS) approved by the Order of the Minister of National Education no.3475/2017 with subsequent amendments and additions.



The institutional framework is in place, and policies and procedures are applied for the internal assurance of the relevant quality.

At UTCN, internal quality assurance procedures are outlined in the institution's strategic plan. Key structures responsible for quality assurance include the Commission for Evaluation and Assurance of Quality (CEAC), overseeing quality functions institution-wide, the Office for Quality Assurance, managing educational quality processes, and the Office of Ethics and Academic Integrity (BEIA), responsible for digitizing and verifying doctoral theses, ethics training, and anti-plagiarism measures.

Quality managers at faculty and doctoral school levels ensure implementation according to approved regulations and the UTCN Quality Assurance Code. Within IOSUD, the CSUD Director manages quality-related tasks. Criteria, standards, and performance indicators for self-evaluation are aligned with national qualification framework requirements. Periodic evaluations of doctoral programs occur every 5 years to maintain qualification level standards, with self-evaluation conducted at field and doctoral school levels. The most recent evaluation involved input from both supervisors and students, with results publicly presented in the Self-evaluation Report.

Performance indicator C.1.1.1.

The doctoral school to which the doctoral study domain belongs demonstrates that the internal evaluation and quality assurance process of the study domain is carried out constantly, according to a procedure developed and applied at the level of the IOSUD, including an evaluation of the following mandatory criteria:

- a) the scientific work of doctoral advisors;*
- b) the infrastructure and logistics needed for carrying out the research activity;*
- c) the regulations and procedures based on which doctoral studies are organised;*
- d) the scientific activity of doctoral students;*
- e) the training program based on advanced higher education studies of doctoral students;*
- f) social and academic support services (including for participation in various events, publishing papers, etc.) and counselling services available for the doctoral students.*

According to the IER, UTCN prioritizes quality in undergraduate, master's, and doctoral studies, as well as research activities and community service, as outlined in its Strategic Plan 2020-2024. Several quality structures are in place within the institution to achieve these objectives, including the Committee for Quality Assessment and Assurance (CEAC), the Quality Assurance Bureau, the Office of Academic Ethics and Integrity (BEIA), and quality managers at faculty and Doctoral School levels. These structures operate according to approved regulations and the UTCN Quality Assurance Code.

Periodic evaluations of doctoral programs ensure alignment with national qualification framework standards. The self-evaluation process involves input from both supervisors and students and aims to assess various aspects, including the scientific activity of doctoral supervisors, infrastructure, logistics, and organizational procedures for doctoral studies.



IOSUD-UTCN offers social, academic, and counselling support to doctoral students, including accommodation, fee reductions, and financial assistance for research activities. The institution's strategic plan outlines measures to enhance support for doctoral and postdoctoral researchers, such as increased financial aid and opportunities for academic participation and publication.

Evaluation processes and support services are regularly updated to align with legislative provisions and meet the evolving needs of doctoral students. Overall, IOSUD-UTCN maintains a robust evaluation system to ensure the quality and effectiveness of its doctoral programs and support services.

Recommendations: despite not being legally required, it is advisable that the internal quality processes of the PhD program are comprehensively handled by the Quality Department.

The indicator is **fulfilled**.

Performance indicator* C.1.1.2.

Mechanisms are implemented during the doctoral study program to enable identification of the doctoral students' needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.

The Institutional Regulation (HS 1235) outlines procedures for planning, controlling, and continuously improving doctoral training at UTCN. The CSUD collaborates with the university's quality assurance department to identify critical processes and develop necessary procedures for quality assurance. Immediate needs of doctoral students are identified through meetings with the doctoral coordinator and mentoring committee.

Evaluation mechanisms are implemented during doctoral training to assess students' needs and satisfaction with the degree program. Questionnaires are used to gather feedback from doctoral students, comparing results over time to track improvements. Results show increased satisfaction with support from UTCN staff and the effectiveness of the advanced degree-based training program. The majority of students feel well-informed about research methodology, statistical data processing, and academic ethics.

Feedback on the involvement of the PhD coordinator, mentoring committee, and supervisors in supporting students and providing research conditions is also positive. This feedback contributes to the development of operational plans aimed at improving academic and administrative regulations based on measurable impact indicators.

Recommendations: No recommendations

The indicator is **fulfilled**.

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

At IOSUD-UTCN, a web platform (<http://iosud.utcluj.ro/>) is available specifically for



doctoral students of the Technical University of Cluj-Napoca. This platform serves as a centralized hub for publishing useful information tailored to doctoral students' needs.

Standard C.2.1.

Information of interest to doctoral students, future candidates, and information of public relevance is available for consultation in electronic format.

Information of public interest, as well as important details for doctoral students, can be accessed in electronic format through the following links:

- General information: <http://iosud.utcluj.ro/>
- Page dedicated to the doctoral school: <http://iosud.utcluj.ro/scoli-doctorale-146.html>

Performance indicator C.2.1.1.

Subject to compliance with the data protection regulations in force, the IOSUD publishes the following types of information on the website of the higher education institution:

- a) the regulations of the doctoral school;*
- b) the admission regulations;*
- c) the doctoral study contract;*
- d) the study completion regulation including the procedure for the public presentation of the thesis;*
- e) the content of the training programs 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 in the domain concerned, with basic information (year of enrolment; advisor);*
- h) information on the standards for developing the doctoral thesis;*
- i) links to the summaries of the doctoral theses to be presented publicly, as well as the day, time and place where they will be presented, at least 20 days before the presentation.*

The IOSUD-UTCN web platform at <http://iosud.utcluj.ro/> serves as a resource hub for PhD students of the Technical University of Cluj Napoca. Here's a breakdown of the information available on the platform:

1. Rulebooks and Regulations: The platform provides access to essential documents such as the Rulebook of the Doctoral School of the Technical University of Cluj-Napoca within IOSUD-UTCN, the Rulebook for the organization of admission in the doctoral studies cycle at the university, and the doctoral studies contract. These documents outline important guidelines and procedures related to doctoral studies.
2. Institutional Regulations: The Institutional Regulation (HS 1235) includes information on the completion of studies, particularly the procedure for the public defense of the thesis. The procedure details can be found on the website at <http://iosud.utcluj.ro/regulamente.html>.
3. Dedicated Doctoral School Page: The platform hosts a page specifically dedicated to



the doctoral school, accessible at <http://iosud.utcluj.ro/scoli-doctorale-146.html>. This page provides comprehensive information about the doctoral programmes, including:

- Content of study programmes
- Scientific profile and thematic areas/research topics of PhD supervisors
- List of PhD students in the school with basic information
- Standards for writing a doctoral thesis
- Links to abstracts of doctoral theses scheduled for public defense, along with defense details

4. Websites of Coordinating Councils: Tab. 19 in the IER provides a list of websites for the Coordinating Councils of doctoral programmes across various fields, offering additional information and resources tailored to specific PhD fields.

5. Announcements and Opportunities: The platform's Announcements section (<http://iosud.utcluj.ro/anunturi.html>) serves as a bulletin board for PhD students, featuring opportunities such as conferences organized by other universities and scholarship offers. The Scholarships page lists available scholarship opportunities for PhD students.

6. Abstracts of Doctoral Theses: Abstracts of doctoral theses scheduled for public defense, along with defense details, are uploaded on the doctoral school's platform at least 20 days before the defense. The platform also includes an online admission module.

In summary, the IOSUD-UTCN web platform offers a wealth of information and resources crucial for PhD students, ranging from regulatory documents to opportunities for academic and professional development.

Recommendations: Not a recommendation but a commendation. The electronic support provided is excellent.

The indicator is **fulfilled**

Standard C.2.2.

The IOSUD / 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.

HCA 68-9 enables doctoral students at IOSUD-UTCN to access scientific and research literature freely via the Anelis Plus portal. This platform includes various international resources like Science Direct, Springer Link Journals, and others. Access is available around the clock using UTC-N email account credentials. Additionally, doctoral students can access databases from major publishers and aggregators such as Wiley, Elsevier, ProQuest, and Scopus. This access enhances research capabilities and supports academic endeavors.



Recommendations: No recommendations

The indicator is **fulfilled**

Performance indicator C.2.2.2.

Each doctoral student, upon request, has access to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.

HCA 68-9 regulates the use of Turnitin, an anti-plagiarism software, at IOSUD-UTCN. Since 2016, all PhD supervisors have had access to Turnitin to check the originality of scientific papers, research reports, and PhD theses. The Doctoral School Regulations (HCA 68-5) outline the procedure for utilizing Turnitin, specifying that designated individuals conduct the anti-plagiarism check. Further guidance is provided by the Anti-Plagiarism Procedure (HCA 131-26), Procedure for Completion of Doctoral Studies (HCA 140-14), and UTCN anti-plagiarism strategy (HCA 131-27).

Turnitin detects and discourages plagiarism by generating similarity reports for submitted papers. All doctoral theses undergo verification using Turnitin before public defense, with both the doctoral candidate and supervisor assuming responsibility for the results.

PhD supervisors access Turnitin through their individual accounts, while PhD students use their supervisors' accounts. The institution promotes the widespread use of Turnitin, fostering a culture of plagiarism prevention and ethical academic conduct. Documentation attests to the institution's procurement of Turnitin, ensuring the verification of the similarity of doctoral students' scientific works.

The designated expert from each field conducts the anti-plagiarism check within 30 days of the submission of the pre-submission procedure application. The acceptance report from the PhD supervisor confirms the utilization of Turnitin for checking the thesis's content, with the resulting similarity report uploaded to the national platform after the public defense.

Recommendations: No 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 a set of internal regulations.

The Doctoral School Regulations guarantees doctoral students access to scientific research laboratories and other facilities. Additionally, specific provisions facilitating access for doctoral students are outlined in section B - Obligations of the Doctoral Study Contract. The Institutional Regulations (HS 1235) also contain relevant provisions in Art. 17(4b), Art. 33(b), and Art. 80(3).

Each research structure, whether it be a center, laboratory, or group, grants affiliated doctoral students access to its research laboratories according to internal regulations.



These regulations are established within each structure. UTCN's research structures are detailed on the university's website, categorized by fields and faculties, and listed in the annex Sheet_Groups.

Recommendations: No recommendations

The indicator is **fulfilled**

IV. SWOT analysis

<p>Strengths:</p> <ul style="list-style-type: none"> ● Willingness of the promoters. ● Visibility of the domain within a technical university. ● Support of deans of related Faculties. ● Synergies between researchers in different domains in a good research environment. ● Increase of scholarships for students. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ● Small number of PhD supervisors and of researchers engaged in the domain activities. ● Large distance between Baia-Mare and Cluj. ● Lack of competitive research funding of the promoters.
<p>Opportunities:</p> <ul style="list-style-type: none"> ● The development of a strong domain within a technical school. ● ITU+ network may provide excellent international collaborations. ● Partnership with industry. ● A large group of alumni that may contribute establishing fruitful relationships. 	<p>Threats:</p> <ul style="list-style-type: none"> ● Extremely constrained regulations in terms of PhD supervision in Romania. ● Lack of explicit presence of the domain in the faculty. ● No national strategy to increase the number of Phd habilitated supervisor. ● No industrial doctorate in place in Romania. ● Lack of competitive research funding in Romania. ● Lack of modern equipment and external resources (national infrastructures for structure determination, supercomputing, high-



	throughput analysis and testing...)
--	-------------------------------------

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	<p>A.1.1.1. The existence of specific regulations and their application at the level of the doctoral school that the doctoral domain is a part of:</p> <ul style="list-style-type: none"> 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 the CSD, and evidence that such elections were conducted; c) methodologies for organising and conducting doctoral studies (admission of doctoral students, completion of doctoral studies); d) existence of mechanisms for recognising the status of a doctoral advisor and the equivalence of a doctoral degree obtained abroad; e) functional management structures (Council of the doctoral school), including proof of the regular frequency of convening their 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. 	Fulfilled	
2.	PI	<p>A.1.1.2. The doctoral school's Regulations include mandatory criteria, procedures and standards</p>	Fulfilled	



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
		concerning the aspects specified in art. 17, para. (5) of Government Decision no. 681/2011, as further amended and supplemented.		
3.	PI	A.1.2.1. The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.	Fulfilled	
4.	PI	A.1.2.2. The existence and use of an appropriate software and evidence of its use to verify the percentage of similarity in all doctoral theses.	Fulfilled	
5.	CPI	A.2.1.1. The venues and the material equipment available to the IOSUD/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.	Fulfilled	To update the link where the research infrastructure can be found is available on the ERRIS platform, specifically for UTCN.
6.	CPI	A.3.1.1. Minimum three doctoral thesis advisors work 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.	Fulfilled	to develop a specific strategy for the research Domain in Chemistry at the university level
7.	PI *	A.3.1.2. At least 50% of the doctoral advisors in the doctoral domain under	Fulfilled	to progress in the evolution of other tenured



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
		review are tenured professors within the IOSUD and have a full-time employment contract for an indefinite period.		professors in the Chemistry domain at UTCN
8.	PI	<p>A.3.1.3. The study subjects in the education programme 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 associate professors / 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.</p>	Fulfilled	<p>To enhance the research environment, the following actions are proposed:</p> <ol style="list-style-type: none"> 1. Inviting international experts to collaborate. 2. Offering courses in English to facilitate broader participation. 3. In the doctoral training program, besides research, it is advised to have at least one more discipline supported by qualified Chemistry experts. 4. Each doctoral supervisor in the Chemistry field should engage in didactic activities within the training program.
9.	CPI	<p>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 commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international</p>	Fulfilled	<p>The current publications of the researchers are somehow too much based on open source journals (MDPI, for example) that are becoming rejected for accreditation and evaluation purposes in several processes through Europe. It is advisable to establish an internal strategy to publish in better recognized journals in the field of expertise of the researchers.</p>



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
		visibility within the past five years by their membership on the boards of professional associations, membership in organising committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.		
10.	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 on their scientific results within the past five years.	Fulfilled	
11.	PI *	B.1.2.1. Admission in the doctoral study programmes is based on selection criteria including the academic, research and professional performance of the candidates; their interest for scientific or artistic/sports research; publications in the domain, and a proposal of a research subject. Interviewing the candidate is mandatory as part of the admission procedure.	Fulfilled	
12.	PI	B.2.1.1. The training program based on advanced academic studies includes at least 3 disciplines relevant for the scientific research training of doctoral students, out of which at least one discipline focuses on the in-depth study of research methodology and/or statistical data processing.	Partially Fulfilled	A new discipline focusing on research methodology is proposed to be introduced into the PPUA plan. It is imperative that disciplines included in the PPUA plan are tailored to the Doctoral School's needs and delivered by doctoral supervisors affiliated with the school.
13.	PI	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.	Partially Fulfilled	To develop an specific subject oriented to PhD students on Ethics and academic integrity, with subjects differentiated from those in the Master level subject.



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
14.	PI	<p>B.2.1.3. The IOSUD has the mechanisms in place to ensure that the academic training program based on advanced higher education studies related to the evaluated domain addresses the “learning outcomes”, specifying the knowledge, skills, and the responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.</p>	Fulfilled	Ensure the learning outcomes are related to the PhD studies level
15.	PI	<p>C.1.1.1. The doctoral school to which the doctoral study domain belongs demonstrates that the internal evaluation and quality assurance process of the study domain is carried out constantly, according to a procedure developed and applied at the level of the IOSUD, including an evaluation of the following mandatory criteria:</p> <ul style="list-style-type: none"> a) the scientific work of doctoral advisors; b) the infrastructure and logistics needed for carrying out the research activity; c) the regulations and procedures based on which doctoral studies are organised; d) the scientific activity of doctoral students; e) the training program based on advanced higher education studies of doctoral students; f) social and academic support services (including for participation in various events, publishing papers, etc.) and counselling services available for the doctoral students. 	Fulfilled	despite not being legally required, it is advisable that the internal quality processes of the PhD program are comprehensively handled by the Quality Department.
16.	PI *	<p>C.1.1.2. Mechanisms are implemented during the doctoral study program to enable identification of the doctoral students’ needs, as</p>	Fulfilled	



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
		<p>well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.</p>		
17.	CPI	<p>C.2.1.1. Subject to compliance with the data protection regulations in force, the IOSUD publishes the following types of information on the website of the higher education institution:</p> <ul style="list-style-type: none"> a) the internal regulations of the doctoral school; b) the admission regulations; c) the doctoral study contract; d) the study completion regulation including the procedure for the public presentation of the thesis; e) the content of the training programs 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 in the domain concerned, with basic information (year of enrolment; advisor); h) information on the standards for developing the doctoral thesis; i) links to the summaries of the doctoral theses to be presented publicly, as well as the day, time and place where they will be presented, at least 20 days before the presentation. 	Fulfilled	<p>Not a recommendation but a commendation. The electronic support provided is excellent.</p>
18.	PI	<p>C.2.2.1. All doctoral students have free access to one platform providing</p>	Fulfilled	



No.	Type of indicator (PI, PI*, CPI)	Performance indicator	Judgment	Recommendations
		academic databases relevant to the doctoral studies domain of their thesis.		
19.	PI	C.2.2.2. Each doctoral student, upon request, has access to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.	Fulfilled	
20.	PI	C.2.2.3. All doctoral students have access to the scientific research laboratories or to other facilities depending on the specific domain / domains within the doctoral school, according to a set of internal regulations.	Fulfilled	

VI. Conclusions and general recommendations

In evaluating the doctoral study domain in chemistry, several commendable aspects have been observed. Firstly, there is a notable dedication from the university, faculty, and promoters towards the establishment of this new PhD program, reflecting a strong commitment to academic advancement and fostering expertise in the field. This is particularly interesting in a technical university, as it paves the way for stronger growth in basic research. Additionally, the research performance of the promoters is commendable, as evidenced by their publication record, albeit with room for improvement in targeting high impact journals. The presence of modern infrastructure for molecular characterization further enhances the research capabilities of the program, ensuring that students have access to state-of-the-art facilities conducive to their scholarly pursuits. Moreover, the vibrant university city setting provides an enriching environment for intellectual exchange and academic growth, offering students a dynamic backdrop for their educational journey.

However, despite these positive attributes, there are notable weaknesses that demand attention. The geographical distance between the two centers involved in the PhD program poses logistical challenges and may hinder effective collaboration and resource sharing between stakeholders. Furthermore, the limited number of researchers involved in the program underscores the need for broader engagement and expertise to enrich the educational experience and research outcomes. Additionally, the lack of adequate research funding, both internally and externally within the Romanian research system, presents a significant barrier to the program's sustainability and growth, necessitating



strategic measures to secure additional resources and support for its continued development and success. Addressing these weaknesses will be crucial in ensuring the holistic advancement and long-term viability of the doctoral study domain in chemistry.

VII. Annexes

No supplementary documents are appended in this section, as they were all accessible through the links provided within the IER **and mentioned through this document**. Nonetheless, during the meeting with the rector on January 31st (refer to the **agenda** details below), Prof. Topa graciously supplied general materials concerning the university, notably the annual report for the year 2022 (the report for 2023 was pending approval by the senate and therefore not disclosed publicly). These materials proved instrumental in enhancing the evaluator's comprehension of the university's background, organizational framework, and available resources.

VIII. Agenda of the visit

Wednesday 31.01.2024

- 10:00 - 10:30 Technical meeting of the evaluation team
- 10:30 -11:30 Meeting with:
 - Coordinator of the Domain, Prof. Lorentz JANTSCHI;
 - CSUD Director, Prof. Doina PISLA;
 - members of the evaluated doctoral field:
 - Associate Professor Simona Rada,
 - Associate Professor Thomas Dippong.
- 12:00-12:30 (Rectorate) Meeting with the management representatives of the evaluated institution:
 - Prof. Vasile ȚOPA, Rector of UTCN,
 - Prof. Petrică-Claudiu POP-SITAR, Vice-Rector of UTCN (CUN Baia Mare),
 - Prof. Doina PISLA, Vice-Rector of UTCN (CSUD Director),
 - Prof. Cătălin Ovidiu POPA, Dean of UTCN (Faculty of IMM)
 - and the three qualified doctoral supervisors in the field of CHEMISTRY:
 - Prof. Lorentz Jäntschi,
 - Conf. Thomas Dippong,
 - Conf. Simona Rada.
- 12:30-13:00: meeting with the representatives of the management of the evaluated institution and of CSUD:



- Prof. Sergiu NEDEVSCHI, Prof. Petru DOBRA, Prof. Ioan ARDELEAN, Prof. Lorand SZABO, Acad. Dorel BANABIC, Prof. Mircea DUDESCU, Prof. Dorian POPA, Student Victor Dan Popa, Student Andrei Baneasa, Prof. Tudor PALADE, Student Irina DUMA, Prof. Lorentz JANTSCHI, Conf. Simona RADA, Conf. Thomas Peter DIPPONG, SD Secretary Livia HAIDUC, SD Secretary Dorina BARAIAN, Secretary IOSUD Ec. Alina MORUȚAN
- 14:00-15:00: meeting with the person in charge of the field of doctoral studies evaluated and with the team that produced the internal evaluation report:
 - Prof. Lorentz JĂNTSCHI (Physics and Chemistry Dept.),
 - Prof. Simona RADA (Physics and Chemistry Dept.),
 - Prof. Thomas DIPPONG (Chemistry - Biology Dept.),
 - Prof. Doina PISLA (IOSUD Director), Prof. Traian DOBRA (Director SD),
 - Alina MORUȚAN (Secretary IOSUD).
- 14:00-15:00: Visiting the didactic and research material base
 - Magnetic Materials and Nanomaterials (Director: Ș.L. Bogdan Viorel Neamțu, present at the meeting),
 - Biomaterials Research Group (Director: Prof. Cătălin Popa),
 - Corrosion and Anti-Corrosive Protection (Director: Prof. Horațiu Vermeșan, present at the meeting in building C floor 4),
 - Research Group in Porous Materials and Composite Materials (Director: Ș.L. Dr. Gyorgy Thalmaier),
 - Instrumental Analysis (Director: Prof. Mugur Ciprian Bălan),
 - Research Center for Physics and Chemistry of Advanced Materials and the Environment (Director: Prof. Radu Fechet),
 - Research Laboratory for Composite Materials and Environmental Chemistry (Director: Prof. Violeta Popescu),
 - Laboratory of Electrochemistry for Advanced Materials (Director: Prof. Lorentz Jäntschi).

Thursday, 01.02.2024,

- 9:30-10:00: meeting with the person in charge of the field of evaluated doctoral studies:
 - Prof. Lorentz JĂNTSCHI (Physics and Chemistry Dept.) – coordinator of the Chemistry PhD Domain.
- 10:00-11:00: meeting with the teaching staff related to the evaluated field
 - Prof. Lorentz JĂNTSCHI (Dept. of Physics and Chemistry), Prof.



Simona RADA (Dept. of Physics and Chemistry), Prof. Thomas DIPPONG (Dept. of Chemistry - Biology), Prof. Doina PISLA (Director of IOSUD).

- 11:00-12:00: meeting with the members of the Commission for Evaluation and Quality Assurance (CEAC) / Quality Assurance Department:
 - Prof. Dr. Eng. Daniela POPESCU (vice-rector, away on a trip) - represented by Prof. Paula Amalia RAICA, director of the University Management department, Prof. Dr. Eng. Romulus TEREBEȘ, Associate Dr. Eng. Dorin BEU, Associate Dr. Eng. Sorin ȘUTEU, Associate Dr. Eng. Gabriela LOBONȚIU (presents online teams), Stud. Sergiu COVACI, Employer Norbert SIMON
- 12:00-13:00: meeting with the members of the Doctoral School Council within which the evaluated field will operate
 - Prof. Petru Dobra, Prof. Ioan Ardelean, Prof. Tudor Palade, Student Irina DUMA, Prof. Lorentz JÄNTSCHI (Dept. of Physics and Chemistry), Associate Professor Simona RADA (Dept. of Physics and Chemistry), Associate Professor Thomas DIPPONG (Dept. of Chemistry - Biology), Prof. Doina PISLA (IOSUD Director), Prof. Traian DOBRA (SD Director), Alina MORUȚAN (IOSUD Secretary)
- 14:00-15:00: meeting with the members of the [Ethics Commission](#) of the higher education institution, including:
 - Jurist Liviu Alin CUIBUS
 - Eng. Maria Ionela NEAG()
- 15:00-16:00: meeting with the directors/responsibles of the research centers/laboratories related to the field of doctoral studies evaluated
 - Prof. Doina Pislă, CSUD Director,
 - Prof. Em. Culea Eugen - honorary director of the Research Center for Physics and Chemistry of Advanced Materials and the Environment.
 - Prof. Em. Elena M. Pică - honorary director of the Laboratory of Electrochemistry for Advanced Materials,
 - Prof. Radu Fechetă - director of the Research Center for Physics and Chemistry of Advanced Materials and the Environment,
 - Prof. Horatiu Vermesan - Director of Corrosion and Anti-Corrosion Protection,
 - Prof. Catalin Popa - director of the Biomaterials Research Group
 - Prof. Lorentz Jäntschi - director representative of the Instrumental Analysis Laboratory (director: Prof. Mugur Ciprian Bălan),
 - S.L. Gyorgy Thalmaier - director of the Porous and Composite Materials Research Group,



- S.L. Bogdan Neamțu - director of Magnetic Materials and Nanomaterials,
- Prof. Thomas Dippong - director of Nanomaterials and Applications in Environmental Analysis and Food Analysis,
- Associate Professor Simona Rada - member of the Laboratory of Electrochemistry for Advanced Materials and Research Center for Physics and Chemistry of Advanced Materials and the Environment.

Friday, 02.02.2024

- 10:00-11:00: meeting with the person in charge of the field of evaluated doctoral studies Prof. Lorentz JANTSCHI, director of CSUD, Prof. Doina PISLĂ, the members of the evaluated doctoral field, Conf Dr. Simona Rada, Associate Professor Thomas Dippong and Alina MORUȚAN (secretary).
- 11:00-12:00: meeting with the head of the field, Prof. Lorentz JANTSCHI and the team that drew up the Report.