

The External Evaluation Report of a Doctoral Study Domain

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I. Introduction¹

In this chapter, the following shall be summarized:

- the context in which this external evaluation report was drafted (**the type of evaluation, the period of the evaluation visit, the composition of the Experts Committee** etc.);
- details about the doctoral school(s) of which the doctoral domain under review is part (number of doctoral advisors, number of students, institutional context, short history etc.);
- details about the doctoral study domain under review (number of students, institutional context, short history etc.).

This periodic external evaluation report was carried out for the evaluation of the Computers and Information Technology (CIT) doctoral programme of IOSUD University of Craiova (UCV).

Type of evaluation: periodic external evaluation

Evaluation visit period: 03 April - 04 April 2023.

Composition of the expert evaluation committee:

1. Prof. Emeritus Horia Ciocărlie - Expert evaluator, Polytechnic University of Timisoara, Timisoara, Romania
2. Prof. univ. dr. eng. Gabor Kiss - international expert, Obuda University, Budapest, Hungary
3. Alexandru Chiuda - student doctorand, University of Petrosani, Hunedoara, ROMANIA.

In its current structure, the School of Doctoral Studies "Constantin Belea" appeared within the University of Craiova by regrouping in a single doctoral school the three doctoral fields of Systems Engineering, Computers and Information Technology, Mechatronics and Robotics within the Faculty of Automation, Computers and Electronics, in accordance with the provisions of the National Education Law no.

The primordial, visionary role in the development of the specialization of Automation and Computers belonged to the late professor doctor engineer Constantin Belea, the founder of the School of

¹ Each time when applicable the information shall be presented gender-wise.



Automation from Craiova. Regarding the beginnings of the doctoral field Computer and Information Technology, they can be placed in 1994, the year in which Mr. Professor Mircea Petrescu obtained the quality of doctoral supervisor in Computers at the University of Craiova, under whose coordination was defended in 2002 and the first doctoral thesis in this field, at the University of Craiova (PhD student Liana Stănescu). In the extended field of Computers and Information Technology, professors Costin Bădică and Mihai Mocanu obtained the quality of PhD supervisor in 2007, professor Dumitru Dan Burdescu in 2008, and in 2018, professor Elvira Popescu obtained the certificate of habilitation in the field of study mentioned above, being affiliated in the same year to the School of Doctoral Studies "Constantin Belea".

Currently, the School of Doctoral Studies "Constantin Belea" organizes doctoral studies in the fields of Systems Engineering, Computers and Information Technology, Mechatronics and Robotics. The activity is coordinated by the Council of Doctoral School (CSD), consisting of five members and structured as follows:

A. PhD supervisors from the School of Doctoral Studies "Constantin Belea":

1. Prof. Univ. Dr. Ing. Costin Bădică – Director of the School of Doctoral Studies "Constantin Belea", PhD supervisor in Computers and Information Technology
2. Prof. Univ. Dr. Eng. Dorian Cojocaru, PhD supervisor in Mechatronics and Robotics
3. Prof. Univ. Dr. Eng. Daniela Danciu, PhD supervisor in Systems Engineering

B. External members:

1. Dr. Silviu Niculescu, Professor of Control Systems, L2S-CENTRALESUPELEC, France, Web: <https://l2s.centralesupelec.fr/u/niculescu-silviu-iulian/>

C. Students:

1. Drd. Radu Lucian Constantinescu, PhD student in the field of Systems Engineering at the School of Doctoral Studies "Constantin Belea".

The last accreditation was on 25.11.2021 in this doctoral study domain. The committee declared tree partially fulfilled indicators: A.3.1.1, C.3.1.2 and C.3.1.3. The rest of the indicators were fulfilled.

II. Methods used

In the external evaluation process, before and during the evaluation visit to IOSUD- UCV, Doctoral School in the PhD field of Computers and Information Technology, the following methods and tools were used:

- Analysis of the Internal Evaluation Report of the evaluated doctoral degree area - Computers and Information Technology - and its annexes;
- Analysis of documents, data and information available on the IOSUD UCV website, in electronic format;
- Visit to the buildings of the institution's patrimony, which included:
 - classrooms;
 - research structures.
- Face-to-face meeting/discussion with PhD students in the PhD field of Computers and Information Technology;
- Face-to-face meeting/discussion with graduate students in the PhD degree area Computers and Information Technology;



- Face-to-face meeting/discussion with employers of graduates in the field of doctoral studies in Computers and Information Technology;
- Face-to-face meetings/discussions with PhD supervisors in the assessed PhD field;
- Face-to-face meeting/discussion with the head of the PhD area of Computers and Information Technology and the team that produced the internal evaluation report;
- Face-to-face meeting/discussion with the directors/research managers/research structures of the PhD area Computers and Information Technology;
- Face-to-face meeting/discussions with representatives of the various IOSUD structures where the PhD field of Computers and Information Technology operates:
- Face-to-face meeting/discussions with representatives of the IOSUD-UCV Doctoral Studies Council;
- Face-to-face meeting/discussions with representatives of the Evaluation and Quality Assurance Commission and the Quality Assurance Department;
- Face-to-face meeting/discussions with representative of the Ethics Commission.

The self-assessment report and annexes provided were used as the main elements for the evaluation. This information was supplemented with additional documentation such as presentations posted during the meetings and physical visit to the educational and research infrastructure.

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

The doctoral school has proven to adopt the institutional framework required by legal regulations to conduct the doctoral studies. The research infrastructure is adequate to support students and supervisors and the quality of human resources is also good.

All 14 indicators that are part of Domain A have been met. Institutional capacity.

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

From the institutional and managerial point of view, the Computers and Information Technology doctoral school covered satisfactorily all the issues related to the adoption and implementation of specific regulations for doctorate schools and enough financial and logistics resources are allocated to carry out the doctoral studies' mission.

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

Following the analysis of the fulfilment of the indicators included in standard A.1.1, it is found that the IOSUD of the University of Craiova has approved and implemented the regulations provided for in the specific legislation on the organization of doctoral studies.

The standard is deemed to be met.



Performance Indicator A.1.1.1. *The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:*

- (a) the internal regulations of the Doctoral School;*
- (b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;*
- (c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);*
- (d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;*
- (e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;*
- (f) the contract for doctoral studies;*
- (g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.*

The general framework for doctoral training is set out in the IOSUD Institutional Regulations. The internal regulations cover aspects such as the procedures for the election of the Directors of the Council of the Doctoral School (CSD), the members of the SCD and the representatives of doctoral students, the organisation of doctoral studies, including admission procedures, the recognition of doctoral supervisors, the establishment of functional governance structures (Doctoral School Council, CSD) to coordinate doctoral activities, study contracts with all students admitted to doctoral programmes, and internal procedures for the analysis and approval of proposed topics.

The evidence supporting the achievement of the indicator is the general framework and internal procedures of the doctoral school, the study contract and the internal procedures governing the various aspects of the organisation of doctoral studies. In addition, there is evidence that CSD meetings are held on a regular basis, with minutes of the meetings containing the list of participants, the date and the main agreements reached at the meetings.

Recommendations: It is recommended to update the Doctoral School website on a permanent basis. Some pages should be translated into English.

The indicator is fulfilled.

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

The Regulation of the Doctoral School includes procedures for affiliation of new Doctoral supervisors, for the replacement of a Doctoral supervisor of a Doctoral student and conflict mediation, for the conditions under which the doctoral programme may be discontinued, for the detection of possible fraud in the academic and research activities and for ensuring access to research resources. The



decision-making content of the training program and the attendance obligations of students are also covered by the internal regulations.

Documentation related to the IOSUD Regulation and the Computers and Information Technology Doctoral School have been provided as evidence of the previous procedures.

There are no specific recommendations.

The indicator is fulfilled.

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

IOSUD-UCV has the necessary software resources to fulfil the mission of doctoral studies in good conditions.

The IT system is adequate to keep record and analyse the evolution of doctoral students. Information is easily accessible and facilitates the guidance of students. Yet, the information at the website should be also available in English. Accessibility to anti- plagiarism is also guaranteed.

There are no specific recommendations.

The indicator is fulfilled.

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.

There is an electronic record of students and their academic background, through a computer program and a unique database for the three cycles of study, EvStud. The main characteristics based on which the record of PhD students is kept (completed starting with 2018) are: CNP, name and surname of PhD student, name and surname of doctoral supervisor (group), field, date of enrollment, period of PhD student (interruption, extension), etc.

There are no specific recommendations.

The indicator is fulfilled.

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

IOSUD-UCV carried out the verification of the similarity percentage in PhD theses elaborated, using the Sistemantiplagiat.ro program, recognized by CNATDCU.

The connection to the system is made by accessing sistemantiplagiat.ro, and the theses are compared with the databases available for the system and a Similarity Report is issued. The similarity ratio indicates the percentage of fragments identified, as well as their exact length and source. The similarity report is analyzed and interpreted by the PhD supervisor together with the PhD student.

There are no specific recommendations.

The indicator is fulfilled.



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

The analysis of the three indicators in standard A.1.3 shows that IOSUD-UCV adequately manages the financial resources, the doctoral study area Computers and Information Technology.

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

The 3 scientific supervisors working at the doctoral school, in the field of study Computers and Information Technology, have multiple collaborations, are permanently involved in fundamental and applied research activities and are part of the teams of grants obtained through competition and have managed to attract additional funding to support the activity of PhD students.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator *A.1.3.2. *The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.*

In the period 2016-2021, PhD students in the field of Computers and Information Technology were included in the research team of one of the grants presented in Anexa A.1.3.1 they were remunerated with amounts between 25,000 - 30,000 lei each PhD students Alexandru Becheru and Paul-Ștefan Popescu for periods longer than 6 months, and Gabriel Badea, current PhD student, for a period longer than 6 months, but as a master student (he entered the doctorate on 1.10.2018).

The PhD students existing at the time of the evaluation were also included in other projects or grants and benefited not only from funding but also from training, generally for periods of less than 6 months. These sources of funding were obtained based on existing collaborations within the Faculty of Automation, Computers and Electronics, as well as the School of Doctoral Studies "Constantin Belea", but also at the individual level of PhD supervisors in the field of Computers and Information Technology with companies in the field or under research contracts.

In the period 2016-2021, PhD students in the field of CTI benefited from additional income compared to those obtained through government funding, usually obtained through project competition.

Also, the POCU project, OS 6.13 - Support for PhD students and post-doctoral researchers has been implemented and is in progress: "Entrepreneurial University - higher education and training system for the Romanian labor market by awarding scholarships for PhD students and postdoctoral researchers



and the implementation of innovative entrepreneurial training programs ", POCU / 380/6/13/123990, period 2019-2022, amounting to 6,173,828.15 ron. Gabriel Badea and Mihaela Pîrvu, PhD students, have submitted applications in this project and have been selected for the time being. By consolidating the data presented: 3 of the former PhD students and 6 of the 12 current PhD students were supported to obtain additional income (for periods of more than 6 months), over those provided by government funding, representing a percentage above 50%.

- Existing PhD students at the time of the evaluation: 12
- Doctoral students existing at the time of the evaluation who also benefit from sources of funding other than government funding: 6

$$6/12*100 = 50 \% \text{ CRITERION MET } \geq 20\%$$

The estimated percentage is estimated to be 50%, which is above the required limit of 20%.
There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator *A.1.3.3.² *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 University of Craiova has set up a special fund, in addition to the income related to doctoral grants, the Support Fund for Scientific Research Activity (SACS fund) which aims to support especially young researchers, including PhD students, to participate in international conferences and cover publication fees in internationally listed journals.

The following is noted:

The data related to the application of the indicator are given in Annex_A.1.3.3. Tabelul A.1.3.3_2.
In summary, according to Annex:

$$\text{Proportional income/Additional expenses for PhD students} * 100 = 16.57\% \\ \text{CRITERION MET } \geq 10\%.$$

The estimated percentage is estimated to be 16.57%, which is above the required limit of 10%.

To a very large extent, doctoral students receive financial support to attend international conferences, with UPT providing travel expenses. Students are also involved in research projects through

² 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.



which they can receive financial support.

Recommendations: It is recommended to separate the incomes of the field of study Computers and Information Technology to see more clear the amounts

The indicator is fulfilled.

Criterion A.2. Research infrastructure

The research infrastructure is aligned with doctoral studies' research lines and allows students to carry out the required experiments for the validation of their research works.

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

The existing research infrastructure of the laboratory can provide logistical support for carrying out scientific research activities for teachers and for master's and PhD students of the Faculty.

The infrastructure includes the Cloud system acquired through the POC project SMIS 124488, "Increasing the research capacity of the University of Craiova through investments in Cloud and Big Data infrastructures.

The main research groups/ research directions in focus are:

- Data Analysis and High Performance Computing.
- Cloud Computing, Big Data and Cyber Security
- Computer Graphics and Computer Vision
- Intelligent Distributed Systems
- Advanced Systems and Technologies for Education

From the analysis of the documents provided, as well as from the on-site visit, it appears that both IOSUD-UCV and the PhD field of Computers and Information Technology have a modern research infrastructure, with appropriate facilities, which can adequately support the specific activities of doctoral studies.

The standard is deemed to be met.

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 and members of the Doctoral School can carry out scientific research activities in INCESA laboratories (Infrastructură de Cercetare pentru Științe Aplicate), a research infrastructure of the University of Craiova that promotes excellence in the field of applied sciences.



Cloud Center UCV: provides cloud computing services for designing, testing, deploying and managing applications and services through a global network of data centers, used by numerous academic and research organizations in Romania and around the world.

MIRINET Laboratory: provides support for conducting research in the field, being equipped to meet technological requirements. The laboratory has specialized hardware and software equipment: 8 dual core 1G ram computers interconnected through a fiber optic network with a speed of 2GB / s and software related to the development of distributed applications

There are no specific recommendations.

The indicator is fulfilled.

Criterion A.3. Quality of Human Resources

**general description of the criterion analysis.*

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

The analysis carried out for the 4 indicators of this standard leads to the conclusion that the field of Computers and Information Technology of UCV has a qualified and experienced staff to run the PhD degree programme.

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

Within the field of Computers and Information Technology there are 3 PhD supervisors affiliated to IOSUD - UCVT. Of these 3 meet the minimum standards, i.e. 100.00% > 50%.

In Annex_A.3.1.1. are presented the centralizers with the minimum standards detailed by criteria, for each of the PhD supervisors of the Computers and Information Technology field. All of them meet the CNATDCU minimum criteria.

There are no specific recommendations.

The indicator is fulfilled.



Performance Indicator *A.3.1.2. *At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.*

All the 3 PhD supervisors have the didactic degree of university professor and are tenured at the Faculty of Automation, Computers and Electronics, University of Craiova.

3/3 = 100,00 % full professors

The estimated percentage is estimated to be 100.00%, which is above the required limit of 50%. There are no specific recommendations.

The indicator is fulfilled.

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

All the subjects in the advanced undergraduate training programme related to the doctoral programme in Computers and Information Technology are taught by professors who are PhD supervisors, or by professors or lecturers with extensive experience in the field of the subjects taught.

Annex_A.3.1.3. gives examples of the subjects in the advanced degree-based training programme and their holders.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator *A.3.1.4. *The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs³ does not exceed 20%.*

Out of a total of 3 PhD supervisors in the field of Computers and Information Technology, 0 (zero) PhD supervisors are concurrently supervising more than 8 PhD students, but not more than 12, during their PhD studies (3 or 4 years, depending on the field, plus legally granted extension periods).

The weighting is therefore:

$$(0/8)*100 = 0\%$$

The criterion is met, because the indicator does not exceed the value of 20%

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



Recommendations: A better distribution of PhD students among the PhD supervisors in the field of Computers and Information Technology is recommended in order to cover the demand as evenly as possible.

The indicator is fulfilled.

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

The analysis of the two indicators of the standard shows that all PhD supervisors in the field of Computers and Information Technology are internationally visible.

Performance Indicator A.3.2.1. *At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.*

The all 3 PhD supervisors of the Computers and Information Technology domain meet this criterion. A percentage of 100.00%, i.e. more than 50% of the PhD supervisors in the field of Computers and Information Technology meet the criterion. The situations are presented in Annex_A.3.2.1.

There are no specific recommendations.

The indicator is fulfilled.

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

The all 3 PhD supervisors of the Computers and Information Technology domain meet this criterion. A percentage of 100.00%, i.e. more than 50% of the PhD supervisors in the field of Computers and Information Technology meet the criterion. Annex_A.3.2.2. summarises nominally the scores of the activity over the last 5 years and the related calculations.

There are no specific recommendations.



The indicator is fulfilled.

Domain B. EDUCATIONAL EFFECTIVENESS

**general description of domain analysis.*

In the PhD field of Computers and Information Technology, all 12 indicators for Field B. Educational Effectiveness are met. From the analysis of the report and the related annexes it appears that an adequate number of candidates of a very good quality apply to the CTI PhD field. The content of the doctoral programmes in the CTI field is adequate and meets all the requirements. The results of doctoral studies are also adequate and IOSUD-UCV and the CTI field have appropriate procedures for evaluating these results.

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

**general description of the criterion analysis.*

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.

The ratio between the number of applicants in the last five years and the number of places available in the doctoral programme is 1.2

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

The ratio between the number of Master's graduates from educational institutions other than IOSUD - UCV, enrolled in the PhD admission (last 5 years) and the number of places financed from the state budget - Computers and Information Technology field is :

$$19/9 = 2.1 > 1.2.$$

The list of candidates enrolled in doctoral studies in IOSUD - UCV, master graduates of other higher education institutions in the country or abroad, is presented in Annex_B.1.1.1-1.

Recommendations: It is recommended that the CTI PhD field improves its ability to attract students coming from other higher education institutions, including from abroad.

The indicator is fulfilled.

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



Following the analysis of the 2 indicators of the standard (met), it appears that admission to PhD studies in the field of Computer and Information Technology is based on selection criteria that ensure academic, research and professional performance. This, coupled with an expulsion (dropout) rate of 6%, demonstrates that the standard is met.

The standard is deemed to be met.

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

The criteria based on which admission to the doctoral study program in the field of study Computers and Information Technology are presented in Anexa B.1.2.1. Art. 2, states "The competition test consists of an interview conducted following an oral presentation of the candidate. This presentation will highlight your own scientific research concerns, the bibliography studied and a direction in which the doctorate thesis will be written. The presentation is followed by a clarifying discussion (interview) with the members of the committee admittance."

There are no specific recommendations.

The indicator is fulfilled.

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

The list of doctoral students admitted and enrolled in doctoral studies in IOSUD-UCV, for the admission sessions 2016, 2017, 2018, 2019, 2020, 2021 who were discharged in the first 3 years of the doctoral program is presented in Annex_B.1.2.2. for the doctoral field Computers and Information Technology.

Total enrolled (2016-2021): 17

Graduated (doctors) between 2015-2020: 5

Exmatriculated in the first 3 years: 7

Exmatriculation rate = $(7/29) * 100 = 24.14\%$

7 out of 29 doctoral students abandoned in the last 5 years, which represents a dropout rate of 24,14%, below the 30% limit.

There are no specific recommendations.

The indicator is fulfilled.

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



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.

The analysis shows that all 5 indicators of the standard are met.

It is assessed that the standard is met.

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

The curriculum related to Computers and Information Technology contains 10 subjects to which are added two disciplines: one dedicated to the in-depth study of the Scientific Research Methodology covering the topic of statistical data processing, the second to deepen the notions of Ethics and academic integrity. PhD supervisors, in accordance with the topics of doctoral theses, choose for each PhD student 6 disciplines out of the 12 for their individualized training.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator B.2.1.2. *At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.*

The curriculum of the "Constantin Belea" Doctoral School contains a common discipline dedicated to the in-depth study of ethics and academic integrity, whose main objective is to help students understand the importance of ethical behavior in research (action in accordance with the public interest, respect for intellectual property, observance of professional standards at the highest possible level, independence of professional decisions, etc.) and norms of academic conduct in relations with teachers and researchers

There are no specific recommendations.

The indicator is fulfilled.



Performance Indicator B.2.1.3. *The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities⁵.*

The students are advised by the advisory committees on how to approach the research activity.

IOSUD - The University of Craiova has created the mechanisms that allow the training program based on advanced university studies in the field of Computers and Information Technology to ensure the acquisition of competencies, skills and aptitudes that PhD students must possess at the end of studies.

The content of the curricula is analyzed in the Doctoral School Council of SDCB.

Also, in Anexa_A.1.1.1_1, Regulation on the organization and functioning of doctoral and postdoctoral study programs at IOSUD-UCv there are mechanisms specified through which the training program based on advanced studies aims at learning outcomes.

Thus, IOSUD ensures that students develop skills and techniques indispensable in scientific research.

The essential knowledge and skills that must result from advanced training and research programs are also analyzed in meetings with strategic partners of the faculty (NetRom, Caphyon, Continental Sibiu, Hella Craiova, CS Romania, QFort, etc.), some of the employees of of these companies following doctoral training programs in the field of study Computers and Information Technology.

There are no specific recommendations.

The indicator is fulfilled

Performance Indicator B.2.1.4. *All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.*

All PhD students in the field of study Computers and Information Technology have set up advisory teams (formed by the PhD supervisor and 3 specialist members, teachers or researchers in the field of Computers and Information Technology) starting with the 2014-2015 academic year and appreciate the collaboration with the members of these teams. Regular meetings take place between the PhD student and the advisory committee, based on a program established by the supervisor, the PhD student and the members of the committee. At the same time, the PhD student has a sustained activity within the research group assigned to the doctoral supervisor. Throughout the doctoral training period, PhD students in Computer and Information Technology benefit from the advice of functional advisory committees, reflected in written advisory and feedback or regular meetings, complementary to those offered by the PhD supervisor.

Some members of the advisory committees are co -authors of published or communicated scientific papers, together with PhD students.

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



There are no specific recommendations.

The indicator is fulfilled

Performance Indicator B.2.1.5. For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.

The number of those currently undergoing either the training program based on advanced university studies or the scientific research program is 11.

The advising committee of PhD students is provided by the 3 PhD supervisors in the field of study and 3 teachers (teaching and research staff) who do not have the quality of doctoral supervisors.

Thus, the result is a ratio of 11: 6 (PhD students / total number of teachers / researchers), less than 3: 1.

Criterion is met \leq 3:1

There are no specific 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.

The analysis shows that the two indicators of the standard are met. PhD students in the CTI field have a research activity that is valued, including presentations at scientific conferences and scientific publications, in large numbers and good quality.

The standard is found to be met.

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

The number of PhD students who obtained their PhD degree in the last 5 years is 5.

- The list of relevant papers produced by PhD students who obtained the PhD title in the last 5 years can be found in Annex_B.3.1.1.

The 5 graduates in the field of Computers and information technology in the last 5 years capitalized on the research results by publishing a number of 78 papers: 16 articles in journals (12 in ISI journals, 4 in BDI journals), 2 book chapters in international publishing houses, and about 60 papers presented and published at international scientific events (mostly indexed by ISI Proc. and BDI).



Recommendations: It is recommended that PhD students submit their research results for publication mainly to journals with an impact factor.

The indicator is fulfilled.

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

- Number of doctoral students who obtained a PhD in the last 5 years is 5
- Number of papers presented at conferences: 60
- Financially supported mobilities by SDCB or from other sources: 17

Each PhD student has a minimum of one paper presented at prestigious international events, details can be found in Annex_B.3.1.2. - List of students who have obtained the PhD title in the last 5 years and number of conference participations - Computers and Information Technology field.

$$17 / 5 = 3,4$$

CRITERION MET ≥ 1

Recommendations: the Faculty should adopt a strategy where research results are presented in excellent international events supported by scientific organizations such as IEEE, ACM, etc..

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.*

For the CTI field, the Doctoral School calls upon a significant number of external scientific referees in the committees for the public defense of doctoral theses for the field under review.

The analysis shows that there are no cases where the same external scientific referee has been co-opted in more than two committees in the same academic year.

The standard is found to be met.

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

The list of doctoral committees for public defense of doctoral theses in the field of study Computers and Information Technology is presented (Anexa B.3.1.1.). The number of theses coordinated by the same doctoral supervisor, in one year, is in a single year of 2 (2018, Mihai Mocanu), in the other years there is at most one doctoral thesis coordinated by the same doctoral supervisor.



There are no specific recommendations.

The indicator is fulfilled.

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

For the field of Computers and Information Technology, 5 PhD theses were defended in the last 5 years.

Not relevant.

The indicator is fulfilled.

Domain C. QUALITY MANAGEMENT

IOSUD-UCV proves a good quality management, which allows the development of doctoral studies in adequate quality conditions.

All 9 indicators related to Area C. Quality Management are met. The Quality Assurance and Monitoring Procedure is implemented and followed within IOSUD-UCV. IOSUD also ensures transparency of information and accessibility to learning resources.

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

There is a defined framework for quality assurance, with procedures that have been or are being implemented. The framework includes procedures for collecting information on students and supervisors, the training programme and the necessary infrastructure. There are also procedures for the detection of deficiencies and an action plan for the management of detected deficiencies.

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.

IOSUD of UCV has the institutional framework in place for internal quality assurance.

From the analysis carried out, it appears that there are Policies and procedures for quality monitoring and evaluation IOSUD-UCV level.

IOSUD has developed and regularly applies the Quality Monitoring and Evaluation Procedure. There are also mechanisms in place to collect feedback from doctoral students, followed by measures to improve academic and administrative processes.



It is assessed that the standard is met.

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

- (a) the scientific work of Doctoral advisors;*
- (b) the infrastructure and logistics necessary to carry out the research activity;*
- (c) the procedures and subsequent rules based on which doctoral studies are organized;*
- (d) the scientific activity of doctoral students;*
- (e) the training program based on advanced academic studies of doctoral students;*
- (f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.*

The UCV Doctoral School has specific procedures in place that demonstrate the constant conduct of its evaluation and internal quality assurance process. The procedures developed and applied at IOSUD level are presented in Annexes C111.

There are no specific recommendations.

The indicator is fulfilled.

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

Within the UPT Doctoral School there are mechanisms to evaluate the level of satisfaction of doctoral students.

In order to improve the academic and administrative processes, mechanisms have been implemented for the evaluation of doctoral study programs by students by completing on-line, under anonymity, a questionnaire with 10 questions.

Following the analysis of the results at the level of SDCB, in the previous years a series of measures were taken, including the implementation of a private scholarship program QFORIT.

Also, in order to increase the applicability of research results, a POCU project was submitted and won with the title: "Entrepreneurial University - higher education and training system for the Romanian labor market by awarding scholarships for PhD students and postdoctoral researchers and implementing innovative entrepreneurial training programs".

There are no specific recommendations.

The indicator is fulfilled.



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

The UCV Doctoral School ensures transparency in the presentation of information and accessibility to learning resources.

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

In the case of the Computers and Information Technology area of the Doctoral School, information of interest to doctoral students, future candidates and information of public interest is available for consultation in electronic format on the University website.

IOSUD UCV publishes on its website, in compliance with the regulations in force on data protection, all the information required by candidates, doctoral students and other interested parties.

The standard is deemed to be met.

Performance Indicator C.2.1.1. *The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:*

- (a) the Doctoral School regulation;*
- (b) the admission regulation;*
- (c) the doctoral studies contract;*
- (d) the study completion regulation including the procedure for the public presentation of the thesis;*
- (e) the content of training program based on advanced academic studies;*
- (f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;*
- (g) the list of doctoral students within the domain with necessary information (year of registration; advisor);*
- (h) information on the standards for developing the doctoral thesis;*
- (i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.*

From the internal evaluation report it appears that information on:

- doctoral school regulations,
- admission regulations,
- doctoral studies contract,
- the regulations for the completion of studies, including the procedure for the public defence of the thesis,
- the content of training programmes based on advanced university studies,
- the academic and scientific profile and thematic areas/research topics of the doctoral supervisors in the field, as well as their institutional contact data,
- list of PhD students in the field with basic information (year of enrollment, leader),
- information about the standards for the elaboration of the doctoral thesis,



- links to abstracts of doctoral theses to be defended publicly, as well as the date, time, place where they will be defended, at least 20 days before the defense.

Recommendations: It is also recommended to publish the information in English too.

The indicator is fulfilled.

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

Doctoral students have access to the resources needed to carry out their doctoral studies in good conditions.

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

All PhD students of IOSUD - Ucv have free access to a platform (portal) of academic databases, some being among the most significant for the fields of their doctoral studies. The access is made through the platform provided by the Association of Universities, Research-Development Institutes and Central University Libraries of Romania "ANELIS PLUS". Relevant sources in the field of Computers and Information Technology include: Science Direct Freedom Collection, Springerlink Journals, Institute Of Physics Journals, Web Of Knowledge (WoS, Journal Citation Reports, Derwent Innovations Index), SCOPUS, IEEE / IET Electronic Library (IEL) and so on.

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator C.2.2.2. Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.

Each PhD student has access, upon request and with the consent of the doctoral supervisor, to an electronic system for verifying the degree of similarity with other existing scientific or artistic creations, respectively the Sistemantiplagiat.ro program, recognized by CNATDCU.

The connection to the system is made by accessing sistemantiplagiat.ro, and the theses are compared with the databases available for the system and a Similarity Report is issued. The similarity ratio indicates the percentage of fragments identified, as well as their exact length and source. The similarity report is analyzed and interpreted by the scientific supervisor together with the PhD student.

There are no specific recommendations.

The indicator is fulfilled.



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

The access of PhD students to scientific research laboratories or other facilities, according to the internal regulations, is provided in the doctoral study contracts.

Among the facilities that PhD students in the field of study Computers and Information Technology have, are access to a research center / laboratory in full internal restructuring in 2021 (CERCA - Interdisciplinary Research Center in Computers, Automation and Robotics) which has in its structure CATI Research Laboratory (Computers and Information Technology). In addition, there are two other existing research centers within INCESA: Laboratory of Formal Intelligence Integration in Analysis, Testing and Certification of Computer Infrastructures and Laboratory of Computer Engineering.

At the justified request of the PhD students, with the recommendation of the PhD supervisor, the access to the other laboratories of the University of Craiova can be ensured, depending on the specifics and needs of their research activities.

At the same time, students have access to the Library of the University of Craiova, an integrated part of the national higher education system that participates in the scientific research process from the university.

There are no specific recommendations.

The indicator is fulfilled.

Criterion C.3. Internationalization

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

The UCV Doctoral School demonstrates internationalisation.

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

The field of Computers and Information Technology through the School of Doctoral Studies Constantin has concluded incoming and outgoing mobility agreements with universities and research institutes abroad presented in Anexa_C.3.1.1.

Students enrolled in the School of Doctoral Studies "Constantin Belea", field of Computer and Information Technology, have completed internships abroad or mobility in participation in international scientific



conferences or summer schools. Of the 11 PhD students in internship, at least 5 participated in international conferences or training courses.

The ratio between the number of these PhD students (5) and that of PhD students in internship (11) is over 45%, so it exceeds 35%.

CRITERION MET \geq 35%

There are no specific recommendations.

The indicator is fulfilled.

Performance Indicator C.3.1.2. *In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.*

The Faculty of Automation, Computers and Electronics is a co-organizer of the International Conference on System Theory, Control and Computing, technically co-sponsored by the IEEE Control Systems Society, a conference that invites prominent personalities each year to give lectures to PhD students .

Also, special sessions are organized dedicated to PhD students and young researchers, an example being the Round Table session: Young Researchers Meetup in Control Engineering and Computer Science within ICSTCC 2020.

In 2021, a workshop dedicated to the PhD students of the School of Doctoral Studies “Constantin Belea” will be organized: 1st International Doctoral Workshop on Advanced Approaches in Robotics, Control and Computing - A2RC2. During this workshop prestigious lectures such as Andrzej BARTOSZEWICZ (Institute of Automatic Control, Lodz University of Technology, Poland), Paolo MERCORELLI (Control and Drive Systems Unit, Institute of Product and Process Innovation, Leuphana University of Lüneburg, Germany), Sorin Olaru (CNRS Laboratory of Signals and Systems, CentraleSupélec, Paris-Saclay University, France), Ramon VILANOVA I ARBOS (Department of Telecommunication and Systems Engineering, Autonomous University of Barcelona, Spain) agreed to give a lecture.

There are no specific recommendations.

The indicator is fulfilled.

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

In order to raise the level of activities within the doctoral studies and to intensify the internationalization activities, in the Council of the Doctoral School “Constantin Belea” was included starting with 2016, an international specialist in one of its fields:

Prof. dr. Silviu NICULESCU, France



The increase of the number of foreign doctoral students in the field of CTI of SDCB was also possible by attracting them to some projects and topics of interest, through discussions during the participation in inter-university events. In 2018, PhD student Faiq Baji Sabbar, from Baghdad, Iraq, defended his thesis under the coordination of Prof. Dr. Eng. Mihai Mocanu, thesis confirmed by CNATDCU, and PhD students Humam Majeed and Hussein Aqeel Mohammed are in the extension period for writing their doctoral thesis, respectively in the training stage. All three participated in events at the Polytechnic University of Bucharest, or even attended courses in Bucharest, before enrolling in doctoral studies at our university.

One of the directions for promoting internationalization is to conclude new Erasmus + contracts and projects, such as those presented in point C.3.1.1, through which to organize thematic events and to invite foreign specialists to the advisory and doctoral committees of theses.

Another measure to intensify internationalization is to attract associate researchers from the University of Craiova, from traditional university centers abroad, who can train a better dynamic of the doctoral school.

Recommendations: it is recommended: to invite specialists from foreign institutions in the committees for the mentoring and thesis defense, as well as to participate in educational fairs to attract international PhD students.

Also in the direction of internationalisation, measures such as:

- Initiatives to increase the number of foreign PhD students in the field of Computers and Information Technology;
- Attracting UPT associate researchers from traditional university centres abroad, who can drive a better dynamics of the doctoral school.

The indicator is fulfilled.

IV. SWOT Analysis

<u>Strengths:</u>	<u>Weaknesses:</u>
<ul style="list-style-type: none"> - The experience of the teaching staff in the field of CTI doctoral studies, with a high international visibility. - CTI graduates are highly qualified specialists in demand by higher education, research institutes and company R&D departments. - PhD students have a very good level of training, with results disseminated in impactful publications, as well as a very good collaboration with PhD supervisors. - The material base has modern facilities, equipment, laboratories, library. - Development of collaboration with strong companies in the field i Craiova. 	<ul style="list-style-type: none"> - Low number of places in the budget given the increased attractiveness in the field: additional places should be requested from IOSUD / Ministry. -Lack of a clear strategy to attract foreign PhD students and researchers. - Lack of mechanisms to to invite international experts to lecture in the field.

<ul style="list-style-type: none"> - Provide funding to support scientific work. -Collaboration with industrial partners. -Well-defined workflow for admission and monitoring of PhD students. - Great international research work. 	
<p><u>Opportunities:</u></p> <ul style="list-style-type: none"> - National and European policy in which the development of the field of Computers and Information Technology is considered a priority. - Increasing openness towards the industrial environment. - Attracting foreign PhD students from Europe, but also from Asia and North African countries. - Competitive advantage of the region to attract students from neighbouring countries (Serbia, Bulgaria). -Systematic innovation management through patent filing and IPR (Intellectual Property Rights). 	<p><u>Threats:</u></p> <ul style="list-style-type: none"> - Competition from similar fields of study at national and European level. - Decreasing interest of young people in doctoral technical higher education, coupled with the rising cost of living. - Reduced national funding for research, with consequences for teachers and PhD students. - Relatively small number of PhD supervisors: however, obtaining habilitation and affiliation of new supervisors is affected by the higher minimum habilitation standards than in other engineering fields. -Financial support may not be attractive to talented graduates who prefer to pursue PhD studies abroad. -Research activities overlap with other doctoral schools raises questions about sustainability and attracting sufficient numbers of students.

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations
1		A.1.1.1	Fulfilled	It is recommended to update the Doctoral School website on a permanent basis. Some pages should be translated into English.
2		A.1.1.2	Fulfilled	-
3		A.1.2.1	Fulfilled	-
4		A.1.2.2	Fulfilled	-
5		A.1.3.1	Fulfilled	-
6	*	A.1.3.2	Fulfilled	-
7	*	A.1.3.3	Fulfilled	It is recommended to separate the incomes of the field of study Computers

				and Information Technology to see more clear the amounts
8	C	A.2.1.1	Fulfilled	-
9	C	A.3.1.1	Fulfilled	-
10	*	A.3.1.2	Fulfilled	-
11		A.3.1.3	Fulfilled	-
12	*	A.3.1.4	Fulfilled	A better distribution of PhD students among the PhD supervisors in the field of Computers and Information Technology is recommended in order to cover the demand as evenly as possible
13	C	A.3.2.1	Fulfilled	-
14	*	A.3.2.2	Fulfilled	-
15	*	B.1.1.1	Fulfilled	It is recommended that the CTI PhD field improves its ability to attract students coming from other higher education institutions, including from abroad
16	*	B.1.2.1	Fulfilled	-
17		B.1.2.2	Fulfilled	-
18		B.2.1.1	Fulfilled	-
19		B.2.1.2	Fulfilled	-
20		B.2.1.3	Fulfilled	-
21		B.2.1.4	Fulfilled	-
22	C	B.2.1.5	Fulfilled	-
23	C	B.3.1.1	Fulfilled	It is recommended that PhD students submit their research results for publication mainly to journals with an impact factor
24	*	B.3.1.2	Fulfilled	the Faculty should adopt a strategy where research results are presented in excellent international events supported by scientific organizations such as IEEE, ACM, etc.
25	*	B.3.2.1	Fulfilled	-
26	*	B.3.2.2	Fulfilled	-
27		C.1.1.1	Fulfilled	-
28	*	C.1.1.2	Fulfilled	-
29	C	C.2.1.1	Fulfilled	It is also recommended to publish the information in English too
30		C.2.2.1	Fulfilled	-
31		C.2.2.2	Fulfilled	-

32		C.2.2.3	Fulfilled	-
33	*	C.3.1.1	Fulfilled	-
34		C.3.1.2	Fulfilled	-
35		C.3.1.3	Fulfilled	<p>it is recommended: to invite specialists from foreign institutions in the committees for the mentoring and thesis defense, as well as to participate in educational fairs to attract international PhD students.</p> <p>Also in the direction of internationalisation, measures such as:</p> <ul style="list-style-type: none"> - Initiatives to increase the number of foreign PhD students in the field of Computers and Information Technology; - Attracting UPT associate researchers from traditional university centres abroad, who can drive a better dynamics of the doctoral school

VI. Conclusions and general recommendations

The present periodic external evaluation report was conducted for the evaluation of the Doctoral Studies Area Computers and Information Technology (CTI), Doctoral School (DS), IOSUD University Craiova.

From the analysis carried out on the Internal Evaluation Report, following the meetings held at all levels, as well as from the on-site visit to inspect the teaching and research infrastructure, it emerged that overall the Computers and Information Technology doctoral degree area has a clear and well-defined mission, well thought-out objectives and programmes, successfully responding to growing market needs, being an interdisciplinary doctoral programme providing highly qualified specialists for research-development-innovation and educational work in higher education institutions, research institutes and R&D departments of companies in the field.

Doctoral students have access to a properly dimensioned research infrastructure of the Doctoral School, benefiting also from a university library with extensive bibliographical resources, including online, as well as the support of a modern research infrastructure. Doctoral students also have access to additional financial resources.

The IOSUD-UCV Doctoral School for Computers and Information Technology comprises 3 PhD supervisors, with a good international visibility.

All quality indicators related to the standards and evaluation criteria are met.



As general recommendations, it was found that the existing potential for internationalisation and linking with other institutions outside Romania should be developed. More international students should be attracted , cotutelle and academic relations with international experts should be created.

Also, public-private partnerships with companies oriented towards RDI activity in the field of Computing and Information Technology should be expanded so as to exploit the existing opportunity in the industrial environment.

I am satisfied with the overall doctoral training programme. The faculty has designed and implemented an interested PhD program in the field of Computers and Information Technology.

Research results have been published both at international conferences and in impact factor or BDI journals.

Few weaknesses have been identified that should be addressed to grow the PhD community and produce excellent scientific results.

Budapest, 2023. april 18.

International Evaluator

Dr. habil. Gabor Kiss PhD.