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**THE DOCTORAL SCHOOL OF ENGINEERING SCIENCES  
THE DOCTORAL STUDY DOMAIN: MATERIALS ENGINEERING**

**INTERNAL EVALUATION REPORT**



July 2021

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No. institution registration .....

No. ARACIS registration .....

**Doctoral study domain: METERIALS ENGINEERING**

# **INTERNAL EVALUATION REPORT**

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Stamp

*The data contained in this Report are complete, correct and in accordance with the principles of professional ethics*

## **ABBREVIATIONS**

ARACIS - Romanian Agency for Quality Assurance in Higher Education

CC\_NANOMECH – Nanomaterials Research Centre for Mechanical Microsystems

CC\_SASM – Research Centre Academic School of Materials Science

CNATDCU – National Council for the Accreditation of University Degrees, Diplomas and Certificates

FIMM – Faculty of Materials and Mechanical Engineering

ICSTM – Institute for Multidisciplinary Scientific and Technological Research

POS DRU - Sectoral Operational Programme Human Resources Development

SDSI – Doctoral School of Engineering Sciences

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## 1. GENERAL INFORMATION

### 1.1 The Doctoral School managing the doctoral study domain

The Doctoral School of Engineering Sciences (SDSI) was founded in 2012 by the UVT Senate Resolution no. 105D/09.03.2012 on the reorganization of the UVT Doctoral School into an Organizing Institution for Doctoral Studies (IOSUD) with two Doctoral Schools, with 3 doctoral fields, each. SDSI organizes PhDs in the fields of **Electrical Engineering, Materials Engineering and Mechanical Engineering**.

The Doctoral School Council (CSD), constituted according to the Methodology for the election of the members of the Doctoral School Council and the appointment of the Doctoral School Director, has the following composition: Prof.Ph.D. Dinu COLTUC (UVT), Ph.D. Corneliu Gabriel BUICĂ (UVT), Prof.Ph.D. Gheorghe BREZEANU (U.P.B.), Prof.Ph.D. Corneliu RUSU (U.T.C). The Director of SDSI is Dinu COLTUC. From May 12, 2021, Prof.Ph.D. Rodica-Mariana ION has taken over the position of CSUD Director of IOSUD-UVT ([Annex 6](#)).

The mission of SDSI is to provide doctoral education at IOSUD-UVT in the fields of Electrical Engineering, Materials Engineering and Mechanical Engineering and to ensure the formation of highly qualified specialists for the labor market: higher education, research and development.

An annual quality assurance program is developed and implemented at IOSUD level with objectives that contribute to the achievement of the objectives set at UVT level. The system of quality objectives focuses on the following areas: quality management, continuing education/training, scientific research and academic creation, national and international cooperation. For each objective, actions, deadlines, responsibilities, performance indicators and resources are specified. The system of quality objectives set at IOSUD level is reviewed annually. The degree of achievement of the objectives is assessed annually and the IOSUD QMS Review Report is produced. The degree of achievement of the proposed objectives is assessed on the basis of the analysis of performance indicators. The internal audit of the quality management system within IOSUD is conducted annually and is performed by internal auditors under the coordination of the Quality Assessment and Assurance Compartment, the results of which are recorded in the form of a Report. The internal audit is carried out on the basis of the annual program approved by the University Senate and the audit plan. The quality management system at UVT is certified ISO 9001:2015. The external audit for the supervision of the QMS is realized by AEROQ Bucharest.

The provisions of the Code of Ethics and Professional Deontology of the UVT are applied at the SDSI. The UVT has an Ethics Committee that monitors compliance with the Code of Ethics and investigates cases of breaches of professional ethics and proposes the necessary measures to the UVT management. The reports of the Ethics Committee are made public on the university website <http://www.valahia.ro/ro/comisia-de-etica>.

Are 12 Ph.D. supervisors working in SDSI, 4 in Electrical Engineering, 5 in Materials Engineering, and 3 in Mechanical Engineering. Of the 12 supervisors, 6 are full professors at UVT (two-thirds) and 6 are associate professors. We should mention the national and international visibility of our Ph.D. supervisors and their experience in research work. We underline that in each of the three fields, SDSI has Ph.D. supervisors recognized by the international community and with prestigious achievements. There are 40 Ph.D. students enrolled at SDSI, 16 Ph.D. students in Electrical Engineering, 14 in Materials Engineering and 10 in Mechanical Engineering.

SDSI-IM Ph.D. students have unrestricted access to the research and documentation infrastructure of UVT, respectively IOSUD, Institute for Multidisciplinary Scientific and Technological Research (ICSTM), Faculty of Materials Engineering and Mechanics. ICSTM brings together the institutionally accredited Research Centre of the university. The research infrastructure covers 6270 m<sup>2</sup> of floor area and 2220 m<sup>2</sup> of built area and includes 33 laboratories, 1 amphitheater, and technological spaces. ICSTM is equipped with modern computing technology and modeling

and design software. Among the most representative equipment with which ICSTM laboratories are equipped, we list the Photovoltaic Experimental Platform, Wind Experimental Platform, Thermosolar Experimental Platform, PV Module Development and Prototyping System, Coupled Plasma and Mass Spectrometry (ICP-MS), Sputtering Dielectric and Electrical Vacuum Deposition Facility, Electron Microscope (SEM) equipped with Focused Ion Beam (FIB), Atomic Force Microscope (AFM), LASER Ablation System, Nanoindenter. The laboratories perform structural analysis, quantitative analysis, morphological and structural determinations, surface topography assessment (2D/3D), electrical characterization, and design and prototyping services.

## 1.2 Materials Engineering Domain

The Materials Engineering domain was founded in Valahia University of Targoviste in 2001 by OM no. 3333/08.03.2000. At the time of its establishment, the field had three Ph.D. supervisors, namely Prof.Ph.D. Nicolae IONITA, Prof.Ph.D. Gheorghe IONITA and Prof.Ph.D. Florea OPREA. Prof.Ph.D. Gheorghe IONITA received the title of Ph.D. supervisor by O.M. 5203/23.11.2000, Prof.Ph.D. Nicolae IONITA by O.M. 3982/11.06.2001, Prof.Ph.D. Zorica BACINSCHI and Prof.Ph.D. Nicolae ANGELESCU by O.M. 3823/03.05.2006, Prof.Ph.D. Rodica Mariana ION by O.M. 2400 of 15.10.2007 and Prof.Ph.D. Aurel GABA by O.M. 6046/02.12.2009. Currently, the field of Materials Engineering has five PhD supervisors (Prof.Ph.D. Rodica Mariana ION, Prof.Ph.D. Nicolae ANGELESCU, Prof.Ph.D. Gheorghe IONITA, Prof.Ph.D. Vasile BRATU and Assoc.Prof.Ph.D. Ildiko PETER), with Prof.Ph.D. Vasile BRATU (OM 4276 of 08.08.2018) and of Assoc.Prof.Ph.D. Ildiko PETER by O.M. no. 3789/04.06.2018.

Materials Engineering is one of the three fields of the Doctoral School of Engineering Sciences (SDSI), created in 2012 through the reorganization of the UVT Doctoral School into IOSUD, by Law 1/2011.

### SDSI-IM OBJECTIVES

- Creating an education pole of excellence and research for Materials Engineering;
- Training of specialized human resources for high-level activities with a strong research component;
- Increasing the national and international visibility of UVT;
- Ensuring the necessary conditions for participation in international training and research programs in the field.

**THE MISSION** of the Ph.D. program in materials engineering is didactic and research, i.e. to deepen the knowledge acquired by the students during the master's cycle and to train specific scientific research skills.

#### Teaching mission:

- Training doctoral students to obtain the knowledge and skills necessary for research in the field of Materials Engineering;
- Training the skills needed to develop and manage scientific research projects in Materials Engineering and related fields;
- Critical thinking skills in the objective evaluation of research results;
- Education of the doctoral students in the ethics of scientific research;
- Training of specialists for highly qualified labor market insertion.

#### Scientific research mission:

- Participates in national and international competitions and research programs;
- Produces new knowledge in Materials Engineering and related fields;
- Pursues dissemination of knowledge;

Establishes scientific collaboration links with universities, research institutions from other countries in order to develop scientific work and research, etc.

**THE SDSI-IM CURRICULUM** spans 3 years and includes the Advanced Study Program (30 transferable credits) and the Scientific Research Programme (150 transferable credits). The advanced studies program comprises 3 specialist courses recommended by the Ph.D. supervisor depending on the subject of the thesis and the Ph.D. candidate's background (courses or individual study based on a recommended bibliography containing mandatory recent articles in the field) and two general interest subjects, *Ethics and Academic Integrity and Research Methodology*. Each discipline ends with a colloquium to check the acquisition of competences (knowledge of the fields, synthesis, critical analysis, evaluation of results, etc.). The curriculum also provides for three reports to present the progress of the research, the preparation and defense of the doctoral thesis. The SDSI-IM curriculum is presented in [Annex 14](#).

### 1.2.1. PH.D. SUPERVISORS

The field operates with 5 Ph.D. supervisors (CVs are attached in [Annex 1](#)). Although the number is relatively small, the national and international visibility of our Ph.D. supervisors and, last but not least, their experience in research work should be underlined. Below, we present some significant aspects of the work of the five Ph.D. supervisors.

**Rodica-Mariana ION** ([Annex 1.1](#)) is a Professor of Nanomaterials at the Faculty of Materials and Mechanical Engineering and Director of the Research Centre for Nanomaterials for Micromechanical Systems (NANOMECH) at Valahia University, Targoviste, Romania. Since 2021, Prof.Ph.D. Rodica-Mariana ION has taken over the position of CSUD Director of IOSUD-UVT. She has initiated research in nanoparticle surface design and engineering and functional nanosystems for drug delivery, nanoparticles, and nanomedicine, as well as photodynamic cancer therapy as a new method for treating premalignant dermatological cancers, but also in the field of archaeometry and applications of nanomaterials in the conservation and restoration of cultural heritage objects. She is a Ph.D. supervisor (since 2007) at the Doctoral School of Engineering Sciences - **Materials Engineering** field at this university and has 17 PhDs awarded and another 9 in various stages of their Ph.D. training.

**She is a member of the Scientific Committee on Health, Environment and Emerging Risks of the European Commission, and at the Ministry of National Education, National Council for the Recognition of University Diplomas, Degrees and Certificates, member of the "Materials Engineering" Commission for the evaluation of assessment theses, habilitation theses, and various professional degrees.**

**She is reviewer la 25 ISI Journal:** Polyhedron, Journal of Photochemistry & Photobiology, B: Biology, Journal of Materials Science and Engineering A & Journal of Materials Science and Engineering B, Journal of Biological Inorganic Chemistry, Materials, Solar Energy Materials, and Solar Cells, Materials Chemistry and Physics, Inorganica Chimica Acta, Ecotoxicology and Environmental Safety, Photochemical & Photobiological Sciences, Nanomedicine, Nanoscale, ACS Applied Nano Materials, Micro & Nano Letters, Applied Physics & Engineering, Journal of the American Chemical Society, etc.).

She is also an **expert reviewer** in nanochemistry, nanomedicine, and materials science projects for government bodies, research councils, and private organizations worldwide. As a frequent speaker of English and French, Prof. Rodica Mariana Ion has given over **300 invited speeches and lectures at national and international conferences in Europe.**

Prof. Rodica Mariana ION is the author of more than **340 publications, 7 books/book chapters in international publishers, 21 books/book chapters in national publishers, h-index of 30 (Google Scholar), 23 on Scopus and 22 on ISI Web of Knowledge)**, project director and member of over 30 international and national projects. He is also the author of **33 national and European patents**. She has been **Visiting Professor/Scientific Researcher** at several laboratories, such as the Department of Physics, University of Poznan (Poland), Marie-Curie University, Paris (France), University of Lisbon (Portugal), Istanbul Technical University (Turkey), etc. She has

received more than **100 national/international awards** and has more than **1600 citations** in the literature. In the 2018 Valahia University of Targoviste awarded her the title of **OPERA OMNIA for her entire scientific activity**.

**Nicolae ANGELESCU** ([Annex 1.2](#)) has a background in Materials Engineering, with an advanced specialization in ceramics. Nicolae Angelescu is Professor at Valahia University of Targoviste (since 1995), Head of the Department of Materials Science (2002), Deputy Director of the Department of MEIR (2004 - 2012), Ph.D. Supervisor (since 2006) at the Doctoral School of Engineering Sciences - **Field of Materials Engineering** at this university. He was an Associate Professor at the Polytechnic University of Bucharest (2002 - 2005) where he established and developed the Ceramic Biomaterials Course. He was Principal Researcher gr. I and Head of Laboratory at the Metallurgical Research Institute of Bucharest (1972-2012). He was associate editor of *Researches Metallurgical*. He is associate editor of the *International Journal of Concrete Technology and Scientific Bulletin of Valahia University Materials and Mechanics*. *Is member of the executive board for the International Association for Concrete Technology - IATC* (2003).

He is a Member of the Romanian Ceramic Society, the Romanian Metallurgical Society, and Romanian Biomaterials Society. He has lectured, by invitation, at the following universities: M.S.R. Institute of Technology Bangalore, INDIA (2006, 2008 and 2009), Sri Jayachamarajendra College of Engineering, Mysore - INDIA, (2006, 2008 and 2009), Engineering College - Department of Building and Civil Engineering, Copenhagen - Denmark (2007), Indian Institute of Engineering Science and Technology, New Delhi, India (2008), Indian Institute of Science, Bangalore, India (2009), Indian Institute of Technology Madras, India (2009), Blaise Pascal University Clermont-Ferrand, France (2010). **He has coordinated as director numerous basic and applied research projects in national and international research programs**. He is the holder of **19 patents** (of which 10 are industrially applied). He is the author of more than **160 published papers** (34 in ISI-listed journals), more than **60 scientific communications, and 11 treatises** (course support and 2 laboratory guides).

He has won 5 research projects in international competitions as project manager (3 of them with application profile from which the Preheater at Assiut II Cement Factory (Egypt) was built according to his own solution, accompanied by the export of 10.000 tons of special ceramic materials, as well as a fundamental research project with M.S.R. Institute of Technology Bangalore, INDIA. He is nominated in 20 international Scientific and Personality Encyclopedias. He has **24 International Titles and awards conferred**. In 2017 Valahia University of Targoviste awarded him the title of **Doctor Honoris Causa**.

**Gheorghe IONITA** ([Annex 1.3](#)) is trained in Materials Science and Engineering, Fundamentals of Ferrous and Non-Ferrous Alloy Processing, Liquid State and Solidification of Metallic Alloys, Amorphous Materials, Resistive Materials, Nanomaterials, Composite Materials, Environmental Engineering, and Ecotechnologies. From 1971 to 1993, he was employed as an Engineer Inspector General of the Technical Department in the Ministry of Machine-Building Industry (Ministry of Industry) in Bucharest and he was a scientific collaborator at the Polytechnic University of Bucharest, Faculty of Materials Science and Engineering.

He is a Professor at the Valahia University of Targoviste (since 1993), Dean of the Faculty of Materials Engineering, Mechatronics and Robotics (since 1995-2003), Pro-Rector (2003-2008), Ph.D. Supervisor (since 2000) at the Doctoral School of Engineering Sciences - Field of Materials Engineering at this university. His scientific research activity has been directed toward solving fundamental theoretical problems concerning the mechanism and kinetics of physicochemical processes as well as application-oriented problems concerning new wear-resistant materials and unconventional technologies and ecotechnologies. He has **published numerous scientific papers in recognized national and international journals** and has participated in international scientific events at home and abroad (over 100). He has published 11 specialized books in recognized publishing houses, has **3 patents, 14 awards, and distinctions, has participated as**

**member/director in 19 research grants, has carried out the editorial activity in 7 national journals**, Founding Member of the Scientific Association of the ROMANIAN SOCIETY OF BIOMATERIALS, (legal based on OG no. 26-2000) and **scientific reviewer of two books**.

**VASILE BRATU** ([Annex 1.4](#)) is a specialist in Materials Science and Engineering. University Professor since 1990 - present, Dean (2008-2020), Scientific Secretary (2002 - 2008), Pro-Dean (2001 - 2002), Professor (2014 - present), Associate Professor (2014 - present), Associate Professor (2014 - present), Head of works (1998 - 2004), Assistant Univ. (1993 - 1998), Chief Engineer of the Targoviste-COS (1990-1993), Ph.D. since 2003, Advocate at the Law Society Dambovita (2001-2002), Director of the Research Centre of the Academic School of Materials Science (2013-present). He has participated in 18 research contracts funded by National Research and Development Programs or by industrial enterprises and design institutes (of which 2 as responsible) one international research contract as director, one national contract as scientific director in the fields of Choice and production of materials, Special refractory materials, Process Theory, Process modeling and simulation, Structure and properties of special alloys, Interface phenomena, **scientific supervision of diploma projects and dissertation works, scientific referee in 10 Ph.D. committees, author and co-author of 50 ISI and BDI articles**, author and co-author of **18 published books, 6 CNCSIS awards** for articles published in ISI-listed journals, member of **11 scientific committees of national and international scientific events** (MECAHITECH, BRAMAT, ROMAT, SMMM), **ARACIS member**. He has attended in **four POSDRU projects**, as project activity leader/trainer/target group leader and in staff training programs (Leonardo da Vinci specialization program - Italy 2000; SOCRATES ERASMUS mobility programs: Spain 2006, France 2007, France 2009, Spain 2010, Italy 2012, Portugal 2014, Spain 2015, Portugal 2016, Greece 2017), he is a member: ARMR, SRR, SChR, editor-in-chief The Scientific Bulletin of Valahia University Materials and Mechanics, reviewer The Scientific Bulletin of Valahia University Materials and Mechanics, reviewer JOAM.

**Ildiko PETER** ([Annex 1.5](#)) is a Ph.D. in Materials Science and Technology, Laboratory Manager at the Department of Applied Science and Technology, Politecnico di Torino (Italy) from 2012-present. Since January 2000, she has been working at the Department of Materials Science and Chemical Engineering, Politecnico di Torino, where she has carried out teaching and continuous research. I. Peter has published papers in collaboration with researchers from different countries (Italy, UK, Ireland, Australia, France, Germany, Romania, and Hungary). She specializes in the determination of the basic structure (microstructure) of materials and its influence on macroscopic properties, microstructural characterization, different measurements of mechanical properties, thermal analysis, investigations of structural properties, etc. on materials by different instruments (microscopy, thermal analysis, tensile/compression, etc.). She have published scientific papers in recognized international journals as follows: **38 ISI papers, 75 BDI papers, have 3 patents, have won 5 grants** in international competitions, and have participated as an invited speaker in more than 10 international scientific events abroad. She have published **10 book chapters** in international publishing houses and has coordinated two study programs and **7 teaching manual**. She was chair of the international conference Materials Science and Technologies - RoMat 2016 Bucharest (Romania) 12/11/2016, member of the scientific committee of the international conference INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE & ENGINEERING, 9th edition, 4-7 March 2015, Transilvania University, Brasov - Romania, local chair for "Body Area NanoNETworks: Electromagnetic, Materials and Communications (BANN-EMC)" at the international conference (11th edition) in Body Area Networks (BodyNets) Torino, Italy 16-18 December, 2016, Co-organizer of the section "Functional Materials for Electromagnetic Applications" at the 17th edition of the international conference Electromagnetics in Advanced Applications, (ICEAA) and the 5th edition of -APS Topical Conference on Antennas and Propagation in Wireless Communications (IEEE APWC 2015) held in Torino, Italy on 7 - 11 September, 2015, is an Associate Editor of IEEE Access (2015-2017) and **reviewer for 5 ISI**

**journals:** Journal of Surface and Coating Technologies, Journal of Materials Processing Technology, Energy & Fuels, Journal of Alloys and Compounds, Journal of Cleaner Production. He has more than **500 citations** in the literature.

### 1.2.2. DOCTORAL STUDENTS

Between 2016 and 2021, 4 theses have been defended; so far all have been confirmed. The table of defended theses, coordinators, and confirmed OM can be found in [Annex 2](#). Currently, out of the 4 graduates, 2 are teaching staff at the Faculty of Environmental Engineering and Food Science of Valahia University (University assistant Ph.D. VLADOIU R., Assoc.Prof.Ph.D. AVRAM D.), 1 (Senior researcher Ph.D. OLTEANU R.) is employed as a scientific researcher in the Institute for Multidisciplinary Scientific and Technological Research (ICSTM-UVT), one work at the Institute for Scientific Research and Technological Development for the Chemical and Petrochemical Industry - ICECHIM - Bucharest (Senior researcher III. Ph.D. IANCU L.).

Currently, 14 Ph.D. students are enrolled at SDSI-UVT at the field of Materials Engineering, 9 coordinated by Prof. Ph.D. Rodica Mariana ION, 3 by Prof. Ph.D. N. ANGELESCU, 1 by Prof.Ph.D. Ghe. IONITA and 1 by Assoc.Prof.Ph.D. Ildiko PETER. Among the 20 Ph.D. students who worked during the evaluated period, **6** were integrated into the research team of the national project "New technologies of diagnosis and treatment for the conservation and revitalization of archaeological components of the national cultural heritage - ARHEOCONS".

The evolution of the theses defended and the Ph.D. students admitted per year is shown in the table below.

	2016	2017	2018	2019	2020
<b>Theses defended</b>	-	1	-	1	2
<b>Ph.D. Students admitted</b>	2	2	3	6	2

### RESEARCH CENTRES/LABORATORIES

SDSI-IM Ph.D. students have unrestricted access to the research and documentation infrastructure of UVT, and IOSUD, the *Faculty of Materials and Mechanical Engineering (FIMM)* - [Annex 4.1](#) and the *Institute for Multidisciplinary Scientific and Technological Research (ICSTM)* - [Annex 4.2](#). SDSI-IM Ph.D. students are members of the ICSTM Research Centers where their Ph.D. supervisors conduct their research activities, respectively the *Research Centre for Nanomaterials for Mechanical Microsystems - CC\_NANOMECH* (Rodica Mariana ION), the *Research Centre "Academic School of Materials Science"* (Vasile BRATU).

✓ In CC\_NANOMECH, SDSI-IM PhD students mainly use the infrastructure of the laboratories:

- Laboratory B11 - Design, modeling and simulation in renewable energy systems - Catia, SolidWorks, Adams, Easy5, Any Body;
- Laboratory C15 - Physical and structural characterization of matter - Scanning Electron Microscope (SEM) - equipped with E-beam Lithography (EBL) module for electron beam photolithography and two analysis systems such as Energy Dispersive Spectroscopy (EDS) and Wavelength Dispersive Spectroscopy (WDS);
- Laboratory B03 - Physical and structural characterization of matter - NanoIndenter - NanoScratcher;
- Laboratory B05 - Prototyping and eco-design in renewable energy systems - Torsion and compression tensile testing system in static and dynamic regime, 3D scanner for reverse engineering, Catia, SolidWorks, Adams, Easy 5 software;

✓ *DOCTORAL SCHOOL OF ENGINEERING* holds Laboratory B13 - Software Technologies in Renewable Energy Systems Design, OriginPro, Comsol, Matlab, LabView, Catia 5,6, Adams, Easy 5;

✓ In *CC\_SASM*, Ph.D. students work in Laboratory C24 - Materials used in energy conversion - heat treatment furnaces;

- *Nanomaterials and Nanotechnologies Laboratory*: Specord M400 Spectrometer, M80 IR Spectrometer, Abbe Refractometer, CHEMICAL INSTRUMENT FOR SYNTHESIS OF NANOMATERIALS;

- *Vapour phase deposition Laboratory*: Rockwell Hardness Tester, Low Pressure Thin Film Deposition Facility;

- *Metallic materials Laboratory*: vertical optical microscopes type IOR Bucharest MC 6, machine for grinding and mechanical polishing of metallographic samples, prepared raw and finished metallographic samples, laboratory magnifiers, computer with interface for quantitative micro-structural analysis, IOR type device for photography attached to the metallographic microscope, Practika TTL type camera, photo laboratory;

- Modern Research Equipment and Technologies in Mechanical Engineering Laboratory - ICSTM: Reaction Station, Pneumatic Muscle Drive System, 3D Plastic Prototyping Machine;

In addition to the specific equipment briefly listed above, we also mention the good equipment with computing technology: high-performance servers and the access to the UVT Library's documentation resources, including electronic resources (<https://biblioteca.valahia.ro/resurse-online>).

Ph.D. students also have access to research facilities at other institutions under collaborative agreements established by SDSI. We mention access to ICECHIM resources, Bucharest: UV-Vis spectral techniques, FTIR, mechanical measurements, instrumentation, and glassware for working in chemical laboratories, porosity measurements, thermal analysis, chromatography, etc.

## THE MAIN SCIENTIFIC RESULTS

The scientific output of Ph.D. students in Materials Engineering during the evaluated period is: 4 book chapters (national and international), 72 articles published in ISI listed journals (including those published in ISI proceeding), 21 articles in BDI indexed journals, and 39 articles presented at international conferences, 19 awards, 5 patents granted and 11 patent applications. The full list of outstanding results is attached in [Annex 3](#).

During the period under evaluation, the SDSI-Materials Engineering Ph.D. students had several outstanding achievements. We mention below some of the Ph.D. students performances.

### Articles in ISI-listed journals Q1 (top 50%) and Q2 (top 25%)

1. **David, M.E.**; Ion, R.-M.; Grigorescu, R.M.; **Iancu, L.**; Holban, A.M.; Nicoara, A.I.; Alexandrescu, E.; Somoghi, R.; Ganciarov, M.; Vasilievici, G.; Gheboianu, A.I. *Hybrid Materials Based on Multi-Walled Carbon Nanotubes and Nanoparticles with Antimicrobial Properties, Nanomaterials* **2021**, *11*, 1415. (IF=4,324) – Q2;

2. Ramona Marina Grigorescu, Paul Ghioca, **Lorena Iancu, Madalina Elena Grigore**, Ramona Elena Andrei, Mircea Ioan Filipescu, Rodica Mariana Ion, Zina Vuluga, Ion Anghel, Ioana-Emilia Sofran, Cristian Andi Nicolae, Augusta Raluca Gabor, Anca Irina Gheboianu, Ioan Alin Bucurica, *Development of thermoplastic composites based on recycled polypropylene and waste printed circuit boards*, *WASTE MANAGEMENT*, 2020/12, 118, 391-401. (IF=5,5) – Q1;

3. R. M. Ion, B.A. Bakirov, S. E. Kichanov, D. P. Kozlenko, A. V. Belushkin, C. Radulescu, I. D. Dulama, I. A. Bucurica, A. I. Gheboianu, R. M. Stirbescu, S. Teodorescu, **L. Iancu, M. E. David**, R. M. Grigorescu, *Non Destructive and Micro Invasive Techniques for*

*Characterizing the Ancient Roman Mosaic Fragments*, Appl. Sci. 2020, 10, 3781; doi:10.3390/app10113781. (IF=2,474) – Q2;

4. **M. E. David**, R.M. Ion, R. M. Grigorescu, **L. Iancu**, E. R. Andrei, *Nanomaterials Used in Conservation and Restoration of Cultural Heritage: An Up-to-Date Overview*, Materials 2020, 13, 2064; doi:10.3390/ma13092064. (IF= 3,057) – Q2;

5. Ramona M. Grigorescu, Paul Ghioca, **Lorena Iancu**, **Madalina E. Grigore**, Rodica-Mariana Ion, Cristian-Andi Nicolae, Raluca Gabor, Mircea I. Filipescu, Maria Rapa, Roxana D. Trusca, Marius Ghiurea. *Impact strength elastomer composites based on polystyrene components separated from waste electrical and electronic equipment*. Journal of Applied Polymer Science 2020, 137 (5), 48329. <https://doi.org/10.1002/app.48329>. (IF=2,52) - Q2;

#### **Papers presented at selected conferences:**

1. **Sorescu Ana-Alexandra**, Nuta Alexandrina, Suica-Bunghez Ioana-Raluca, Ion Rodica-Mariana, Raditoiu Valentin, *Degradation of azo – dyes using green synthesized silver nanoparticles*, International Conference on Applied Sciences (ICAS 2020), May 20–22, 2020, Hunedoara, Romania (video presentation);

2. **A.A Sorescu**, A Nuta, R M Ion, *Allium ursinum - mediated one pot green synthesis of silver nanoparticles: Kinetics and degradation of azo – dyes*, 20th International Multidisciplinary Scientific GeoConference SGEM 2020, 16-25 august 2020, Albena, Bulgaria (video presentation);

3. **Ionut MARINA**, Sofia TEODORESCU, Rodica-Mariana ION, *POLYCHROMATIC ARTISTIC COMPONENTS AS INTERIOR DECORATIVE ELEMENTS FOR CONSTANTA CASINO MONUMENT*, The International Symposium «Priorities of Chemistry for a sustainable development – PRIOCHEM – XVI th edition, 28 – 30 October 2020, Bucharest, Romania;

4. R.M. Ion, **L. Iancu**, S. Teodorescu, I.D. Dulama, R.M. Stirbescu, A.I. Bucurica, A. Gheboianu, M.L. Ion, *Investigation and consolidation studies of different historical Romanian buildings*, EMRS Spring Meeting 2018 Symposium CC Cultural Heritage, 18-Strasbourg, Franța, 21.06.2018;

5. **Ana-Alexandra Sorescu**, Alexandrina Nuță, Rodica-Mariana Ion, Ioana-Raluca Șuică-Bunghez, *Green synthesis of silver nanoparticles using plant extracts*, The 4th International Virtual Conference on Advanced Scientific Results (SCIECONF-2016), Slovakia, June 6 - 10, 2016;

#### **AWARDS**

1. Ramona Marina Grigorescu, Paul Niculae Ghioca, **Lorena Iancu**, Zina Vuluga, Michaela Iorga, Rodica-Mariana Ion, Nelu Ion, **Madalina Elena Grigore**, Ramona Elena Andrei, Mircea Ioan Filipescu, George Ionut Radu, Bogdan Norocel Spurcaci, *Recycling method of the polystyrene fraction from waste electrical and electronic equipment as impact-strength polystyrene composite*; Diploma and Gold Medal, EUROINVENT 2020, Iasi;

2. Rodica Mariana Ion, Paul Niculae Ghioca, Ramona-Marina Grigorescu, **Lorena Iancu**, **Madalina -Elena David**, Nelu Ion, *Elastomeric films for the degradation of anti-tumor drug wastes in photocatalytic reactors*, Diploma and Gold Medal, EUROINVENT 2020, Iasi;

3. **Ana –Alexandra Sorescu**, Alexandrina Nuță, Rodica Mariana Ion, Nelu Ion, *Alginate microcapsules with encapsulated magnetite for photocatalytic degradation of anti-tumor drugs*, Diploma and Gold Medal, INVENTICA 2020, Iasi;

4. Rodica Mariana Ion, Paul Niculae Ghioca, Ramona-Marina Grigorescu, **Lorena Iancu**, **Madalina -Elena David**, Nelu Ion, *Elastomeric films for the degradation of anti-tumor drug wastes in photocatalytic reactors*, Diploma and Gold Medal, INVENTICA 2020, Iasi;

5. Rodica Mariana Ion, Paul Niculae Ghioca, Ramona-Marina Grigorescu, **Lorena Iancu**, **Madalina -Elena David**, Nelu Ion, *Elastomeric films for the degradation of anti-tumor drug wastes in photocatalytic reactors*, Diploma and Gold Medal - ProInvent International Invention Show, Cluj-Napoca, 2020;

6. Ion Rodica Mariana, **Lorena Iancu**, RM Grigorescu, **ME David**, N.Ion, *Compozitie de Chap co-substituita cu Sr si Zn pentru consolidarea obiectivelor de patrimoniu*, Diploma of Excellence and Gold Medal - Proinvent International Invention Show, Cluj-Napoca, 2020;

7. **Ana –Alexandra Sorescu**, Alexandrina Nuță, Rodica Mariana Ion, Nelu Ion, *Alginate microcapsules with encapsulated magnetite for photocatalytic degradation of anti-tumor drugs*, Diploma of Excellence and Gold Medal - Proinvent International Invention Show, Cluj-Napoca, 2020;

8. Ramona Marina Grigorescu, Paul Nicolae Ghioca, **Lorena Iancu**, Rodica-Mariana Ion, Nelu Ion, **Madalina Elena David**, Ramona Elena Andrei, Mircea Ioan Filipescu, Bogdan Norocel Spurcaci, *Recycling process of non-metallic wastes of printed circuit board and recovered polypropylene as impact strength composites*, Diploma of Excellence and Gold Medal - Proinvent International Invention Show, Cluj-Napoca, 2020;

9. Ion Rodica Mariana, Ion Nelu, **Iancu Lorena**, Radu Nicoleta, *Antifungal composition for restoration / preservation of wood artifacts, and method of use*, Diploma of Excellence and Gold Medal - Inventica 2020;

10. Ion Rodica Mariana, Ion Nelu, **Iancu Lorena**, Radu Nicoleta, *Antifungal composition for restauration/ preservation of wood artifacts, and method of use*, Diploma Silver medal, EUROINVENT 2019, Iasi;

11. Ramona Marina Grigorescu, Paul Nicolae Ghioca, **Lorena Iancu**, Zina Vuluga, Michaela Iorga, Rodica Mariana Ion, Nelu Ion, **Madalina Elena Grigore**, Ramona Elena Andrei, Mircea Ioan Filipescu, George Ionut Radu, Bogdan Norocel Spurcaci, *Recycling method of the polystyrene fraction from waste electrical and electronic equipment as impact-strength polystyrene composite*, Diploma/Bronze medal, EUROINVENT 2019, Iasi;

12. Ion Rodica Mariana, Grigorescu Ramona Marina, **Iancu Lorena**, Ghioca Paul Nicolae, Ion Nelu, *Polymeric compositions for the protection and conservation of wood surfaces and procedure for the application of them*, Diplomă/Bronze medal, EUROINVENT 2019, Iasi;

13. RM Ion, N.Ion, **L.Iancu**, N.Radu, *Compoziție antifungică, pentru restaurarea/conservarea artefactelor de lemn și procedeu de folosire*, Diploma of Excellence and Gold Medal - PROINVENT, Cluj-Napoca 2019;

14. RM Grigorescu, PN Ghioca, **L.Iancu**, Z.Vuluga, M.Iorga, RM Ion, N.Ion, **ME Grigore**, ME Andrei, MI Filipescu, GI Radu, BN Spurcaci, *Procedeu de reciclare a fractiei polistirenice din deseuri de echipamente electice si electronice sub forma de compozit polistirenice antisoc*, Diploma of Excellence and Gold Medal, PROINVENT, Cluj-Napoca 2019;

15. P.N. Ghioca, **L. Iancu**, B.N. Spurcaci, R.M. Grigorescu, M. Rapa M, C. Cincu, A. Pica, R. Gardu, E. Matei, A. M. Predescu, C. Predescu, *Obtaining process for high-impact strenght composites based on recovered polypropylene*, Diploma of Excellence, Euroinvent 2018, Iasi;

## PATENTS

### GRANTED PATENTS

1. Alexandrina Nuta, Valentin Raditoiu, **Ana Alexandra Sorescu**, Rodica Mariana Ion, *Process for obtaining fluorophores derived from 3-substituted benzocoumarin* RO131042B1/2020; <https://patentimages.storage.googleapis.com/91/15/a3/aad29ce742dcea/RO131042B1.pdf>

2. Ion Rodica Mariana; Nuță Alexandrina; **Sorescu Ana Alexandra**, Bunghez Raluca Ioana; *Solar dermal protection gel and process for preparing and using the same*, RO131024B1/2016, <https://worldwide.espacenet.com/patent/search/family/055801952/publication/RO131024A2?q=pn%3D%20RO131024>

3. Dimonie Olga Doina Afina, **Grigore Madalina**, Anton Liliana Rodica Elena, Constantin Virgil, Iovu Horia, Damian Celina, Vasile Eugeniu, Trusca Roxana, Rapa Maria, Trifoi Ancuta, *Composition and process for making renewable materials for short-lived biodegradable products*, RO132579 B1 BOPI 3/2020

<https://worldwide.espacenet.com/patent/search/family/062189512/publication/RO132579B1?q=RO132579%20B1&queryLang=en%3Ade%3Afr>

4. Ghioca Paul Niculae, **Iancu Lorena**, Spurcaci Bogdan Norocel, Grigorescu Ramona Marina, Rapa Maria, Cincu Cornel, Pica Alexandra, Gardu Radita, Ecaterina Matei, Predescu Andra Mihaela, Predescu Cristian, *Process for obtaining anti-shock composites of recovered polypropylene*, RO132386B1 BOPI 5/2020

<https://worldwide.espacenet.com/patent/search/family/061246775/publication/RO132386B1?q=RO132386B1&queryLang=en%3Ade%3Afr>

5. Ion Rodica Mariana, Nuță Alexandrina, **Sorescu Ana- Alexandra**, Bunghez Raluca Ioana, *Skin sunscreen gel and process for its production and use*, RO131024B1 BOPI12/2020  
<https://worldwide.espacenet.com/patent/search/family/055801952/publication/RO131024B1?q=RO131024B1&queryLang=en%3Ade%3Afr>

## PATENT APPLICATIONS

1. **Patent application – A 2020-00757/19.11.2020**, R.M. Ion, **L. Iancu**, R-M Grigorescu, **M-E David**, N. Ion, A. Nuta, **A-A Sorescu**, E. R. Andrei, *Photocatalyst with enhanced activity for textile dye degradation*;

2. **Patent application - A 2020-00300/29.05.2020**, R. M. Ion, **L. Iancu**, R.M. Grigorescu, **M.E. David**, N. Ion, *Carbonated hydroxyapatite composition co-substituted with strontium and zinc for the reinforcement of heritage sites*;

3. **Patent application – A 2020 -0080/17.02.2020**, RM Grigorescu, P. N. Ghioca, **L. Iancu**, R-M Ion, N. Ion, **M-E David**, E. R. Andrei, M. I. Filipescu, B. N. Spurcaci, *Process for recycling non-metallic printed circuit board scrap and recovered polypropylene in the form of impact-resistant composites*;

4. **Patent application – A2020-00029/23.01.2020**, **A.A. Sorescu**, A. Nuta, R.M. Ion, N. Ion, *Magnetite encapsulated in alginate microcapsules for photocatalytic degradation of anti-tumor drugs*;

5. **Patent application - A 2020-00030/23.01.2020**, R.M. Ion, P.N. Ghioca, R.M. Grigorescu, **L. Iancu**, **M-E. David**, N. Ion, *Elastomeric film for the degradation of antitumor drug waste in photocatalytic reactors*;

6. **Patent application – A2019- 00075/06.02.2019**, R.M. Grigorescu, P.N. Ghioca, **L. Iancu**, Z. Vuluga, M. Iorga, R.M. Ion, N. Ion, **M.E. Grigore**, R.E. Andrei, M.I. Filipescu, G.I. Radu, B.N. Spurcaci, *Process for recycling polystyrene fraction from waste electrical and electronic equipment in the form of impact-resistant polystyrene composite*;

7. **Patent application A2019 -00350/10.06.2019**, Fruth Opreșan Victor, Todan Ligia, Predoană Luminita, Poenaru Iuliana, Aricov Ludmila, Leontieș Anca, Ciobanu Elena, Petcu Gabriela, Ion Rodica Mariana, **Iancu Lorena**, Jecu Luiza Maria, Răut Iuliana, Calin Mariana, *Process for obtaining nanocomposite films for the protection of lithic architectural components of cultural heritage*;

8. **Patent application A2020-00029/23.01.2020**, **Sorescu Ana –Alexandra**, Nuta Alexandrina, Ion Rodica Mariana, Ion Nelu, *Alginate microcapsules with incorporated magnetite for photocatalytic degradation of antitumor drugs*;

9. **Patent application A2019 -00054/31.01.2019**, Ion Rodica Mariana, Ion Nelu, **Iancu Lorena**, Radu Nicoleta, *Antifungal composition for restoration/preservation of wooden artifacts, and method of use*;

10. **Patent application A2018-00319**, Ion Rodica Mariana, Grigorescu Ramona Marina, **Iancu Lorena**, Ghioca Paul Niculae, Ion Nelu, *Polymeric compositions for the protection and preservation of wood surfaces and process for their application*;

11. **Patent application A2016-00549/01.08.2016**, Ghioca Paul Niculae, **Iancu Lorena**, Spurcaci Bogdan Norocel, Grigorescu Ramona Marina, Rapa Maria, Cincu Cornel, Pica

Alexandra, Gardu Radita, Ecaterina Matei, Predescu Andra Mihaela, Predescu Cristian, *Process for obtaining impact-resistant composites of recovered polypropylene.*

## POST-DOC RESULTS:

### Projects earned by doctors in UVT:

- **SCIENTIFIC RESEARCHER DR.ENG. LET Dorin Dacian**, project **Horizon 2020, E-LAND - Novel solutions for decarbonised energy islands**, <https://elandh2020.eu/wp-content/uploads/2021/05/Pilot-Sheet-Romania.pdf>

### Participation of UVT PhDs in projects:

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: Project - Micro-structural and compositional characterization of supports and coating layers on different substrates applied in biomaterials, photoelectrochemicals catalysis and cultural heritage, teme code 04-4-1121-2015/2020, position nr. 46- ORDINUL IUCN Dubna nr. 269/20.05.2020;

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: Project- Micro-structural and compositional characterization of supports and coating layers on different substrates applied in biomaterials, photoelectrochemicals catalysis and cultural heritage. Teme code: 04-4-1142-2021/2025, position 48 of Order IUCN Dubna nr. 365/11.05.2021;

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: Proiectul - Air pollution assessment by neutron activation analysis and related atomic methods using biological indicators. Teme code: 03-4-1128-2017/2022, position 76 of Order IUCN Dubna nr. 365/11.05.2021

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: New diagnostic and treatment technologies for the conservation and revitalization of archaeological components of the national cultural heritage" (ARHEOCONS), funded by the Executive Unit for the Financing of Higher Education, Research, Development and Innovation (UEFISCDI) through the contract 51PCCDI/2018;

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: RO-NO-2019- 0691 - Granular activated algae technology for wastewater treatment and resources recovery, contract 27/2020;

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: Proiect - "Controlled Atmosphere for STOrage facilities of fruits and vegetables" [The controlled atmosphere for fruit and vegetable storage: multidisciplinary and low-cost solution] - CASTOL, funded by the Executive Unit for the Financing of Higher Education, Research, Development and Innovation (UEFISCDI) in the framework of the Experimental Demonstration Project competition (PN -III-P2-2.1.-PED-2019-5248), through contract 364PED2020;

- **SCIENTIFIC RESEARCHER DR.ENG. Olteanu R. (member)**: CNFIS-FDI-2020-0397 - D6 - Supporting excellent research in universities - Performance and excellence in multidisciplinary research (PerExcel);

- **SCIENTIFIC RESEARCHER III DR. Iancu L. (member)**: Project id: PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSTIC AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHAEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE – ARHEOCONS, 2018-2021;

A simple analysis of the results listed above leads to an average of about one thesis defended per year. For an engineering field with 5 Ph.D. supervisors, the annual average of thesis defenses is correct.

The analysis of Ph.D. students publications shows that more than 77% of the publications is ISI indexed, i.e., 72 articles out of 93. More than 29% of publications, 27, have first Ph.D. authors.

One aspect that must be mentioned is the existence of outstanding results obtained by Ph.D. students in Materials Engineering (articles published in red ISI journals, national and international awards, patents, books).

Obtaining such results is proof that the Doctoral School fulfills its mission and succeeds in training specialists for high-level research in Materials Engineering. Such results are also explained by the effort of the school and supervisors to integrate the Ph.D. students into research teams and of course by the continuous interaction between Ph.D. supervisors, mentoring committees, and Ph.D. students.

### **1.3 The functioning of the internal quality assurance system at the doctoral study domain level**

Quality objectives are set at the IOSUD level and focus on the following areas: quality management, continuing education/training, scientific research and academic creation, national and international cooperation. For each objective, actions, deadlines, responsibilities, performance indicators, and resources are specified. The system of quality objectives set at the IOSUD level is reviewed annually ([Annex 19.1](#)). To assess the degree of achievement of the proposed objectives, each academic year the IOSUD QMS Review Report is produced. The degree of achievement of the proposed objectives is assessed based on the analysis of performance indicators. The document also includes the outstanding achievements obtained and the promotion of IOSUD's image ([Annex 19.2](#)).

At the IOSUD level, the annual quality-training program is drawn up. The document outlines the topics to be covered by the planned training, the period of training, participants, and those responsible ([Annex 19.3](#)). The internal audit of the IOSUD's quality management system is carried out annually by internal auditors under the coordination of the Quality Assessment and Assurance Compartment and the results are documented in a report. The internal audit is carried out based on the annual program ([Annex 19.8](#)) approved by the University Senate and the audit plan ([Annex 19.4](#)).

The Doctoral School's quality management system includes the *M 04-Methodology for self-evaluation of IOSUD's work* ([Annex 19.5](#)), developed by CSUD, and procedures for evaluating doctoral students and supervisors, which are available on the university's website and are systematically applied. The quality management system in UVT was assessed in 2013 by EUA with a positive report ([Annex 19.6](#)). The quality management system at UVT is certified by ISO 9001:2015. The external surveillance audit of the QMS took place on November 17, 2020 and was carried out by AEROQ Bucharest, as a certification body, with nationally and internationally recognized experts ([Annex 19.7](#)).

## 2. THE INFORMATION NECESSARY TO EVALUATE THE EXTENT TO WHICH THE CRITERIA, STANDARDS AND PERFORMANCE INDICATORS

### A. INSTITUTIONAL CAPACITY

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

**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.**

**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 indicator is met.** IOSUD-UVT has developed and implemented the regulations, methodologies, and procedures necessary to operate in accordance with the legislation on the organization of doctoral studies (the documents are posted on the website <https://www.scoaladoctorala.valahia.ro/> and in [Annex 17](#)). We detail the required:

a) REG 01 - SDSI - Regulation of the UVT Doctoral School of Engineering Sciences, Edition 3, approved by the Senate of the Valahia University of Targoviste by HSU No. 61 E/29.01.2020, in force since: 29.01.2020 ([Annex 17.1](#)).

b) M08 - Methodology for electing the members of the Doctoral School Council and appointing the Director of the Doctoral School ([Annex 17.2](#)), approved by Approved HS 22Q/27.04.2017.

- The SDSI Director is appointed by the CSUD for a 5-year term (art 2, M08) and under art 14.9 HG 681. The Director of SDSI is Dinu COLTUC.

- Elections for the appointment of the doctoral member CSD-SDSI were held in 2017 in two rounds, respectively on 7.07.2017 and 14.07.2017, the elected representative being Mr. Liviu OLTEANU. The elections were validated by the UVT Senate by Resolution no. 27 of 31.07.2017. Due to the vacancy, by-elections were held in 2021 on 13.04.2021 and 15.04.2021, with Mr. Corneliu Gabriel BUICĂ as an elected representative. The elections were validated by the UVT Senate by Resolution no. 26 of 22.04.2021. The minutes of the elections can be found in [Annex 5](#).

c) methodologies for the organization and conduct of doctoral studies (admission of doctoral students, completion of doctoral studies):

- REG 10 - *Institutional regulations for the organization and conduct of doctoral degree programs at Valahia University of Targoviste* revised and approved by the Senate of the Valahia University of Targoviste on 31.01.2019 ([Annex 17.3](#)).

- - M11 - Methodology for the organization of admission to doctoral studies, approved by the Senate of the Valahia University of Targoviste on 26.04.2018 (HS 10B), effective from: 26.04.2018 ([Annex 17.4](#)).

- - PO 07.28 Organisation and conduct of admission to the doctoral degree cycle, approved by the Monitoring Commission on 2 April 2018, approved by the Senate of the Valahia University of Targoviste on 26.04.2018 ([Annex 17.5](#)).

- - PO 07.26 *Completion of doctoral studies*, advised by the Monitoring Commission on 2 April 2018, approved by the Senate of the Valahia University of Targoviste on 26.04.2018 ([Annex 17.6](#)).

- OP 07.43 Completion of doctoral studies using alternative teaching methods ([Annex 17.7](#)).

d) the existence of mechanisms for recognizing the status of doctoral supervisor and the equivalence of doctorates obtained in other countries;

- *PO 07.37 Recognition of doctoral degree obtained abroad*, advised at the Monitoring Committee meeting of 06.12.2018, approved at the University Senate meeting of 19.12.2018 ([Annex 17.8](#)).

- *PO 07.38 Recognition of the status of doctoral supervisor obtained abroad*, advised at the meeting of the Monitoring Committee on 06.12.2018, approved at the meeting of the University Senate on 19.12.2018 ([Annex 17.9](#)).

e) functional management structures (Doctoral School Council), including proof of the regularity of the convening of meetings:

- The CSD - SDSI is constituted according to the *Methodology for electing the members of the Doctoral School Council and appointing the Director of the Doctoral School* and has the following composition ([Annex 17.10](#)): Dinu COLTUC (Director, UVT), Corneliu Gabriel BUICA (doctoral candidate SDSI), Gheorghe BREZEANU (U.P.B.), Corneliu RUSU (U.T.C). The CSD governing structures meet as often as necessary (at least twice a year). The minutes of the period under review are presented in [Annex 7](#).

f) The doctoral study contract is presented in [Annex 8](#).

g) The training program based on advanced university studies is regulated in Art. 8-Art. 10 of REG 01 - SDSI ([Annex 17.1](#)).

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

**The indicator is met.** The regulations of the Doctoral School of Engineering Sciences of the Valahia University of Targoviste address the issues in Art. 17 (5) of GD 681/2011 as amended ([Annex 17](#)). Thus:

a) the acceptance of new doctoral supervisors is regulated in Art. 7.1, and retreat of the membership of the Doctoral School in Art. 7.2.;

b) the program of doctoral studies is regulated in Art. 8-Art. 10;

c) the change of doctoral supervisor is discussed in Art.13.7-13.9, and the mediation of conflicts in Art.13.5-13.6;

d) the discontinuation of the doctoral program is set out in Art.14.3-14.6;

e) prevention of fraud in scientific research, including plagiarism is discussed in Art. 13.10-13.12, Art. 20.17;

f) access of doctoral students to research and documentation resources is set out in Art. 13, Art. 15.g;

g) Art. 17.2 specifies that doctoral studies at SDSI are full-time or part-time, and Art. 15.2.b specifies that the doctoral student must carry out the activities set out in the individual plan of doctoral studies under the conditions of a frequency established by the supervisor.

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

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

**The indicator is met.** IOSUD uses UMS (University Management System), an integrated software product developed by RedPoint Software Solutions ([https://rpss.ro/ro\\_RO/products/university-management-system/](https://rpss.ro/ro_RO/products/university-management-system/)). The product allows for the management of the entire cycle of studies, from admission to completion, and allows for integrating aspects related to the academic and teaching organization, the status of functions, as well as tools dedicated to processing and document management.

The product allows school management for the entire cycle, from admission to complete studies, and allows the integration of aspects related to academic and teaching organization, the status of functions, as well as tools dedicated to process and document management. UMS is currently used in 24 Romanian universities. UVT started to use UMS in 2011. In IOSUD, UMS has been used since 2018.

**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.**

**The indicator is met** - all Ph.D. theses are checked, since 2016, with [www.sistemantiplagiat.ro](http://www.sistemantiplagiat.ro). *Sistemantiplagiat.ro* is a text similarity detection program created in 2002 by the Polish company *Plagiat.pl*, launched in Romania in 2012.

*Sistemantiplagiat.ro* is in the list of programs recognized by CNATDCU for establishing the degree of similarity for scientific works, published in MENCS Order no. 3485 of March 24, 2016. Currently, the program is used by 54 universities (ASE, Univ. Bucharest, UMF, ATM, etc.). The program calculates two similarity coefficients: for the calculating similarity coefficient 1, all sentences discovered by the system in other documents are taken into account; for the calculating similarity coefficient 2, only sentences whose length exceeds the imposed limit are taken into account.

UVT has developed an anti-plagiarism checking procedure for undergraduate, dissertation, and doctoral work that sets out how to work and the limits for the two coefficients. The similarity report provided by the program is validated by the Ph.D. supervisor who analyses, in addition to the coefficient values, the relevance of fragments discovered by the system in other texts.

Moreover, since 2016, the similarity report is one of the parts of the Ph.D. file that is submitted electronically, with electronic signature, on the platform for the validation of the thesis by the CNATDCU.

**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.**

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

**The indicator is met.** There are currently two ongoing grants:

1. PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSIS AND TREATMENT TECHNOLOGIES FOR THE PRESERVATION AND REVITALIZATION OF THE ARCHEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021 obtained by the PhD supervisor Prof. dr. Rodica Mariana ION (financed PhD students Olteanu Liviu, Stirbescu Nicolae Mihail);

2. PN-III-P4-ID-PCE-2020-0404, Ti-based implant with modified surface and electromagnetic structures, obtained by Prof. Ildiko Peter (PhD student Dumitru Alina).

Other projects obtained by PhD supervisors in the field are:

#### **International projects**

✚ A METHOD BASED ON NANOMATERIALS FOR CONSERVATION OF PAPER AND WOOD ARTIFACTS, 2016-2018, Director Prof.univ.dr. Rodica Mariana ION, <https://uefiscdi.gov.ro/userfiles/file/CAPACITATI/Bilaterale/RO-ZA/Competitie%202014/Lista%20propuneri%20de%20proiecte%20acceptate%20la%20finantare%20Romania-Africa%20de%20Sud%20202016.pdf>

✚ 2018-2021: UE COST CA17021- Correlated Multimodal Imaging in Life Sciences (18TCOMULIS18T), <https://www.cost.eu/actions/CA17121/#tabs|Name:overview>

✚ 2014-2018: CM1202 - Supramolecular photocatalytic water splitting (PERSPECT-H2O), <https://www.cost.eu/actions/CM1202/#tabs|Name:overview>

#### **National projects**

1. PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSTIC AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHAEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2020;

2. PN-III-P4-ID-PCE-2020-2024, Partner team leader, Ti-based implant with modified surface and electromagnetic structures;

3. PNII-PT-PCCA-2013-4-0831, Contract no. 261/2014, INNOVATIVE TECHNIQUES AND MATERIALS FOR THE CONSERVATION/RESTORATION OF STUCCO AND DECORATIVE MASONRY ELEMENTS IN HERITAGE BUILDINGS;

4. Project coordinator PN-III-P2-2.1-CI-2017-0599: INNOVATIVE SOLUTION FOR OPAQUING AND PHOTOCHEMICAL PROTECTION OF SURFACES PAINTED WITH ACRYLIC PAINTS, 2017 - 2017;

5. Project coordinator PN-II-PT-PCCA-2011-3.2-1640, AN INTEGRATED APPROACH FOR REINFORCEMENT OF HISTORICAL CHALK MONUMENTS BY MEANS OF NANOMATERIALS-BASED TREATMENT - A REVOLUTIONARY CONCEPT, 2012 - 2016;

6. Partner team leader PN-III-P2-2.1-BG-2016-0443: APPLIED INTERDISCIPLINARY IMPLEMENTATION AND TOXICOLOGICAL EVALUATION OF NEW PHARMACEUTICAL FORMULATIONS OF CAPSAICIN, 2016 - 2018;

7. Partner team leader PN-II-PT-PCCA-2013-4-0831:TECHNIQUES AND INNOVATIVE MATERIALS FOR CONSERVATION/ RESTORATION OF STUCCO WORKS AND DECORATIVE MASONRY FROM HERITAGE BUILDINGS, 2014 - 2017;

8. Partner team leader PN-II-PT-PCCA-2013-4-1386, INNOVATIVE ARCHITECTURES OF CONTROLLED DRUG RELEASED SYSTEMS BASED ON HESPERIDIN AND RELATED FLAVONOIDS FOR CHRONIC LEG ULCERS WOUNDS TREATMENT, 2014 - 2017.

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

**The indicator is met.** Of the 14 SDSI-IM Ph.D. students, 7 have received more than 6 months of other funding. Thus, Ph.D. students receive funding from research grants. The exact funding situation is presented below.

1. **David (Grigore) Madalina: member in the project** PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSIS AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALISATION OF ARCHEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021 and PNIII-567PED, 2020-2022;

2. **Sorescu Ana Alexandra: member in the project** PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSTIC AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHAEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

3. **George Teodorescu: member in the project** PN-III-P1-1.2-PCCDI-2017-0387, Contract nr. 80/2018 - Emerging technologies for the industrial valorization of 2D structures (graphene and non-graphene) - EMERG2Ind, 2018-2021;

4. **Andrei Vilcu – member in the project of the Institute for Nuclear Research - Pitesti;**

5. **Ionut Marina – member in the project** National Investment Company, Bucharest;

\*\*\* Concerning the funding from other sources of SDSI-IM Ph.D. students, we should also mention that out of the 4 Ph.D. students who defended their theses during the period evaluated, 2 (50%) received funding from research contracts, namely (Olteanu R. and Iancu L, from PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSIS AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

Also, two other Ph.D. students in the process of completing their Ph.D. thesis have been funded by research grants as follows:

1. **Olteanu Liviu: member in the project** PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSIS AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALISATION OF THE ARCHEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

2. **Stirbescu Nicolae-Mihail: member in the project** PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSIS AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALISATION OF THE ARCHEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

Ph.D. student	Amounts received from grants (lei)
<b>OLTEANU Liviu</b>	<b>134706 lei din 51PCCDI/2018</b>
<b>STIRBESCU Nicolae</b>	<b>70698 lei din 51PCCDI/2018</b>
<b>TEODORESCU George</b>	<b>122400 lei din 80PCCDI/2018</b>
<b>OLTEANU Radu</b>	<b>21985 lei din 51PCCDI/2018</b>
<b>SORESCU Alexandra</b>	<b>5831 lei din 51PCCDI/2018</b>
<b>IANCU Lorena</b>	<b>10667 lei din 51PCCDI/2018</b>
<b>TOTAL</b>	<b>372823,7 lei (33.41%)</b>

**\*A.1.3.3. At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).**

**The indicator is met.** The percentage of grants/fees allocated to doctoral students' training (participation fees for 6 conferences) is 17.1%. SDSI-IM has supplemented the aspect of funding from grants/fees of the UVT with funding from research contracts, which can be observed by examining the participation in scientific events (Indicator \*B.3.1.2) and the funding of Ph.D. students from other sources (Indicator \*A.1.3.2 and [Annex 9](#)).

On average, registration fees of 2000 - 3000 lei and actual travel expenses of 2500 lei were paid for participation in the conferences, in total 5000 lei per participant. In total  $6 \times 5000 = 30000$  lei per participant. In addition, several doctoral students traveled for training, with actual participation in conducting experiments and processing results, amounting to 6536,7 lei by doctoral students Liviu Olteanu and Nicolae Stirbescu. For publication fees, ranged from 1800 to 2000 Swiss Francs, i.e. 8550 lei per participant, in total 59850 lei.

The total amount allocated to training for all doctoral students was 96386.7 lei. To find out the percentage compared to the amounts of grants and tuition fees, we made the following calculation:

An average of 1,115,657 lei (51PCCDI/2018) was received from research grants for Valahia University, Targoviste. From this grant, the salary costs for Ph.D. students Stirbescu Nicolae and Olteanu Liviu were fully covered, and partially for Ph.D. students Olteanu Radu, Sorescu Alexandra, Iancu Lorena, and also travel costs.

We consider the budget allocation for engineering fields of RON 25.3 thousand and an average fee of RON 4.5 thousand (the fee at UVT varied in the range of RON 4-5 thousand). During the period under evaluation, 6 Ph.D. students were admitted to SDSI-IM on budget places and 8 on fee places. The budgetary allowance is paid for a period of 3 years. Considering the duration of 3 years also for fee-paying PhDs we obtain an amount of  $(6 \times 25.3 \times 3) + (3 \times 4.5 \times 8) = 563.4$  thousand RON. SDSI-IM doctoral students received **96386,7 RON** for training. The coverage percentage is 17.1%.

It should be noted that the SDSI has supplemented the aspect of funding from allocations/fees of the UVT by funding from other sources, i.e. from research contracts and various projects, which can be observed by examining the participation in scientific events (\*B.3.1.2) and the funding of Ph.D. students from other sources (\*A.1.3.2).

#### **Papers presented at selected conferences:**

**1. Sorescu Ana-Alexandra,** Nuta Alexandrina, Suica-Bunghez Ioana-Raluca, Ion Rodica-Mariana, Raditoiu Valentin, *Degradation of azo – dyes using green synthesized silver nanoparticles*, International Conference on Applied Sciences (ICAS 2020), May 20–22, 2020, Hunedoara, Romania (video presentation);

2. **A.A Sorescu**, A Nuta, R M Ion, *Allium ursinum* - mediated one pot green synthesis of silver nanoparticles: Kinetics and degradation of azo – dyes, 20th International Multidisciplinary Scientific GeoConference SGEM 2020, 16-25 august 2020, Albena, Bulgaria (video presentation);

3. **Ionut Marina**, Sofia Teodorescu, Rodica-Mariana Ion, *Polychromatic Artistic Components As Interior Decorative Elements For Constanta Casino Monument*, The International Symposium « Priorities of Chemistry for a sustainable development – PRIOCHEM – XVth edition, 28 – 30 October 2020, Bucharest, Romania;

4. R.M. Ion, **L. Iancu**, S. Teodorescu, I.D. Dulama, R.M. Stirbescu, A.I. Bucurica, A. Gheboianu, M.L. Ion, *Investigation and consolidation studies of different historical Romanian buildings*, EMRS Spring Meeting 2018 Symposium CC Cultural Heritage, 18-Strasbourg, Franta, 21.06.2018;

5. **Ana-Alexandra Sorescu**, Alexandrina Nuță, Rodica-Mariana Ion, Ioana-Raluca Șuică-Bunghez, *Green synthesis of silver nanoparticles using plant extracts*, The 4th International Virtual Conference on Advanced Scientific Results (SCIECONF-2016), Slovakia, June 6 - 10, 2016;

**Payments of registration or publication fees have been paid from:**

- **SCIENTIFIC RESEARCHER III Ph.D. Iancu L. (member)**: PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSTIC AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHAEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

- **SCIENTIFIC RESEARCHER Ph.D. Madalina Grigore (David)**: PN-III-P1-1.2-PCCDI-2017-0476, Contract no. 51/2018, NEW DIAGNOSTIC AND TREATMENT TECHNOLOGIES FOR THE CONSERVATION AND REVITALIZATION OF ARCHAEOLOGICAL COMPONENTS OF THE NATIONAL CULTURAL HERITAGE - ARHEOCONS, 2018-2021;

- **SCIENTIFIC RESEARCHER Ph.D. Olteanu R. (member)**: Proiectul: Micro-structural and compositional characterization of supports and coating layers on different substrates applied in biomaterials, photoelectrochemicals catalysis and cultural heritage. Theme code: 04-4-1142-2021/2025, position 48 of IUCN Dubna Order no. 365/11.05.2021;

- **SCIENTIFIC RESEARCHER Ph.D. Olteanu R. (member)**: Proiectul: Air pollution assessment by neutron activation analysis and related atomic methods using biological indicators. Theme code: 03-4-1128-2017/2022, position 76 of IUCN Dubna Order nr. 365/11.05.2021;

- **SCIENTIFIC RESEARCHER Ph.D. Olteanu R. (member)**: "New diagnostic and treatment technologies for the conservation and revitalization of archaeological components of the national cultural heritage" (ARHEOCONS), funded by the Executive Unit for the Financing of Higher Education, Research, Development and Innovation (UEFISCDI) through contract 51PCCDI/2018;

- **SCIENTIFIC RESEARCHER Ph.D. Olteanu R. (member)**: RO-NO-2019- 0691 Granular activated algae technology for wastewater treatment and resources recovery, contract 27/2020;

- **SCIENTIFIC RESEARCHER Ph.D. Olteanu R. (member)**; CNFIS-FDI-2020-0397 - D6 - Supporting excellent research in universities - Performance and excellence in multidisciplinary research (PerExcel);

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

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

**A.2.1.1. The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library,**

access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.

**The indicator is met.** SDSI-IM uses the UVT research infrastructure without restrictions. As presented in Section 1.2 of the report, SDSI-IM Ph.D. students have access to the laboratories of the ICSTM research centers and the Faculty of Materials and Mechanical Engineering.

We also mention unrestricted access to the UVT Library's documentation resources, including electronic resources (<https://biblioteca.valahia.ro/resurse-online>).

The research infrastructure is also presented on the website of the Doctoral School or the websites of the centers (ex. <https://fsim.valahia.ro/nanomec/>). UVT equipment and service offers are also presented on the ERRIS platform (<https://erris.gov.ro/Valahia-University-of-Targoviste>).

### **A.3. Quality of Human Resource**

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

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

**The indicator is met.** Four leaders meet all the criteria (R.M. Ion, V. Bratu, N. Angelescu, I. Peter), and the fifth (Gh. Ionita) partially meets the criteria, being in the stage of concluding the contract with the university. We underline that the scores of the 4 leaders are significantly higher than the minimum score (2 to 9 times) and all leaders are recognized researchers in the field ([Annex 10](#)).

**Minimum criteria: Prof.Ph.D. Rodica-Mariana ION ([Annex 10.1](#))**

- **A1.1.1 Books/chapters as author (for Professor minimum 2, of which 1 as first author):** total 28, of which 17 as first author - *criterion met*

- **A1.2.1. Teaching manuals, monographs, including electronic (for Professor minimum 2 of which 1 as the first author):** total 10, of which 7 as the first author - *criterion met*

- **A2.1. Articles in ISI Thomson-Reuters - Web of Science Core Collection [IF-impact factor] and ISI proceedings - Web of Science indexed volumes (for Professor minimum 15 articles, of which minimum 10 in ISI Th.R. indexed journals [of which minimum 5 with IF of min. 1 and minimum 5 as lead author, with IF of min. 0.5]:** total 190, of which 147 in ISI-listed journals, 73 with IF>1, and 14 as lead author in journals with IF min. 0.5 - *criterion met*

- **A2.4. Grants/research projects won through competition/Contracts with economic agents, min. 10000 Euro equivalent, received (for Professor minimum 2 as director/partner project leader):** total national/international projects 27/7, of which as director/partner project leader 19 national and 6 international - *criterion met*

- **A3.1 Citations in journals listed in ISI Thomson Reuters - Web of Science Core Collection [IF - Impact Factor] and in other IDBs (IF refers to the journal in which the citing article was published) (for Professor minimum 30):** total 1677, of which 1436 ISI citations and 241 BDI citations - *criterion met*

<i>Nr. crt.</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	631,07 points
2	Research activity (A2)	Minimum 320 points	3036,91 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	8125,89 points
4	TOTAL	Minimum 500 points	11793,87 points

**Minimum criteria: Prof. Ph.D. Vasile BRATU ([Annex 10.2](#))**

- **A1.1.1 Books/chapters as author (for Professor minimum 2, of which 1 as first author):** total 5, of which 2 as the first author - *criterion met*

- **A1.2.1. Teaching manuals, monographs, including electronic (for Professor minimum 2 of which 1 as the first author):** total 3, of which 2 as the first author - *criterion met*

- **A2.1. Articles in ISI Thomson-Reuters - Web of Science Core Collection [IF-impact factor] and ISI proceedings - Web of Science indexed volumes (for Professor minimum 15 articles, of which minimum 10 in ISI Th.R. indexed journals [of which minimum 5 with IF of min. 1 and minimum 5 as lead author, with IF of min. 0.5]:** total 25, of which 17 in ISI-listed journals, 8 with IF>1, and 5 as lead author (corresponding author) in journals with IF min. 0.5 - *criterion met*

- **A2.4. Grants/research projects won through competition/Contracts with economic agents, min. 10000 Euro equivalent, received (for Professor minimum 2 as director/partner project leader):** total national/international projects 18/1, of which as director/partner project leader 3 national and 1 international - *criterion met*

- **A3.1 Citations in journals listed in ISI Thomson Reuters - Web of Science Core Collection [IF - Impact Factor] and in other IDBs (IF refers to the journal in which the citing article was published) (for Professor minimum 30):** total 49 citations, of which 31 ISI citations and 18 BDI citations - *criterion met*

<i>Nr. crt.</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	99,60 points
2	Research activity (A2)	Minimum 320 points	617,53 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	512,15 points
4	TOTAL	Minimum 500 points	1229,28 points

**Minimum criteria: Assoc.Prof.Ph.D. Ildiko PETER ([Annex 10.3](#))**

- **A1.1.1 Books/chapters as the author (for Lecturer minimum 1):** total 9, of which 6 as the first author - *criterion met*

- **A1.2.1. Textbooks, monographs, including electronic (for Lecturer minimum 1):** total 3, of which 1 as the first author - *criterion met*

- **A2.1. Articles in ISI Thomson-Reuters - Web of Science Core Collection [IF-impact factor] and in ISI proceedings - Web of Science indexed volumes (for Lecturer minimum 10 articles, of which minimum 5 in ISI Th.R. journals [of which minimum 3 with IF min. 1 and minimum 2 as lead author, with IF min. 0.5]:** total 53, of which 18 in ISI journals, 14 with IF>1, and 4 as lead author in journals with IF min. 0.5 - *criterion met*

- **A2.4. Grants/research projects won through competition/Contracts with economic agents, min. 10000 Euro equivalent, cashed (for Lecturer minimum 1 as director/partner leader:** total national/international projects 6/2, of which as director/partner project leader 1 national and 2 international - *criterion met*

- **A3.1 Citations in journals listed in ISI Thomson Reuters - Web of Science Core Collection [IF - Impact Factor] and in other BDI (IF refers to the journal in which the citing article was published) (for Lecturer minimum 15):** total 31, of which 24 ISI citations and 9 BDI citations - *criterion met*

<i>Nr. crt.</i>	<i>Field of activity</i>	<i>Conditions Assoc.Prof.</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minim 30 points	98,68 points
2	Research activity (A2)	Minim 160 points	585,96 points
3	Recognition of the impact of the work (A3)	Minim 60 points	429,08 points
4	TOTAL	Minim 250 points	1113,72 points

**Minimum criteria: Prof.Ph.D. Nicolae ANGELESCU ([Annex 10.4](#))**

- **A1.1.1 /chapters as author (for Professor minimum 2, of which 1 as first author):** total 9, of which 6 as the first author - *criterion met*

- **A1.2.1. Teaching manuals, monographs, including electronic (for Professor minimum 2 of which 1 as the first author):** total 2, of which 1 as the first author - *criterion met*

- **A2.1. Articles in ISI Thomson-Reuters - Web of Science Core Collection [IF-impact factor] and ISI proceedings - Web of Science indexed volumes (for Professor minimum 15 articles, of which minimum 10 in ISI Th.R. indexed journals [of which minimum 5 with IF of min. 1 and minimum 5 as lead author, with IF of min. 0.5]:** total 34, of which 22 in ISI-listed journals, 2 with IF> 1, and 4 as lead author in journals with IF min. 0.5 - *criterion partially met*

- **A2.4. Grants/research projects won through competition/Contracts with economic agents, min. 10000 Euro equivalent, received (for Professor minimum 2 as director/partner project leader):** total national/international projects 136/5, of which as director/partner project leader 68 national and 5 international - *criterion met*

- **A3.1 Citations in journals listed in ISI Thomson Reuters - Web of Science Core Collection [IF - Impact Factor] and in other IDBs (IF refers to the journal in which the citing article was published) (for Professor minimum 30):** total 94 citations, of which 53 ISI citations and 41 citations BDI - *criterion met*

<i>Nr. crt.</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	258,20 points
2	Research activity (A2)	Minimum 320 points	1968,72 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	1737,82 points
4	TOTAL	Minimum 500 points	3964,74 points

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

**The indicator is met** - two of the 5 heads are IOSUD full-time employees at UVT (R.M. ION, V. BRATU), two are retired (N. ANGELESCU, Ghe. IONITA – in retreat) and one associate professor (I. PETER). We present in [Annex 11](#) the state of functions of SDSI.

**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.**

**Indicator is met.** The course on *Ethics and Academic Integrity* was given by Prof.Ph.D. Gheorghe GHEORGHIU (CV in [Annex 12.1](#)), from the Faculty of Law of UVT where he teaches courses on *Intellectual Property Law, Private International Law, Commercial Law*. Mr. Gheorghiu is a full member of the Romanian Academy of Legal Sciences (since 2015). In addition to his teaching activity, Mr. Gheorghiu is an industrial property advisor, intellectual property arbitrator, member of the scientific board of the *Romanian Journal of Intellectual Property Law*, and member of the editorial board of the journal *Dreptul*. From the academic year 2020-2021, the course of *Ethics and Academic Integrity* is held by Prof.Ph.D. Marius PETRESCU (CV in [Annex 12.3](#)), the Ph.D. supervisor at SDSEU.

The training program based on advanced undergraduate studies includes *Ethics and Academic Integrity, Research Methodology* and 3 specialist courses recommended by the Ph.D. supervisor depending on the subject of the thesis and the path of the Ph.D. student (master courses or individual study based on a recommended bibliography including recent articles in the field). For each discipline, doctoral students take a colloquium to check the acquisition of competencies (knowledge of the fields, synthesis capacity, critical analysis, capacity to evaluate results, etc. - the specific discipline sheets are presented in [Annex 15](#)). The curriculum also provides for three Research Progress Reports concluding with a colloquium in front of the mentoring committee. The CSD-SDSI recommends the inclusion of Ph.D. *students publications in the reports*, which allows the supervising committee to analyze the Ph.D. students progress in terms of problem formulation, hypothesis formulation, analytical skills, handling of mathematical apparatus, writing, and presentation.

The *Research Methodology Course* is taught by Prof.Ph.D. Vasile Bratu (CV in [Annex 12.2](#)), Ph.D. supervisor in Materials Engineering at SDSI or Prof.Ph.D. Nicolae Vasile, Ph.D. supervisor in Electrical Engineering. Both have a long experience in research. Prof. V. Bratu has participated in 18 research contracts funded by the National Research and Development Programmes or by industrial companies and design institutes (of which 2 as responsible), one international research contract as director, one national contract as scientific director. It should also be mentioned that Prof.Ph.D. N. Vasile was for 13 years (1992-2005) Director-General of the Institute for Electrotechnical Research (ICPE) Bucharest.

The other 3 specialist courses are recommended by the Ph.D. supervisor depending on the subject of the thesis and the Ph.D. candidates pathway. For doctoral students who have already taken the UVT master's courses, as a rule, the SDSI-IM Ph.D. supervisors specify individual studies based on a recommended bibliography, which must include recent articles in the field. We mention a few disciplines: Heritage Materials (R.M.Ion), Nanomaterials (R.M. Ion), Epistemology (N.Vasile).

**\*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 programs1 does not exceed 20%.**

**The indicator is met.** Only one Ph.D. supervisor supervises more than 8 Ph.D. students (Prof.Ph.D. Rodica Mariana ION has 9 Ph.D. students in training). The situation of the coordination of doctoral students in an internship is as follows: Prof.Ph.D. Gheorghe IONITA - 1 doctoral student, Prof.Ph.D. Nicolae ANGELESCU - 2 doctoral students, Assoc.Prof.Ph.D. Ildiko PETER - 1 doctoral student, and Prof.Ph.D. Vasile BRATU - 1 doctoral student.

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

**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 indicator is met.** Four of the 5 Ph.D. supervisors, Prof.Ph.D. Rodica Mariana ION, Prof.Ph.D. Vasile BRATU, Prof.Ph.D. Nicolae ANGELESCU, Assoc.Prof.Ph.D. Ildiko PETER, have representative Web of Science indexed publications and a very good international visibility. We list below five representative ISI articles (with impact factor) and elements of the international visibility of the four Ph.D. supervisors.

## **WEB OF SCIENCE INDEXED PUBLICATIONS**

### **Prof.Ph.D. RODICA MARIANA ION**

1. Constantin, C., Neagu, M., **Ion, R.M.**, Gherghiceanu, M., Stavaru, C., *Fullerene-porphyrin nanostructures in photodynamic therapy*; NANOMEDICINE, Volume: 5, Issue: 2, Pages: 307-317, 2010, DOI: 10.2217/NNM.09.111, **I.F. 6,202**;

2. Grigorescu, R.M., Ghioca, P., Iancu, L., David, M.E., Andrei, E.R., Filipescu, M.I., **Ion, R.M.**, Vuluga, Z., Anghel, I., Sofran, I.E., Nicolae, C.A., Gabor, A.R., Gheboianu, A., Bucurica, I.A., *Development of thermoplastic composites based on recycled polypropylene and waste printed circuit boards*; WASTE MANAGEMENT, Volume: 118, Pages: 391-401, 2020, DOI: 10.1016/j.wasman.2020.08.050, **I.F. 5,448**;

3. Neagu M, Constantin C, Tampa M, Matei C, Lupu A, Manole E, **Ion RM**, Fenga C, Tsatsakis AM., Toxicological and efficacy assessment of post-transition metal (Indium) phthalocyanine for photodynamic therapy in neuroblastoma, *Oncotarget*. 2016 Oct 25; Volume: 7, Issue: 43, Pages: 69718-69732, 2016, DOI: 10.18632/oncotarget.11942, **I.F. 5,168**;

4. Negrei, C., Hudita, A., Galateanu, B., Costache, M., **Ion, R.M.**, Ginghina, O., *Alginate microencapsulated capsaicin reduces inflammation and stimulates extracellular matrix production*

by dermal fibroblasts cells; FEBS JOURNAL, Volume: 284, Pages: 339-340, Supplement: 1, Special Issue: I, 2017, **I.F. 4,530**;

5. Constantin, C., Lupu, A.R., Fertig, T.E., Gherghiceanu, M., Pop, S., **Ion, R.M.**, Neagu, M., *Unveiling Ga (III) phthalocyanine-a different photosensitizer in neuroblastoma cellular model*, JOURNAL OF CELLULAR AND MOLECULAR MEDICINE, Volume: 23, Issue: 2, Pages: 1086-1094, 2019, DOI: 10.1111/jcmm.14009, **I.F. 4,486**.

#### **Prof.Ph.D. VASILE BRATU**

1. Rusanescu, CO; Rusanescu, M; Anghelina, FV; **Bratu, V**, *The influence of the micro-alloying elements on physical and structural characteristics of the some steel destined for manufacturing the oil pipes*, ROMANIAN REPORTS IN PHYSICS, Volume: 68, Issue: 1, Pages: 278-293, 2016, **IF = 1,467**;

2. **Bratu, V**; Mortici, C; Oros, C; Ghiban, N, *Mathematical model of solidification process in steel continuous casting taking into account the convective heat transfer at liquid-solid interface*, COMPUTATIONAL MATERIALS SCIENCE, Volume: 94, Pages: 2-7, Special Issue: SI, 2014, **IF = 2,131**;

3. Anghelina, FV; **Bratu, V**; Rusanescu, CO; Popescu, IN, *Mathematical model of horizontal divergence contribution to the integrated intensity of single crystal diffraction in XRD analysis of materials*, COMPUTATIONAL MATERIALS SCIENCE, Volume: 94, Pages: 142-149, Special Issue: SI, 2014, **IF = 2,131**;

4. Anghelina, FV; Popescu, IN; **Bratu, V**; Anghelina, CC; Rusanescu, CO, *Physical-mathematical model of Lorentz factor for the integrated intensity of single crystal diffraction*, COMPUTATIONAL MATERIALS SCIENCE, Volume: 94, Pages: 234-239, Special Issue: SI, 2014, **IF =2,131**;

5. Pop, N; Vladareanu, L; Popescu, IN; Ghita, C; Gal, A; Cang, S; Yu, HN; **Bratu, V**; Deng, MC, *A numerical dynamic behaviour model for 3D contact problems with friction*, COMPUTATIONAL MATERIALS SCIENCE, Volume: 94, Pages: 285-291 Special Issue: SI 2014, **IF =2,131**;

#### **Prof.Ph.D. NICOLAE ANGELESCU**

1. **Angelescu, N.**, *Some Considerations Regarding MoSi<sub>2</sub> Synthesis*, Ceramics International, 24(1), pp. 73-76, 1998, ISSN 0272-8842, **IF = 2.986**;

2. Avram, D., **Angelescu, N.**, Ungureanu, D., Ionita, I., Popescu, E. C. - *The structural and compositional evaluation of some calcium phosphate glasses with bioactive potential*, Revista de Chimie, 69, Nr. 6, 2018, **IF=1.412**;

3. Avram, D., **Angelescu, N.**, Ungureanu, D., Ionita, I., Gheboianu, A., Bancuta, L. - *Study of phosphocalcic glasses SiO<sub>2</sub> – CaO - P<sub>2</sub>O<sub>5</sub> system with and without silver I. Synthesis of glasses and characterization by WD – XRD*, Revista de Chimie, 68, Nr. 5, 2017, **IF=1.412**;

4. Avram, D., **Angelescu, N.**, Ungureanu, D., Bratu, V. Ionita, I., Gheboianu, A., Lungulescu, E.,M. - *Study of phosphocalcic glasses SiO<sub>2</sub> – CaO -P<sub>2</sub>O<sub>5</sub> system with and without silver II. The bioactivity analisis by FTIR, SEM methods and microbiological study of silver- doped Glasses*, Revista de Chimie, 68, Nr. 6, 2017, **IF=1.412**;

5. Avram, D., **Angelescu, N.**, Ungureanu, D., Bratu, V., Gheboianu, A., Bancuță, T. Setnescu, *Study on bioactivity of phosphocalcic glasses*, Journal of Optoelectronics and Advanced Materials, Vol. 18, No. 7-8, July - August 2016, p. 691 – 696, **IF=0.449**;

#### **Assoc.Prof.Ph.D. Ildiko PETER**

1. **Peter, I**; Agapie, M; Varga, B, *Dendritic Segregation of Zn-Al Eutectoid Alloys*, METALS, Volume: 8, Issue: 11, Article Number: 924, 2018, **IF = 1.704**;

2. Matekovits, L; Fortino, G; Wang, ZL; Ghasemzadeh, H; Loscri, V; **Peter, I**; Hamalainen, M, *Ieee Access Special Section Editorial: Body Area Networks*, IEEE ACCESS, Volume: 6, Pages: 30990-30995, 2018, **IF = 3.557**;

3. Matekovits, L; Su, YL; **Peter, I**, *On the radiation mechanism of implanted antennas with large conformal ground plane*, IET MICROWAVES ANTENNAS & PROPAGATION, Volume: 11, Issue: 12, Pages: 1765-1769, 2017, **IF = 1.739**;

4. Matekovits, L; Huang, J; **Peter, I**; Esselle, KP, *Mutual Coupling Reduction Between Implanted Microstrip Antennas on a Cylindrical Bio-Metallic Ground Plane*, IEEE ACCESS, Volume: 5, Pages: 8804-8811, 2017, **IF = 3.557**;

5. Loscri, V; Matekovits, L; **Peter, I**; Vegni, AM, *In-Body Network Biomedical Applications: From Modeling to Experimentation*, IEEE TRANSACTIONS ON NANOBIOSCIENCE, Volume: 15, Issue: 1, Pages: 53-61, 2016, **IF = 2.771**;

## **INTERNATIONAL VISIBILITY:**

### **Prof.Ph.D. Rodica-Mariana ION**

- **She is a member of the Scientific Committee on Health, Environment, and Emerging Risks of the European Commission;**

- **Member of the National Council for the Recognition of University Diplomas, Degrees and Certificates (CNATDCU), Ministry of National Education, Commission "Materials Engineering" for the evaluation of assessment theses, habilitation theses, and various professional degrees;**

- **Reviewer at 25 journals ISI:** Polyhedron, Journal of Photochemistry & Photobiology, B: Biology, Journal of Materials Science and Engineering A & Journal of Materials Science and Engineering B, Journal of Biological Inorganic Chemistry, Materials, Solar Energy Materials, and Solar Cells, Materials Chemistry and Physics, Inorganica Chimica Acta, Ecotoxicology and Environmental Safety, Photochemical & Photobiological Sciences, Nanomedicine, Nanoscale, ACS Applied Nano Materials, Micro & Nano Letters, Applied Physics & Engineering, Journal of American Chemical Society, etc.);

- **Expert reviewer** in nanochemistry, nanomedicine and materials science projects for government agencies, research councils and private organisations worldwide;

- **Over 340 publications, 9 books/chapters in international publishers, 21 books/chapters in national publishers, over 1600 citations and h-index of 30 (Google Scholar), 23 on Scopus and 22 ISI Web of Knowledge);**

- **Author of 35 national and 1 European patent.**

- **Visiting Professor/Research Scientist** at several laboratories, such as the Department of Physics of the University of Poznan (Poland), Marie-Curie University, Paris (France), University of Lisbon (Portugal), Istanbul Technical University (Turkey), etc.

- **She has received more than 100 national/international awards.**

- **In the 2018 Valahia University of Targoviste awarded her the title of OPERA OMNIA for her entire scientific activity.**

### **Prof.Ph.D. Nicolae ANGELESCU**

- **He was an Associate Professor at the Polytechnic University of Bucharest (2002 - 2005) where he founded and developed the Ceramic Biomaterials Course;**

- **He was Principal Researcher gr. I and Head of Laboratory at the Institute of Metallurgical Research Bucharest (1972-2012). He was associate editor of Metallurgical Research;**

- **Este editor asociat la International Journal of Concrete Technology și Scientific Bulletin of Valahia University Materials and Mechanics;**

- **Member of the executive board for International Association for Concrete Technology - IATC (2003) - Member of the executive board for International Association for Concrete Technology - IATC;**

- Member of the Romanian Society of Ceramics, the Romanian Society of Metallurgy, and the Romanian Society of Biomaterials;

- He has lectured, by invitation, at the following universities: M.S.R. Institute of Technology Bangalore, INDIA (2006, 2008 and 2009), Sri Jayachamarajendra College of Engineering, Mysore - INDIA, (2006, 2008 and 2009), Engineering College - Department of Building and Civil Engineering, Copenhagen - Denmark (2007), Indian Institute of Engineering Science and Technology, New Delhi, India (2008), Indian Institute of Science, Bangalore, India (2009), Indian Institute of Technology Madras, India (2009), Blaise Pascal University Clermont-Ferrand, France (2010);

- As a director, he has coordinated numerous **fundamental and applied research projects** in national and international research programs. He holds **19 patents** (10 of which are industrially applied). He is the author of more than **160 published papers** (34 in ISI-listed journals), more than **60 scientific communications, and 11 treatises** (course support and 2 laboratory guides);

- He has won 5 research projects in international competitions as project manager (3 of them with application profile from which the Preheater at Assiut II Cement Factory (Egypt) was built according to his own solution, accompanied by the export of 10.000 tons of special ceramic materials, as well as a fundamental research project with M.S.R. Institute of Technology Bangalore, INDIA, and 3 European Projects. He is nominated in 20 International Scientific and Personality Encyclopedias.

- Have **24 international titles and awards**.

- In the 2017 Valahia University of Targoviste awarded him the title of **Doctor Honoris Causa**.

#### **Assoc.Prof.Ph.D. Ildiko PETER**

- Ph.D. in Materials Science and Technology/Laboratory Manager at the Department of Applied Science and Technology, Politecnico di Torino (Italy) since 2012;

- I. Peter has published papers in collaboration with researchers from different countries (Italy, UK, Ireland, Australia, France, Germany, Romania, Hungary);

- She is specialized in determining the basic structure (microstructure) of materials and its influence on macroscopic properties, microstructural characterization, various measurements of mechanical properties, thermal analysis, investigations of structural properties, etc. on materials using different instruments (microscopy, thermal analysis, tensile/compression, etc.);

- **14 ISI papers** in journals with an impact factor above 1;

- **3 patents**;

- She won **2 grants** in international competitions and participated as a guest in 9 international scientific events abroad;

- She has published **9 book chapters** in recognized publishers and has coordinated two study programs;;

- **Reviewer at 5 ISI journals** : Journal of Surface and Coating Technologies, Journal of Materials Processing Technology, Energy & Fuels, Journal of Alloys and Compounds, Journal of Cleaner Production;

- **Associate Editor IEEE ACCESS**.

#### **Prof.Ph.D. Vasile BRATU**

- Ph.D. supervisor in Materials Engineering since 2018, he is a specialist in Materials Science and Engineering. University Professor since 2014, Dean (2008-2020), Scientific Secretary (2002-2008), Pro-Dean (2001-2002), Associate Professor. (2004 - 2014), Head of works (1998 - 2004), Assistant Univ. (1993-1998), Chief Engineer at COS Targoviste (1990-1993), Ph.D. since 2003, Lawyer at the Dâmbovița Bar Association (2001-2002), Director of the Research Centre of the Academic School of Materials Science (2013-present);

- He has participated in 18 funded research contracts (responsible for 2), 1 international research contract, scientific referee in **10 Ph.D. committees**, author and co-author of **50 ISI and BDI articles**, author and co-author of **18 published books**, **6 CNCSIS awards** for articles published in ISI listed journals, member of **11 scientific committees** of national or international scientific events (MECAHITECH, BRAMAT, ROMAT, SMMM), **ARACIS member**;

- He has participated in **four POSDRU projects**, as project activity officer/trainer/target group leader and in staff training programmes (Leonardo da Vinci specialisation programme - Italy 2000; SOCRATES ERASMUS mobility programmes: Spain 2006, France 2007, France 2009, Spain 2010, Italy 2012, Portugal 2014, Spain 2015, Portugal 2016, Greece 2017),

- Member: ARMR, SRR, SChR, editor-in-chief The Scientific Bulletin of Valahia University Materials and Mechanics, reviewer The Scientific Bulletin of Valahia University Materials and Mechanics, reviewer JOAM.

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

**The indicator is met** - 4 out of 5 PhD supervisors exceed at least 25%, based on the scientific results of the last five years, the score of the CNATDCU minimum standards ([Annex 13](#)). We present centralising tables for the four supervisors.

#### Points for the last 5 years 2016-2020

##### Prof.Ph.D. Rodica-Mariana ION ([Annex 13.1](#))

<i>Nr crt</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	12,47 points
2	Research activity (A2)	Minimum 320 points	870,32 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	3251,28 points
4	TOTAL	Minimum 500 points	4134,07 points

##### Prof.Ph.D. Nicolae ANGELESCU ([Annex 13.3](#))

<i>Nr crt</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	125,00 points
2	Research activity (A2)	Minimum 320 points	60,18 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	781,00 points
4	TOTAL	Minimum 500 points	966,18 points

##### Assoc.Prof.Ph.D. Ildiko PETER ([Annex 13.4](#))

<i>Nr crt.</i>	<i>Field of activity</i>	<i>Conditions Assoc.Prof.</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 30 points	108,95 points
2	Research activity (A2)	Minimum 160 points	304,07 points
3	Recognition of the impact of the work (A3)	Minimum 60 points	199,25 points
4	TOTAL	Minimum 250 points	612,28 points

**Prof.Ph.D. Vasile BRATU ([Annex 13.2](#))**

<i>Nr. crt.</i>	<i>Field of activity</i>	<i>Conditions Professor</i>	<i>Realized</i>
1	Teaching/professional activity (A1)	Minimum 60 points	40,00 points
2	Research activity (A2)	Minimum 320 points	47,46 points
3	Recognition of the impact of the work (A3)	Minimum 120 points	390,93 points
4	TOTAL	Minimum 500 points	478,39 points

## B. EDUCATIONAL EFFECTIVENESS

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

**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.**

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

**The indicator is met.** Four of the candidates enrolled in the last 5 years have not completed a Master's degree at UVT. The ratio is  $4/7 = 0.57 > 0.2$ . The indicator is also met considering the ratio between the number of candidates and the number of budget places, i.e.  $15/7 = 2.14 > 1.2$

The reported situation is shown in the tables below

Year	Number of Master's graduates from other higher education institutions registered for the entrance examination	Number of places funded from the state budget offered in the doctoral school
2016	0	1
2017	0	2
2018	1	1
2019	2	2
2020	1	1

Year	Number of candidates registered for the admission competition	Number of places funded from the state budget offered in the doctoral school
2016	2	1
2017	2	2
2018	3	1
2019	6	2
2020	2	1

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

**\*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 indicator is met.** Admission to doctoral programs for SDSI-IM is based on an oral examination, in which candidates present their academic, research, and professional performance, publications in the field, and present a proposal for a research topic for the doctoral thesis to the competition committee.

**B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission<sup>2</sup> does not exceed 30%.**

**The indicator is met.** The dropout rate in the first three years is **13.33%**, as shown in the table below.

University year	Nr. Doct.	Dropouts in the first two years after admission				
		2016 – 2017	2017 – 2018	2018– 2019	2019 – 2020	2020 – 2021
2016 – 2017	2	0	0	0	-	-
2017 – 2018	2	-	0	1	0	-
2018– 2019	3	-	-	0	0	0
2019 – 2020	6	-	-	-	0	1
2020 – 2021	2	-	-	-	-	0

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

**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.**

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

**The indicator is met.** The training program based on advanced undergraduate studies comprises four disciplines ([Annex 15](#)), namely, *Research Methodology* ([Annex 15.1](#)), two other specialist disciplines proposed by the supervisor (master courses or individual study based on the bibliography indicated by the supervisor, bibliography which must include recent articles relevant to the subject of the Ph.D. thesis and *Ethics and Academic Integrity* ([Annex 15.2](#), [15.3](#)).

**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 indicator is met.** The fourth subject in the advanced undergraduate-based training program is *Ethics and Academic Integrity*, which concludes with a colloquium. Course topics include introductory notions on ethics and morality, research ethics in Romania, correct writing of an academic paper, plagiarism and self-plagiarism, use of computer programs for plagiarism detection purposes, UVT code of ethics, and professional deontology (the subject sheet is presented in [Annex 15.2, 15.3](#)).

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

**The indicator is met.** For the subjects in the advanced degree-based training program, doctoral students take a colloquium to test the knowledge acquired (knowledge of the fields, synthesis skills, critical analysis, ability to evaluate results, etc. - the specific subject sheets are given in [Annex 15](#)). The educational plan also provides for three *Research Progress Reports* concluding with a colloquium in front of the tutoring committee. The CSD-SDSI recommends the inclusion of Ph.D. students' publications in the reports, which allows the supervision committee to analyze the Ph.D. student's progress in terms of problem formulation, hypothesis formulation, analytical skills, handling of mathematical apparatus, writing, and presentation.

**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.**

**The indicator is met.** The mentoring committees are made up of specialists in the field, UVT teaching staff, with whom the doctoral student meets regularly, and with whom he/she submits progress reports every year or less. We exemplify with joint publications of 4 Ph.D. students (in training or with theses defended during the period evaluated) with co-authors in the mentoring committees (4 out of 14 Ph.D. students at SDSI-IM represent **29%**):

**1. Radu Lucian Olteanu, co-authors:** Gabriel Gorghiu, **Laura Monica Gorghiu** (committee member), *“Introducing Responsible Research and Innovation Dimensions in Non-Formal Education Activities Dedicated To Industrial Application of Nanomaterials”*, Journal of Science and Arts, Volum 2, Nr. 2, pp. 331-340; 2017;

**2. Florin Toma, co-authors:** Nicolae Angelescu, Dan Nicolae Ungureanu, **Vasile Bratu** (committee member), *Special Refractory Concrete for Steel Ladle Equalization Layer*, Scientific Bulletin of Valahia University-Materials and Mechanics, Volum 17, Nr. 16, pp. 13-17, 2019;

**3. Florin TOMA, co-authors:** Elena Valentina STOIAN, Daniel ANCULESCU, Alexandru Gabriel COLȚA, Nicolae ANGELESCU, Vasile BRATU, **Dan Nicolae UNGUREANU** (committee member), *PROPERTIES AND STRUCTURE OF LOW-CEMENT CONCRETE ACCORDING TO ITS COMPOSITIONAL PARAMETERS*, The Scientific Bulletin of VALAHIA University MATERIALS and MECHANICS –Vol. 17, No. 17, pp. 33-36, 2019;

**4. Daniel Anculescu, co-authors:** Elena Valentina Stoian, Dan Nicolae Ungureanu, Florin Toma, Alexandru Gabriel Colța, Nicolae Angelescu, **Vasile Bratu** (committee member), *Special Binding for Refractory Concretes*, Scientific Bulletin of Valahia University - Materials and Mechanics, Vol 17, Nr.17, pp. 11-16, 2019;

**5. Alexandru Gabriel Colta, co-authors:** Elena Valentina Stoian, Dan Nicolae Ungureanu, Florin Toma, Daniel Anculescu, Nicolae Angelescu, **Vasile Bratu** (committee member), *Special*

**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 indicator is met.** The training of the 14 Ph.D. students enrolled at IM is provided by 10 teaching staff (5 Ph.D. supervisors, 2 more professors in the disciplines of Research Methodology, Ethics, and 7 other teaching staff in the mentoring committees, as follows: Prof.Ph.D. Lavinia BURULEANU, Prof.Ph.D. Tanța SETNESCU, Prof.Ph.D. Cornel MARIN, Prof.Ph.D. Radu SETNESCU, Assoc.Prof.Ph.D. Ildiko PETER, Prof.Ph.D. Nicolae ANGELESCU, Prof.Ph.D. Vasile BRATU), which amounts to a ratio of **14:14=1:1**.

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

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

**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.**

**Indicator is met.** The following is a list of the representative papers of Ph.D. students who have obtained their doctoral degrees in the last 5 years. The full papers are grouped in [Annex 16](#). We mention that articles 1.1 and 2.1 are published in ISI top 50% ranked journals (Q1, red) with impact factors 5.5 and 2.762 respectively. Article 1.2 is published in an ISI top 25% ranked journal (Q2, yellow) with an impact factor of 3.057. Doctoral students have also won important prizes at the ([Annex 16-1.3](#), [Annex 16-1.4](#)).

**1. Lorena IANCU**

**1.1.** Ramona Marina Grigorescu, Paul Ghioca, **Lorena Iancu**, Madalina Elena Grigore, Ramona Elena Andrei, Mircea Ioan Filipescu, Rodica Mariana Ion, Zina Vuluga, Ion Anghel, Ioana-Emilia Sofran, Cristian Andi Nicolae, Augusta Raluca Gabor, Anca Irina Gheboianu, Ioan Alin Bucurica, *Development of thermoplastic composites based on recycled polypropylene and waste printed circuit boards*, WASTE MANAGEMENT, 2020, 118, 391-401; **(IF=5,5) – Q1**

**1.2.** M.E. David, R.M. Ion, R. M. Grigorescu, **L. Iancu**, E. R. Andrei, *Nanomaterials Used in Conservation and Restoration of Cultural Heritage: An Up-to-Date Overview*, Materials 2020, 13, 2064; doi:10.3390/ma13092064; **(IF= 3,057) – Q2**

**1.3.** Rodica-Mariana Ion, Ramona Marina Grigorescu, **Lorena Iancu**, Paul Niculae Ghioca, Nelu Ion, Diploma of Excellence and Gold Medal, *Polymeric compositions for the protection and conservation of wood surfaces and procedure for the application of them*, Inventica 2020, The 24th International Exhibition of Inventions, Iasi, Romania.

**1.4.** Rodica Mariana Ion, Paul Niculae Ghioca, Ramona-Marina Grigorescu, **Lorena Iancu**, Mădălina Elena David, Nelu Ion, Diploma and Gold Medal, *Elastomeric films for the degradation of anti-tumor drug wastes in photocatalytic reactors*, Euroinvent 2020, Iasi, Romania.

**1.5. Lorena Iancu**, Rodica-Mariana Ion, Ramona Marina Grigorescu, **Madalina Elena David**, Marius Ghiurea, Gabriel Vasilievici, Raluca Maria Stirbescu, Ioana Daniela Dulama, *Double Substituted Carbonated Hydroxyapatite For Stone Consolidation*, Journal of Science and Arts Year 20, No. 3(52), pp. 713-730, **2020 - Q4**

## **2. Radu Lucian OLTEANU**

**2.1.** Radulescu, C.; Buruleanu, L.C.; Nicolescu, C.M.; **Olteanu, R.L.**; Bumbac, M.; Holban, G.C.; Simal-Gandara, J., *Phytochemical Profiles, Antioxidant and Antibacterial Activities of Grape (*Vitis vinifera L.*) Seeds and Skin from Organic and Conventional Vineyards*, PLANTS-BASEL, Volume: 9, Issue: 11, Article Number: 1470, 2020; (**IF= 2,762**) – **Q1**

## **3. Daniela AVRAM**

**3.1. Avram, D**; Angelescu, N; Ungureanu, DN; Gheboianu A; Bancuta, I; Setnescu, T, *Study on bioactivity of phosphocalcic glasses*, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS, Volume: 18, Issue: 7-8, Pages: 691-696, 2016; (**IF= 0,631**)

**3.2. Avram, D**; Ungureanuz, D; Angelescu, N; Ionita, I; Gheboianu, A; Bancuta, I; Popescu, EC, *The Structural and Compositional Evaluation of Some Calcium Phosphate Glasses with Bioactive Potential*, REVISTA DE CHIMIE, Volume: 69, Issue: 6, Pages: 1424-1428, 2018, **IF = 1.412**;

## **4. Roxana VLADOIU**

**4.1. Vladoiu, R**; Ion, RM; Teodorescu, S; Stirbescu, RM; Dulama, ID, *Silver Nanoparticles Biosynthesis in Crop Extracts*; JOURNAL OF SCIENCE AND ARTS, Issue: 3, Pages: 723-732, 2019;

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

**The indicator is met with  $2.5 = 10/4$ .** We present below the 10 participations in international events:

1. Rodica – Mariana Ion, Alexandrina Nuta, Madalina Elena David, Ana-Alexandra Sorescu, **Lorena Iancu**, Ramona Grigorescu, *Direct Orange via  $TiO_2$  assisted catalysis*, International Symposium The Environment and the Industry, E-SIMI 2020, 24 September 2020, Bucharest, Romania (poster);

2. A. G. Oporan, S. F. Vasile, **L. Iancu**, R.M. Ion, R.M. Stirbescu, D. G. Vasile, *Consolidation of acrylic and oil-based paintings with cellulose nanofibers*, International Symposium Priorities of Chemistry for Sustainable Development, PRIOCHEM - XVI edition, 28-30 October 2020, Bucharest;

3. **L. Iancu**, R.M. Ion, R. M. Grigorescu, P.N. Ghioca, B. Spurcaci, M. E. David, R.E.Andrei, M. Ghiurea, R. M. Stirbescu, A. Bucurica, *Carbonated hydroxyapatite substituted with magnesium for stone consolidation*, International Symposium Priorities of Chemistry for Sustainable Development, PRIOCHEM - XVI edition, 28-30 October 2020, Bucharest;

4. Madalina Elena David, Ramona Marina Grigorescu, **Lorena Iancu**, Elena Ramona Andrei, Rodica-Mariana Ion, *Poly(3-HydroxyButyrate-co-3-HydroxyValerate) based Inorganic Consolidate for Firwood Preservation*, 9th CONFERENCE ON MATERIALS SCIENCE & ENGINEERING, UgalMat 2020, Galati, 8-9 decembrie 2020;

5. M.E. David, R.-M. Ion, R.M. Grigorescu, **L.Iancu**, E.R. Andrei, R. Somoghi, A.N. Frone, R.M. Stirbescu, *Chemical synthesis of multi-walled carbon nanotubes and their*

*functionalization with carboxylated groups*, International Symposium Priorities of Chemistry for Sustainable Development, PRIOCHEM - XVI edition, 28-30 October 2020, Bucharest;

6. **R. Vladoiu**, R.M. Ion, *MINERAL INVESTIGATIONS OF ROMANIAN WHEAT AND FLOUR*, 10TH INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE & ENGINEERING – BRAMAT 2017, 8-11 martie 2017, Brasov;

7. Ionita, I; Ionut, B; Poinescu, AA; **Avram, D**; Stoian, EV; Hossu, AM, *Investigations of non-grain oriented Si steel sheets*, Conference on Advanced Topics in Optoelectronics, Microelectronics and Nanotechnologies X, Constanta, 20-23 august, 2020;

8. **Avram, D**; Ungureanu, DN; Angelescu, N; Ionita, I; Popescu, EC, *The bioactivity assessment of silver-doped phosphocalcic glasses*, Conference: 9th International Conference on Advanced Topics in Optoelectronics, Microelectronics, and Nanotechnologies (ATOM-N), Constanta, 23-26 august, 2018;

9. **Olteanu, Radu Lucian**; Gorghiu, Gabriel; Mantescu, Gabriela, *CLIMATE CHANGES IN NON-FORMAL EDUCATIONAL ACTIVITIES - A MULTIDISCIPLINARY APPROACH*, 2nd Central and Eastern European LUMEN International Conference on Multidimensional Education and Professional Development, Ethical Values (MEPDEV), Targoviste, 17-19 noiembrie, 2016;

10. Petrescu, Ana Maria Aurelia; Gorghiu, Gabriel; **Olteanu, Radu Lucian**, *WAYS OF VALORIZING THE PUBLIC ENGAGEMENT IN RESPONSIBLE RESEARCH AND INNOVATION*, 2nd Central and Eastern European LUMEN International Conference on Multidimensional Education and Professional Development, Ethical Values (MEPDEV), Targoviste, 17-19 noiembrie, 2016;

### **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.**

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

**The indicator is met.** No leader has assigned more than two theses in one year to the same external referee. The table below shows the cases of two theses/years assigned by a supervisor to the same referee, i.e. Prof. **Gheorghe NECHIFOR**, 2020 (theses coordinated by RM. ION). We present below the table with the external referees for all the theses defended.

Table of external referees for theses coordinated by **Prof.Ph.D. Rodica Mariana ION**

<i>Nr. crt.</i>	<i>Name, Father's initials, Doctor's first name (Name after marriage)</i>	<i>Year of public defence of the doctoral thesis</i>	<i>Title of doctoral thesis</i>	<i>External reviewer 1</i>	<i>External reviewer 2</i>
1.	STEFAN V. Daniela (AVRAM)	15.09.2017	Phosphocalcic glass with special properties	Wilhelm Kappel	Iulian Antoniac

<i>Nr. crt.</i>	<i>Name, Father's initials, Doctor's first name (Name after marriage)</i>	<i>Year of public defence of the doctoral thesis</i>	<i>Title of doctoral thesis</i>	<i>External reviewer 1</i>	<i>External reviewer 2</i>
2.	OLTEANU C. Radu-Lucian	26.09.2019	Nanomaterials based on natural extracts with biomedical applications	Mihai Buzatu	Gheorghe Nechifor
3.	IANCU M. Lorena	22.09.2020	Innovative materials and techniques used in the conservation and restoration of heritage objects	Cristian Predescu	Gheorghe Nechifor
4.	VLADOIU D. Elena-Roxana (MARGARIT)	22.09.2020	Materials from cereal processing with applications in dermatology	Nicolae Dojana	Gheorghe Nechifor

**\*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.**

In the assessed doctoral field, 4 doctoral theses have been defended in the last five years, therefore **the criterion is not assessed.**

## **C. QUALITY MANAGEMENT**

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

**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.**

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

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

**The indicator is met.** IOSUD and SDSI follow the quality assurance policy implemented at Valahia University. IOSUD's objectives are aligned with the institution's objectives, namely in the field of the quality management system, continuing education/training, scientific research activities, and in the field of national and international cooperation. Every year, IOSUD doctoral schools are audited and objectives are monitored. IOSUD also has a quality officer, Prof.Ph.D. Mihai MEILA who is also a member of the CSUD.

For monitoring the scientific activity of Ph.D. supervisors, point (a) of the indicator, IOSUD has introduced procedure PO-06-14 ([Annex 17.14](#)) which allows a quantification of the annual activity of Ph.D. supervisors. The procedure takes into account and scores only the results/activities recognized by the CNATDCU (according to Order No 6129 of 20 December 2016). By norming to the minimum score required for habilitation corresponding to each field, the procedure allows a unitary evaluation of Ph.D. supervisors from different fields.

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

**The indicator is met.** The SDSI regulations provide for the right of doctoral students to freely express their needs and level of satisfaction with the doctoral program in Art. 15.o) and the obligation of SDSI to take into account the feedback of doctoral students in Art. 13.13). In this regard, SDSI has developed a questionnaire to highlight the level of satisfaction with the advanced study program, the research program, the mentoring committee, and the doctoral supervisor (the questionnaire is presented in [Annex 18](#)). It should also be mentioned that doctoral students have representatives in the CSD and CSUD through which they can communicate with the management of the doctoral school or IOSUD or address directly, for any problem, the director of the SDSI, CSD, or CSUD.

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

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

**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.

The indicator is met - all information is available on the IOSUD website, <https://www.scoaladoctorala.valahia.ro/>

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

**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.**

**Indicator is met** - SDSI PhD students have access to the following databases: *PROQUEST Central, ScienceDirect Freedom Collection (Elsevier), Scopus (Elsevier), Web of Science - Core Collection, InCites Journal Citation Reports, Derwent Innovations Index (Clarivate Analytics)*.

**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.**

**Indicator is met** - Ph.D. students, through their supervisors, have access to the similarity checking platform [www.sistemantiplagiat.ro](http://www.sistemantiplagiat.ro). The platform is described in indicator A.1.2.

**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.**

**Indicator is met** - SDSI-IM Ph.D. students have free access to CC\_NANOMECH, CC\_SASM research labs, FIMM labs (out of hours - bachelor/master), and ICSTM facilities.

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

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

**\*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.**

**Indicator is met.** 2 students participated in conferences abroad and 3 in visits/workshops. Eliminating overlaps, a total of 5 students out of 14 had mobility, i.e. 35.71% and 4 students out of 14 had placements abroad, i.e. 28.57%. We present below the lists of mobilities.

#### **PARTICIPATIONS IN ERASMUS SCHOLARSHIPS:**

George Teodorescu - accepted 2021, University Minho, Portugal

#### **CONFERENCE PARTICIPATIONS:**

1. R.M. Ion, A. Radu, S. Teodorescu, I.A. Bucurica, R.M. Stirbescu, **N.M. Stirbescu**, *Raman, chromatography and microscopy studies for wax-sealed documents from some old*

*Romanian pulp and paper factories*, The 11th conference on Lasers in the Conservation of Artworks (LACONA XI), 2016;

**2. A.A. Sorescu**, I.R. Suica-Bunghez, “Qualitative analyses of carbohydrates found in *Artiplex hortensis*”, 3rd Global Summit on Plant Science, Rome, Italy, August 07 – 09 2016;

**3. Ana-Alexandra Sorescu**, Rodica-Mariana Ion, Alexandrina Nuță, Ioana-Raluca Șuică-Bunghez, „Analytical investigations of some disappeared pigments from art”, The 4th International Global Virtual Conference - GV 2016, Slovakia, April 18 - 22, 2016;

**4. Ana-Alexandra Sorescu**, Rodica-Mariana Ion, Alexandrina Nuță, Ioana-Raluca Șuică-Bunghez, „A review on the synthesis of silver nanoparticles. Green vs. conventional methods”, The 4th International Global Virtual Conference - GV 2016, Slovakia, April 18 - 22, 2016;

**5. Ana-Alexandra Sorescu**, Alexandrina Nuță, Rodica-Mariana Ion, Ioana-Raluca Șuică-Bunghez, “Green synthesis of silver nanoparticles using plant extracts”, The 4th International Virtual Conference on Advanced Scientific Results (SCIECONF-2016), Slovakia, June 6 - 10, 2016;

**6. A.A. Sorescu**, A. Nuță, R.M. Ion, I.R. Șuică – Bunghez, C.L. Nistor, „Synthesis Of Silver Nanoparticles From Elderflower Aqueous Extract: A Green Approach”, The 6th International Conference ECOLOGICAL & ENVIRONMENTAL CHEMISTRY-2017, Chisinau, Republic of Moldova, March 2 - 3, 2017;

**7. Sorescu Ana-Alexandra**, Nuta Alexandrina, Ion Rodica-Mariana, Sabina-Georgiana Nitu, Iancu Lorena, „Phthalocyanine-based nanoaggregates with green synthesized silver nanoparticles”, 20th International Conference on Materials, Methods & Technologies, Elenite, Bulgaria, 26 – 30 June 2018;

**8. Sorescu Ana-Alexandra**, Nuta Alexandrina, Ion Rodica-Mariana, „Nanomaterials for the detection and removal of pollutants from wastewater”, The 6th International Virtual Conference on Advanced Scientific Results (SCIECONF-2018), Slovakia, June 25 - 29, 2018;

**9. Ana-Alexandra Sorescu**, Alexandrina Nuta, „Phytochemical compounds from pumpkin seeds: a comprehensive qualitative screening”, Comparative European Research 11th International Scientific for PhD students of the EU countries (CER), March 25 – 27 2019, London;

**10. Ana-Alexandra Sorescu**, „Synthesis, physical-chemical characterization and potential antioxidant activity of phthalocyanine derivatives – noble metallic nanoparticles complex conjugates”, International Summer School on Organic Synthesis (ISOS 2019), 9 – 13 June 2019, Gargnano, Italy;

#### STAGES/VISITS:

**1. Olteanu Liviu** – International School on Nuclear Methods for Environmental and Life Science NMELS’18, Locație: Becici, Budva, Muntenegru, 22-28 april 2018, Joint Institute for Nuclear Research, Dubna, Rusia;

**2. Sorescu Ana – Alexandra**, bursa at “A. Corbella” International Summer School on Organic Synthesis (ISOS 2019), 9 – 13 June 2019, Gargnano, Italy;

**3. Olteanu Radu Lucian** - International School on Nuclear Methods for Environmental and Life Science NMELS’18, Locație: Becici, Budva, Muntenegru, 22-28 april 2018, Joint Institute for Nuclear Research, Dubna, Rusia;

The SDSI-IM PhD supervisors have established good collaborative relationships with universities and laboratories in Italy (Prof. Enrico Sassoni - Bologna University), Spain (Prof. María del Mar Barbero-Barrera, Universidad Politécnica de Madrid and Prof. LUZ STELA GOMEZ VILLALBA, Ciencia e Ingeniería de Materiales Investigador Grupo de Conservación del Patrimonio Instituto de Geología Económica, Madrid), Prof. Emeritus Tebello Nyokong, Rhodes University, South Africa, Dr. Viktor Kichanov, Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research, Dubna, Russia.

**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.**

**Indicator is met.**

1. Dr. John Mack, Invited Lecturer, Rhodes University, South Africa: “The rational design of BODIPY dyes for biomedical and optical limiting applications”
2. Andrew J. Hall, Medway School of Pharmacy, Universities of Greenwich & Kent, MIP BUILDING: DO BETTER BRICKS MAKE BETTER STRUCTURES?
3. Jean-François Chailan, Laboratoire MAPIEM – EA 4323 – Université de Toulon, France, INTERPHASES AND DURABILITY IN POLYMER BASED COMPOSITE MATERIALS: CHARACTERIZATION AND MODELIZATION
4. B. Tsyntsarski, Bulgarian Academy of Sciences, Sofia, Bulgaria, CARBON MATERIALS FROM POLYMER WASTES
5. D.M.-Yerga, DropSens, S.L., Edificio CEEI, Parque Tecnológico de Asturias, Asturias, Spain, IN SITU’ SERS EFFECT STUDIES WITH SCREEN-PRINTED ELECTRODES AND A COMPACT RAMAN SPECTROELECTROCHEMICAL INSTRUMENT
6. Katri Laatikainen, Laboratory of Chemical Metrology, Lappeenranta University of Technology, Lappeenranta, Finland IMPROVEMENT FOR ION IMPRINTING TECHNIQUE
7. Nnamdi Nwahara, *Department of Chemistry, P.O.94, Rhodes University, Grahamstown, South Africa*, Photophysical properties of nanocomposites of aluminum tetrasulfonated phthalocyanine with graphene quantum dots linked to folic acid.

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

**The indicator is being met.** In 2021, an EU- Marie Curie project was submitted to fund doctoral internships for the completion of Ph.D. theses of foreign Ph.D. students, Wallachia University being responsible for one of the Working Groups in this project.

### **3. STRATEGIES AND PROCEDURES IMPLEMENTED AT THE DOCTORAL STUDY DOMAIN LEVEL**

A fundamental objective of IOSUD and SDSI is to produce doctoral theses of a very high scientific level. In support of this objective, IOSUD has supported the mentoring committees by developing M-21, a Methodology for the evaluation of Ph.D. theses by the mentoring committee ([Annex 17.11](#)). The methodology is following MEN ORDER No 5.229 of 17 August 2020, published in the OFFICIAL MONITOR No 783 of 27 August 2020.

Moreover, IOSUD and SDSI aim to continuously monitor the legislation and develop new methodologies/procedures whenever necessary, as well as review existing ones. In this regard, we mention *OP 07.43, Completion of doctoral studies using alternative methods*, *OP 07.44 - Organisation and online conduct of the process for obtaining the habilitation certificate* ([Annex 17.12](#)), *M20 - Methodology for resolving complaints regarding non-compliance with quality or professional ethics standards in doctoral theses* ([Annex 17.13](#)), etc.

#### **4. OTHER ADDITIONAL INFORMATION RELEVANT TO THE DOCTORAL STUDY DOMAIN**

In the field of continuing education/training, IOSUD and SDSI aim to open new doctoral fields and strengthen existing ones. For the consolidation of SDSI-IM, the action of *identifying, supporting, and advising teachers who meet the requirements for habilitation is foreseen.*

#### **5. CONCLUSIONS**

SDSI-IM aims to become a pole of excellence in education and research for IOSUD that produces knowledge and trains researchers capable of performing in this field. The results so far are promising. The self-assessment report shows that SDSI-IM has a valuable team of Ph.D. supervisors with high research experience, deserving Ph.D. students/graduates, and an adequate material base. The report shows that SDSI-IM meets, to a very large extent, the criteria of the accreditation methodology.

In 5 years, with a team of five Ph.D. supervisors, 4 theses have been defended.

Currently, out of the 4 graduates, 2 are teaching staff at the Faculty of Environmental Engineering and Food Science of Valahia University (Conf.univ.dr. Avram D., As.univ.dr. Vladiu R.), 1 scientific researcher in the Institute of Multidisciplinary Scientific and Technological Research (CS.dr. Olteanu RL), 1 work at the Institute of Scientific Research and Technological Development for the Chemical and Petrochemical Industry - ICECHIM -Bucuresti (CS III.dr. Iancu L.).

**MEETING CRITICAL INDICATORS - all 6 critical indicators are met (A.2.1.1., A.3.1.1., A.3.2.1., B.2.1.5., B.3.1.1., C.2.1.1).**

Of the 35 indicators of the methodology, 34 are fully met and one is partially met. The only partially met indicator is Indicator C.3.1.3, but here too we have taken all the necessary steps to resolve it (submission of a European Marie Sklodowska Curie Applications project for the internationalization and funding of doctoral students from other countries who will complete their doctorate in our university. This project was also submitted last year and obtained a score close to the funding limit (4.5 out of 5), which is why it was resubmitted for funding.

#### **6. STRENGTHS, VULNERABILITIES, OPPORTUNITIES, THREATS**

The report shows that SDSI-IM meets, to a very large extent, the criteria in the accreditation methodology. To date, 40 theses have been defended at SDSI-IM, of which 4 in the last 5 years. All theses defended in the last 5 years have been rated VERY GOOD. The scientific output of Ph.D. students during the evaluation period consists of 93 publications, of which 72 are ISI indexed publications (77.42%). We also underline the existence of outstanding results (articles published in ISI Q1 and Q2 journals, national and international awards, projects won in the PNIII-PD competition).

##### **STRENGTHS**

- Competence of Ph.D. supervisors. SDSI-IM Ph.D. supervisors have research experience and good national and international visibility. We briefly recall that they are members of professional organizations: ARACIS, CNATDCU, members of editorial boards of journals (ISI journals in the top 25% (Q1), ISI journals in the top 50% (Q2)), members of organizing committees, chairmen, project evaluators in national/international competitions, members of thesis committees at universities in the country and abroad, authors of recognized publications, cited in the literature, directors/responsible for projects won in national competitions, etc.

- **Material basis.** SDSI-IM Ph.D. students are affiliated with the ICSTM-UVT research centers where their supervisors work. In addition to the ICSTM facilities, Ph.D. students have access to FIMM laboratories, UVT library, etc. Details are given in Section 1.2 and [Annex 4](#).

## WEAKNESSES

- **Low number of ongoing research projects** (currently there is only one NIPIII research project ongoing);
  - **Lack of international projects and a relatively modest level of internationalization.** SDSI does not have any ongoing international projects - there is one international project, H2020, coordinated by an SDSI-IM Ph.D. graduate and in which two SDSI-IM Ph.D. graduates are members. Although Ph.D. supervisors have international visibility, no cotutelle thesis has been conducted at SDSI.

## THREATS

- **Funding.** The number of budget places awarded to UVT is small. In addition, we have been faced with a lack of research project competitions.
  - **The relatively high average age of leaders (64 years);**
  - **Decreasing attractiveness of engineering Ph.D..**

## OPPORTUNITIES

- **Existence of the ICSTM** with the corresponding equipment;
- **National/international visibility** of leaders;
- **Existing public-private partnerships with Renault, Arctic, and Schneider** in UVT that can recruit Ph.D. students, offer Ph.D. topics at the proposal of economic agents, and involve them financially.

The above analysis shows that SDSI-IM has strengths and opportunities that allow it to continue its work successfully. Efforts should be stepped up to eliminate weaknesses, i.e. sustained submission of projects in national competitions and, in particular, building consortia for participation in international competitions. In this respect, the national/international visibility of SDSI-IM Ph.D. supervisors is a good opportunity that should be further exploited. Concerning threats, particular attention should be paid to the rejuvenation of the Ph.D. supervisor pool. The issue of rejuvenation is being addressed - there was one new candidate for the habilitation position, namely Prof. Ildiko Peter. We conclude the review with the conclusion that Materials Engineering a viable area of SDSI.

## 7. ANNEXES

[Annex 1](#) - CV of PhD supervisors

[Annex 2](#) - PhD thesis

[Annex 3](#) - Doctoral student publications

[Annex 4](#) - Material basis for research

[Annex 5](#) - Elections CSUD, CSD

[Annex 6](#) - Director competition CSUD

[Annex 7](#) - Protocols CSUD and CSD

[Annex 8](#) - Doctoral studies contract

[Annex 9](#) - Funding from other sources

[Annex 10](#) - Meeting minimum criteria

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[Annex 13](#) - Doctoral supervisors score 2016-2020

[Annex 14](#) - SDSI Plans

[Annex 15](#) - Discipline fiches

[Annex 16](#) - Representative Ph.D. student articles

[Annex 17](#) - Regulations, methodologies, procedures

[Annex 18](#) - Questionnaire for doctoral student satisfaction evaluation

[Annex 19](#) - Quality documents