
UNIVERSITY DOCTORAL STUDIES AT THE DOCTORAL SCHOOL OF IOSUD-TUIASI

SHORT ROADMAP

General information

Doctoral studies represent the third stage of university studies, which follows the completion of bachelor's and master's cycles, which allows the acquisition of the 8th qualification level from the European Qualifications Framework (EQF/CEC) and from the National Qualifications Framework (CNC). The "Gheorghe Asachi" Technical University of Iasi (TUIASI) as the Organizing Institution for University Doctoral Studies (IOSUD) organizes, within the Doctoral School, the scientific doctorate in engineering sciences and exact sciences, for thirteen areas of university doctoral studies: *Chemistry; Chemical Engineering; Environmental Engineering; Mechanical Engineering; Electrical Engineering; Energy Engineering; Electronic Engineering, Telecommunications and Information Technology; Computers and Information Technology; Systems Engineering; Industrial Engineering; Civil Engineering and Installations; Materials Engineering;- Engineering and Management.*

At the IOSUD-TUIASI level, the Council for Doctoral University Studies (CSUD) acts as an organizational and administrative structure established within IOSUD, responsible for the IOSUD strategy, the elaboration and application of its own regulations regarding doctoral university studies. The Doctoral School (SD) is the organizational and administrative structure established within IOSUD that provides the necessary support for conducting doctoral studies in a specific discipline or disciplinary or interdisciplinary topic.

The doctoral program has a duration of 4 years, that can be extended, upon request, by a maximum of 2 years. The doctorate at TUIASI is organized in the following forms:

- full-time doctoral program with scholarship - funded from the state budget;
- full-time doctoral program without a scholarship - funded from the state budget;
- with tax or other legally constituted sources.

The PhD supervisor is a faculty member certified for this quality, affiliated to the Doctoral School of TUIASI. It has the role of supporting and guiding the doctoral student in the doctoral research program and the development of the doctoral thesis. The PhD supervisor is supported in the activity with the PhD student of by a committee of guidance and academic integrity.

Graduates of university studies with a master's degree or its equivalent, according to the legislation in force, obtained in the country or abroad who wish to continue their university training through a doctorate will choose a doctoral field, a PhD supervisor and a research topic,

in order to be able to enroll in the admission competition that takes place annually, in two sessions, respectively in the months of July and September.

Admission to doctoral university studies is a process of selecting candidates for the vacant doctoral student positions that the doctoral supervisors of the doctoral school decide to propose for occupation during the admission sessions organized by IOSUD, through the Doctoral School.

Admission to the doctoral program is carried out on a competitive basis, at the level of the Doctoral School through the Councils for Coordination of Doctoral Program (CCPD) of each faculty, in a certain doctoral field for the vacant PhD positions of each doctoral supervisor, each vacant position having assigned a research theme. The competition for admission to doctoral university studies is organized according to the calendar proposed by the CSUD and approved by the University's Administrative Council.

Admission to doctoral university studies is carried out, according to *the Procedure for the organization and conduct of admission in the cycle of scientific doctorate university studies*, as follows:

(<https://doctorat.tuiasi.ro/admitere/admitere-2024/>):

- candidates register for the competition by submitting the files containing the documents provided in *the Admission Procedure*, in "physical" format at the CSUD secretariat, or on the online admission platform
- after submitting the admission file by the candidates, there will be a first test, which consists of checking language skills for an internationally spoken language
- the second test is represented by a colloquium, based on a theme and a bibliography. The selection committee for the colloquium is made up of specialists holding a PhD title, and assesses the candidates according to:
 - the level of knowledge associated with the doctoral field and according to the selected research theme and the recommended bibliography,
 - the candidate's ability to undertake theoretical, experimental and methodological initiatives.

After admission to the doctoral university studies, the candidate is enrolled as a PhD student and signs the *contract for doctoral university studies*. This contract pertains to the conduct of activities specific to the study program, regulating the relationships between the IOSUD, the doctoral supervisor, and the doctoral student, specifying the rights and obligations of the signatory parties, in accordance with the current legislation, the provisions of the University Charter, and the decisions of the TUIASI Senate.

The doctorate can be conducted in Romanian, in a language of national minorities or in an international language (English, French, German), according to the doctoral studies contract concluded between IOSUD, the PhD supervisor and the PhD student.

The doctoral program has two components:

1. *The preparation program based on advanced university studies (first year)*, which consists of courses and seminars from the curriculum of the chosen doctoral field and depending on the specifics of the research area.

2. *The scientific research program* (years II - IV), which consists in the preparation and public support of two or three research reports and elaboration of the PhD thesis.

The PhD thesis is prepared and defended in accordance with *the Doctoral Theses Defense Procedure*. If the doctoral student has fulfilled all the requirements stipulated in the scientific research program, as well as the minimum standards related to the field, the doctoral commission proposes the award of the doctoral degree, a proposal that is forwarded together with the doctoral file, to the National Council for Attestation of Titles, Diplomas and University Certificates (CNATDCU). It issues a compliance endorsement regarding the adherence to the administrative procedure carried out at the IOSUD level and the fulfillment of the minimum criteria for awarding the doctoral degree. After receiving the compliance endorsement, IOSUD issues the decision to award the doctoral degree, signed by the Rector, prepares, and issues the doctoral diploma.

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Opportunities opened by completing doctoral university studies

Receiving a PhD degree represents one of the highest levels of academic education and offers many advantages and career opportunities. The PhD is a journey of deepening your knowledge, developing your research skills and making a meaningful contribution to your chosen field. This is not only a symbol of academic excellence, but also a passport to a wide variety of professional and academic careers.

"Gheorghe Asachi" Technical University of Iasi (TUIASI) is dedicated to academic excellence and innovation. With a history of over 100 years in education and research, TUIASI offers high-quality PhD programs in various technical and scientific fields. Our students benefit from modern resources, advanced research laboratories and access to international networks of leading researchers and institutions.

What does a doctorate mean?

Doctoral studies represent the highest level of academic education and involve a significant commitment on the part of the student. They involve years of intensive and rigorous research, aiming to contribute to global knowledge through original and innovative discoveries. This academic pathway is not only about deepening existing knowledge, but also about exploring new frontiers of science and technology.

- ***Intensive research and top-notch guidance***

During their doctoral studies, students work closely with renowned professors and mentors in their field of specialization. These mentors provide ongoing guidance and support, helping PhD students develop strong research projects and navigate academic challenges. The research process includes designing and conducting experiments, collecting and analyzing data, and formulating conclusions based on empirical evidence.

- ***Publication of scientific papers***

An essential aspect of doctoral studies is the publication of scientific papers in prestigious journals. These works are evaluated by fellow experts (peer-review) and contribute to the international recognition of the research carried out. The publication not only validates the work of the PhD student, but also shares the findings with the global scientific community, stimulating progress in the field.

- ***Participation in international conferences***

PhD students have the opportunity to participate in international conferences, where they can present the results of their research, interact with other researchers and make valuable connections. These conferences are excellent platforms for exchanging ideas and staying abreast of the latest trends and innovations in the field.

- **Global collaboration**

Doctoral studies offer the opportunity to collaborate with experts from around the world. These collaborations can lead to international research projects, academic exchanges and partnerships with renowned institutions. International experiences enrich the perspective of PhD students and provide them with a global network of professional contacts.

- **Development of transferable skills**

In addition to specialized knowledge, PhD students develop a number of valuable transferable skills. These include:

- **Critical thinking:** Ability to analyze and evaluate information in a logical and systematic manner.

- **Complex project management:** Ability to plan, organize and execute long-term projects involving multiple stages and resources.

- **Advanced communication:** Skills to effectively present and communicate complex ideas, both in writing and orally, to diverse audiences.

- **Problem solving:** The ability to find innovative solutions to complex problems, based on research and concrete data.

- **Contribution to the progress of society**

Through their research, PhD students contribute to the advancement of knowledge and the development of solutions to real-world problems, from technological innovations to effective public policy. The impact of their work can have significant repercussions on society, the economy and the environment.

One of the most visible contributions of PhD students is in the field of technological innovations. Through their research, they develop new technologies, materials and processes that can revolutionize entire industries. For example, nanotechnology research can lead to the discovery of stronger and more efficient materials with applications in medicine, electronics and energy. Likewise, innovations in artificial intelligence and robotics can transform the way we work and live, creating more efficient and sustainable solutions.

PhD students analyze and propose public policies that can improve the functioning of society. From environmental policies that aim to reduce carbon emissions and protect biodiversity, to economic policies that stimulate sustainable growth and reduce inequality, their research provides the scientific foundation needed for informed and effective decisions.

The contribution of doctoral students to economic development is significant. Their research can drive economic growth through innovations that improve industry productivity and competitiveness. Also, through collaborations with the private sector and technology transfer, scientific discoveries can be transformed into commercial products and services, generating new jobs and business opportunities.

PhD students in environmental engineering contribute to the development of sustainable solutions to protect the planet. Their research can lead to renewable energy technologies, waste management methods and natural resource conservation strategies. These efforts are critical to combating climate change and ensuring a sustainable future for future generations.

Benefits and opportunities

Doctoral studies are therefore a combination of academic challenge and opportunity for professional and personal growth. They prepare graduates to become leaders in their field and to make significant contributions in various sectors of society.

Completing a PhD program opens many doors. An academic career, with the possibility of becoming a university teacher or scientific researcher is just one of the many options. The private sector, non-governmental organizations and public institutions are also looking for PhD graduates for consultancy, management, development and innovation positions. The PhD can also be a springboard to entrepreneurship, with many graduates using the knowledge and skills gained to launch and grow their own businesses.

Academic and research career

- **University teaching staff:** the doctorate is an essential requirement to hold positions as a university professor, lecturer or assistant professor.
- **Scientific researcher:** PhD graduates can work in research institutes, laboratories and innovation centers, contributing to the advancement of knowledge in their field.
- **International research projects:** the opportunity to participate in international research projects, collaborating with experts from around the world.

Industry and the private sector

- **Consulting and expertise:** Doctors in various fields are sought after for consulting, providing advanced expertise on complex issues.
- **Innovation and development:** leading research and development (R&D) teams in companies, contributing to the innovation of products and services.
- **Management:** top management positions, thanks to the advanced analytical and problem-solving skills acquired during the PhD.

Public sector and NGOs

- **Public and government policies:** involvement in the development and implementation of public policies, using advanced knowledge to influence government decisions.
- **International organisations:** employment opportunities in international organisations, such as the UN, EU or World Bank, in various expert and analytical roles.
- **NGOs and foundations:** contributing to social and development missions in non-profit organizations and foundations.

Entrepreneurship and start-ups

- **Starting your own business:** using the knowledge and skills acquired to launch and develop your own business or start-up.
- **Technology transfer:** working with universities and research centers to bring technological innovations to market.

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- **Incubators and accelerators:** participation in incubation and acceleration programs, benefiting from mentorship and funding for innovative ideas.

Recognition and prestige

- **Academic recognition:** Publication of research papers in prestigious journals and participation in international conferences.
- **Awards and honors:** Obtaining awards and honors for contributions to the field of expertise.
- **Networking:** Building an extensive network of professional contacts, facilitating future collaborations and opportunities.

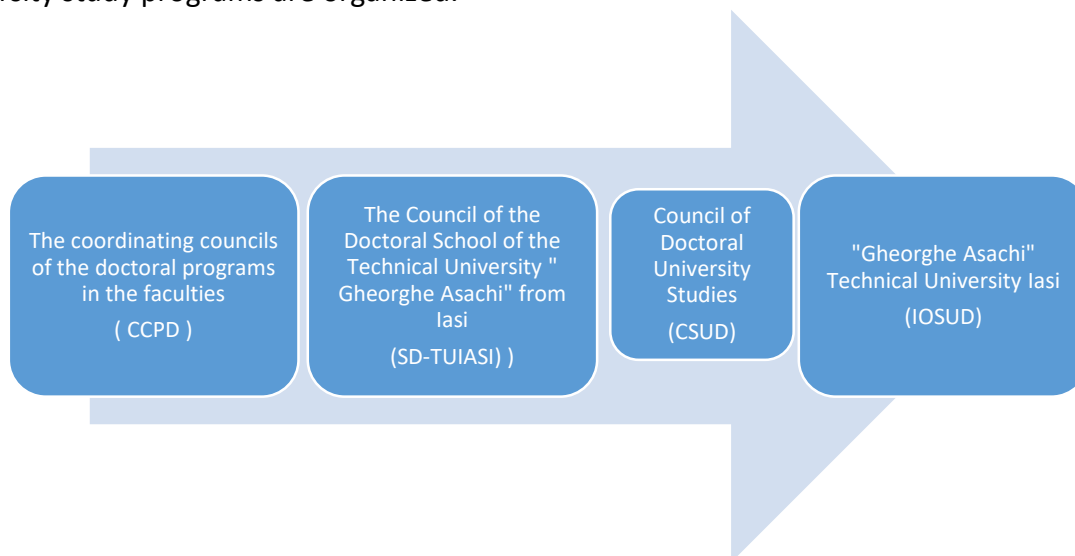
Doctoral School at TUIASI

Short presentation

The Doctoral School of IOSUD-TUIASI, established by Senate Decision no. 347 of 27.10.2017, coordinates the activity of the 9 Councils for the Coordination of Doctoral Programs (CCPD) that operate at the faculty level as follows:

- CCPD constituted at the level of the Faculty of Automatic Control and Computer Engineering;
- CCPD constituted at the level of the Faculty of Machine Manufacturing and Industrial Management;
- CCPD constituted at the level of the Faculty of Electrical Engineering, Energetics and Applied Informatics;
- CCPD constituted at the level of the Faculty of Electronics, Telecommunications and Information Technology;
- CCPD established at the level of the "Cristofor Simionescu" Faculty of Chemical Engineering and Environmental Protection;
- CCPD constituted at the level of the Faculty of Mechanics;
- CCPD constituted at the level of the Faculty of Materials Science and Engineering;
- CCPD constituted at the level of the Faculty of Industrial Design and Business Management;
- CCPD constituted at the level of the Faculty of Construction and Installations and Faculty of Hydrotechnics, Geodesy and Environmental Engineering.

The Doctoral School ensures the improvement and expansion of the training of doctoral students through teaching activities, seminars, evaluation, scientific research, technological development, design and artistic creation, according to the specifics of the doctoral fields in which the doctoral university study programs are organized.



The place of the Doctoral School in IOSUD-TUIASI

Events organized by the Doctoral School

Training sessions for doctoral students

Training sessions within doctoral studies aim to prepare doctoral students for successfully defending their doctoral thesis, leveraging the expertise of our university's doctoral supervisors, including the evolving educational platform. The project is supported by the "Gheorghe Asachi" Technical University of Iasi and through institutional development projects (CNFIS-FDI-2021-0598, CNFIS-FDI-2022-0010, CNFIS-FDI-2023-F-0016, CNFIS-FDI-2024-F-0036), the integrated platform for improving the quality of the didactic process, through the digitization of ethics compliance activities and academic integrity, tracking graduates' employability.

The Doctoral Studies training sessions online training platform is structured on four main training modules:

1. Writing scientific papers
2. Approach to a scientific program
3. Thesis
4. Career planning after the defense of the doctoral thesis

Online events

- The approach of the "Current stage of the research" section of the doctoral thesis
- Academic Writing: Steps for Writing a Scientific Article

TUIASI pHD completion training

"TUIASI pHD completion training, online events" proposes to train doctoral students from TUIASI in view of the successful defense of the doctoral thesis. The doctoral students participating in the webinars benefited from the experience of reputable trainers from abroad. The development of the training platform in English is carried out in several stages, starting with the introduction of at least one seminar for each training module. The event represents a completion of the initiative initiated in 2020 by the CSUD, to introduce the seminars of online training, an approach that generated an attendance beyond expectations and an increased interest of doctoral students from polytechnics, who want to approach more subjects, which can help them in acquiring new skills.

Training modules:

1. *Academic writing*
2. Approach to a scientific program (*Experimental planning*)
3. Doctoral thesis (*Writing your thesis*)
4. Career planning after the defense of the doctoral thesis (*Career planning – Where your doctorate can lead*)

Online events:

- *How to Publish Your Research in Journals* , 18.10.2021
- *Mindful Productivity: How to do Your PhD Faster and Better*, 20.10.2021

- *Project Managing of the Experimental Work* , 21.10.2021
- *An Introduction to Being an Effective Researcher* , 25.10.2021
- *Creative Approaches to Writing Your Thesis* , 28.10.2021
- *How to Publish in High Quality Journals: Tips&Tricks* (prof.dr.eng. Sotirios Karellas), 25.10.2022.
- *How to Make an Interesting Academic Presentation* (prof. Dr. Eng. Jianying He), 01.11.2022:
- *How to Pitch Your Research Thesis* (Prof. Dr. Eng. Gawel Zyla), 07.11.2023

Doctoral School Conference (CSD)

The International Conference of the Doctoral School of the "Gheorghe Asachi" Technical University of Iasi (TUIASI) offers doctoral students from the doctoral schools of technical universities in Romania and abroad a favorable framework for the communication of research results, the exchange of ideas and the initiation of new collaborations, refining theoretical and methodological approaches, encouraging the continuous development of interdisciplinary research. The conference aims to bring together diverse oral presentations dealing with relevant issues associated with the thirteen doctoral fields from TUIASI: Chemistry; Computers and Information Technology; Chemical Engineering; Civil Constructions and Installations; Electrical Engineering; Electronics Engineering, Telecommunications and informational Technologies; Energy Engineering; Industrial Engineering; Materials Engineering; Mechanical Engineering; Environmental Engineering; Systems Engineering; Engineering and Management.

During the three days of the conference, doctoral students can present their papers, in English, in five sections. The conference program also includes a series of lectures supported by prestigious professors from universities in the country and abroad, close collaborators of TUIASI. Abstracts and papers proposed by doctoral students must be signed by the doctoral supervisor and written in English. Full papers are recommended for publication in *the Bulletin of the Institute Polytechnic of Iasi*.

Conference Sections:

Section 1. Interdisciplinary research (takes place on-site and includes papers from all doctoral fields of TUIASI)

Section 2. Computers and Information Technology; Systems Engineering, Electrical Engineering; Energy Engineering; Electronic Engineering, Telecommunications and Information Technology (online)

Section 3. Chemistry; Chemical Engineering; Environmental Engineering (on-line)

Section 4. Civil Engineering and Installations (on-line)

Section 5. Mechanical Engineering; Industrial Engineering; Materials Engineering; Engineering and Management (on-line)

Details can be found on the conference web page at: <https://conferinta-csd.tuiasi.ro/>

Online seminars (selection)

- *Validation of the results of the doctoral research through publication - argument of the creativity and originality of the doctoral thesis* - 26.11.2020;

- *The art of presenting papers at international conferences* – 17.12.2020;
- *How to get the most out of cooperation with your PhD supervisor* - 11.02.2021;
- *10 steps for effective documentation - case study* - 10.03.2021;
- *Generation and protection of patentable inventions* - 08.04.2021
- *The importance of creativity in scientific research, in the context of a future dominated by artificial intelligence* - 17.06.2021
- *SCOPUS training – Presentation of possible search types, search strategies and author profiles* - 17.02.2022
- *Doctoral student in Romania - challenges and perspectives* - 09.03.2022
- *How to successfully present your research idea? (How to pitch your research idea)* - 04.05.2022
- *How we leverage 5G infrastructure for digitization and innovative applications* - 02.06.2022
- *Biometism in engineering* (Prof. Dr. Eng. Sebastien Poncet) - 16.11.2022
- *Tips for successful scientific publishing* (prof.dr.eng. Marc J. Assael & Tom Spicer) - 05.12.2022
- *InoHubDoc: TUIASI regional scientific event on specific doctoral and postdoctoral topics* 17.07.2023
- *Recent trends in shape memory alloys – From Fe-based systems to additive manufacturing* (Prof.Dr.-Ing. Thomas Niendorf, University of Kassel) - 07.06.2023
- *The adventures of a Romanian scientist from Babeş-Bolyai University in the world – Working at a Global Corp* (Dr.Eng. Radu Crăciun – Honorary Consul of Romania in NJ, USA, Technology Manager of Americas, BASF Corp) - 15.05.2023
- *Participation in a professional research organization* (Conf.dr.ing. Dorin NEACȚU, Prof.dr.ing. Radu Gabriel BOZOMITU) - 28.04.2023

TUIASI Days - Doctoral studies in TUIASI - from personal experience to the vocation of excellence

Within the events dedicated to the TUIASI Days, CSUD and the Doctoral School organize, every year, the presentation of the best doctoral theses. In the context of the event "*Doctoral studies in TUIASI – from personal experience to the vocation of excellence*" the excellence in doctoral studies and the achievements of our former doctoral students, who, through their work and dedication, obtained the title of doctor and made significant contributions are highlighted and celebrated both in their area of expertise and in their personal development in the following ways:

- ***Capitalizing on academic excellence***

This event is dedicated to recognizing and promoting excellence in the field of university doctoral studies. In this way, the efforts and achievements of those former doctoral students who have demonstrated a determination and passion for knowledge, turning their experiences during their doctoral studies into a vocation for excellence, can be highlighted. They are living proof that through hard work, creativity and perseverance, high academic and professional standards can be achieved.

- ***The impact of the experience of former doctoral students***

Our former PhD students, now PhDs, are true ambassadors of our university's values and standards. Through their research and projects, they have produced added value not only in their specific fields, but also on a personal level, developing as individuals with exceptional critical thinking, innovation

and leadership skills. These PhDs have made essential contributions in various sectors, from industry to academic research, from public policy to entrepreneurial initiatives.

- *Creativity and passion within TUIASI*

TUIASI was a favorable environment for the development of these talents. With access to state-of-the-art resources, modern laboratories and a vibrant academic community, our students benefited from a stimulating environment that allowed them to develop their ideas and excel in their research. However, as important as the university environment is individual creativity and passion. These people are not only the product of a successful educational system, but also of their own desire to develop and contribute to knowledge and innovation.

- *Personal qualities and the ability to reinvent*

This event highlights the importance of personal qualities such as perseverance, intellectual curiosity and the ability to reinvent. Doctoral studies are a path of self-discovery and personal growth. Our graduates have learned to accept change, face challenges and adapt to new circumstances. This ability to reinvent is essential not just for academic success, but also for life and career success.

- *Celebrating success and inspiration*

The event "*Doctoral studies in Tuiasi – from personal experience to the vocation of excellence*" is a celebration of these successes and a source of inspiration for our current and future students. We want the success stories of our former PhD students to inspire new generations of students to aspire to excellence, follow their passions, and in turn contribute to the advancement of knowledge and society.

Details: <http://www.doctorat.tuiasi.ro/Htm/Evenimente.htm>

International cooperation

European doctorate

The European Doctorate (*Doctor Europaeus/Europaea*) was proposed by the *European University Association*, with the aim of stimulating the integration of doctoral graduates from European countries in the European academic and socio-economic environment. The European PhD is an internationally recognized advanced level of education and research that offers students unique opportunities to engage in high-quality research projects in a diverse and dynamic academic environment. This type of PhD promotes academic excellence and cross-border collaboration, enabling PhD students to work with renowned institutions and experts across Europe.

The European doctorate is characterized by a series of distinct elements that differentiate it from other doctoral programs. These include international mobility, interdisciplinarity and a focus on publishing impactful scientific papers. Doctoral students often have the opportunity to spend research periods in other European countries, benefiting from the resources and expertise of prestigious institutions. This international experience not only enriches students' knowledge and perspectives, but also contributes to the formation of an extensive network of collaborators and colleagues from diverse academic cultures.

The European Doctoral Certificate is a prestigious award given to PhD students who demonstrate academic excellence and commitment to the internationalization of their research. This certificate recognizes not only the high quality of the doctoral thesis, but also the significant involvement in research and collaboration activities at the European level.

Obtaining the European Doctoral Certificate requires the fulfillment of strict criteria, designed to ensure that doctoral students carry out their research activity in an international and interdisciplinary context. These criteria include carrying out a significant part of the research in another European country, publishing articles in prestigious journals and presenting research results at international conferences. Also, the doctoral thesis must be evaluated by at least two experts from outside the country of origin of the doctoral student, thus ensuring a high standard of objectivity and quality.

Criteria for awarding the *European Doctoral Certificate* :

1. The doctoral student is enrolled in a doctoral studies program at the "Gheorghe Asachi" Technical University of Iasi (TUIASI);
2. The student completed a doctoral program accredited by TUIASI and passed the scientific research project with the qualification "very good", at least;
3. The doctoral student has completed a research internship in the field of the thesis of at least 3 months in one or two universities in the European Union (EU) / EU associated countries (outside Romania), obtaining a positive internship report from the research internship coordinator from the partner university, the report being also approved by the PhD supervisor;
4. At least one member of the doctoral thesis support committee is a teaching/researcher in a prestigious university or research institute in the European Union and EU associated countries (outside Romania and different from the one where it was carried out research internship);
5. At least two specialist referees, teaching and/or research staff, from prestigious universities or research units in the European Union and associated countries (outside Romania), analyze the doctoral thesis and recommend its public support. Expert referees must be personalities with high scientific visibility and research concerns in the field of the doctoral thesis. The specialized referees are not members of the committee for public support of the doctoral thesis, nor coordinators of the research internship carried out by the doctoral student.
6. The doctoral thesis is written in an international language (preferably English);
7. The public defense of the doctoral thesis was made in an internationally spoken language (preferably English).

Details: <https://doctorat.tuiasi.ro/studenti-doctoranzi/doctorat-european/>

Institutional cooperation agreements

Institutional cooperation agreements are the foundation of academic and research partnerships between our university and higher education institutions around the world. These agreements facilitate the exchange of knowledge, resources and best practices, promoting the mobility of students and teaching staff, collaborations in joint research projects and the development of innovative academic programmes. Through these partnerships, we are committed to creating a

global network of academic excellence and actively contributing to the advancement of education and research internationally.

Details: <https://doctorat.tuiasi.ro/studenti-doctoranzi/doctorat-european/>

Cooperation agreements type ERASMUS+ K 103 (with European Union or affiliated countries)

ERASMUS+ K103 cooperation agreements represent an important pillar of the internationalization of our education. These agreements, concluded with universities and higher education institutions in the European Union and affiliated countries, facilitate the mobility of students, teaching staff and administrative staff. The ERASMUS+ K103 program offers valuable opportunities for academic exchanges, the development of intercultural competences and collaborations in research and innovation projects. Through these partnerships, we are committed to promoting academic excellence and enriching the educational experience of our university community.

Details: <https://doctorat.tuiasi.ro/studenti-doctoranzi/doctorat-european/>

PhD HUB

PhD HUB is a platform dedicated to supporting PhD students and promoting research excellence. By providing access to numerous opportunities for study, funding, courses, conferences and collaborations, the PhD HUB facilitates the academic and professional development of PhD students. The platform encourages international mobility and interdisciplinarity, creating an environment conducive to innovation and progress. Through partnerships with prestigious universities and institutions, PhD HUB connects young researchers with experts and resources essential to their career success.

Details: <https://phdhub.eu/>

Cotutelle agreements

"Gheorghe Asachi" Technical University of Iași (TUIASI) promotes cotutelle agreements to support international academic collaboration and offer doctoral students the opportunity to conduct their research under the guidance of two higher education institutions from different countries. Through these agreements, PhD students benefit from the resources and expertise of both universities, obtaining degrees recognized by both institutions. Co-tutorship agreements contribute to the professional development of students and the creation of an international academic network, essential for their future careers.

Details: <https://doctorat.tuiasi.ro/studenti-doctoranzi/doctorat-european/>

Postdoctoral programs

Within the Doctoral School of IOSUD-TUIASI can be organized, in the conditions of the law, advanced research postdoctoral programs for all areas of university studies by doctorate that operates within the Doctoral School.

Postdoctoral research programs can be financed from TUIASI's own income, internal grants, research projects with national or international funding, economic agents etc.

The postdoctoral research programs are organized within IOSUD-TUIASI and awarded through competition organized at the SD level, depending on the nature of the funding.

During the entire duration of the postdoctoral internship, the person admitted to only one postgraduate advanced research program for postdoctoral degree has the status of postdoctoral researcher.

The postdoctoral researcher is the person participating in an advanced research postdoctoral program and a obtained a Doctor of Science degree no more than 5 years before admission to the postdoctoral program (it is taken in taking into account the date of confirmation by the Order of the Minister of Education) or who participated and obtained the certificate of excellence at the "Marie Skłodowska Curie" competitions organized by the European Commission, regardless of the time when they acquired the doctorate title and who fulfills other conditions imposed by the funder at the time admission to the postdoctoral program.

In 2022, the first advanced research postdoctoral program was established within IOSUD - TUIASI, entitled ***Performance and excellence in postdoctoral research - 2022***, according to *the Procedure regarding the organization and conduct of advanced research postdoctoral studies*, with funding from the project "Network of excellence in research and applied innovation for doctoral and postdoctoral study programs: InoHubDoc" and "The institutional development of TUIASI by increasing performance in research, development and innovation: Compete 2.0"

Details: <https://doctorat.tuiasi.ro/studii-postdoctorale/regulament/>

Center of Talent Management (CMT-TUIASI)

Within the IOSUD-TUIASI Doctoral School, the Talent Management Center, CMT-TUIASI, operates, dedicated to doctoral students and postdoctoral researchers.

The mission of the Center of Talent Management (CMT-TUIASI) is to increase the employability of PhD students and postdoctoral researchers by training transferable skills in a relevant context in relation to the needs of industry and the public sector. CMT-TUIASI will identify and monitor skills needs and will implement awareness and skills training services adapted to each beneficiary.

The CMT-TUIASI activity is addressed to doctoral students and postdoctoral researchers within the framework "Gheorghe Asachi" Technical University in Iași, including students coming to study through programs of mobilities, within the doctoral studies.

CMT-TUIASI's fundamental objective is to support doctoral students and postdoctoral researchers for learning and personal enrichment to facilitate their further professional integration.

The specific objectives pursued by the CMT-TUIASI Talent Management Center are:

- offering consultancy for career awareness, understanding of skills and skills that are required on the labor market;
- providing consultancy to identify opportunities for professional and personal development;
- providing access to useful information and resources to doctoral students and postdoctoral researchers from the University in terms of management and career development;
- ensuring access to training, specific working methods and guidance for all workers with the doctoral students and postdoctoral researchers of the University;
- access to training both for doctoral students, postdoctoral researchers, and for PhD supervisors from the "Gheorghe Asachi" Technical University in Iași;
- supporting PhD students and postdoctoral researchers through mentoring and personalized support for strengthening skills and gaining autonomy in scientific research;
- creating a climate of interdisciplinary cooperation.

Competency assessment and career plan

CMT-TUIASI offers support in building an appropriate career plan along with assessment research competencies defined by ResearchComp (EU, 2023).

Career conversations

Within CMT-TUIASI, you can directly discuss the experience in the fields of professional interest.

Critical analyzes of CVs within CMT-TUIASI

Within CMT-TUIASI, a TUIASI ALUMNI advisor or representative, who are company insiders and industry insiders, can be asked to critique the employment summary/CV or cover letter. Reviews include both recommendations and expert advice.

Details: <http://cmt.tuiasi.ro/consiliere/>

The Councils for Coordination of Doctoral Programs (CCPD) from the Doctoral School of IOSUD-TUIASI

The Councils for Coordination of Doctoral Programs (CCPD) are functional internal structures that coordinate doctoral study programs at each faculty level, established according to University Senate Decision no. 386 of 27.10.2017 and subordinated to the Doctoral School. The CCPD is coordinated by a director and a council elected by the vote of the doctoral supervisors.

Faculty of Automatic Control and Computer Engineering



<https://ac.tuiasi.ro/studii/doctorat/>

Doctoral fields: *Computers and Information Technology, Systems Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Partners

Amazon Development Center Romania-Iasi, Continental Automotive Romania-Iasi, Preh Romania - Iasi, Vitesco Technologies Engineering Romania - Iasi



Doctoral field: Systems Engineering (IS)

Graduates of PhD studies in Systems Engineering can easily find suitable positions not only in the strict domain of automatic systems, but more broadly as engineers with training in abstract thinking. (Prof. Jan Maciejowski, University of Cambridge - Panel Session on Education – 2011 IFAC Congress)

Doctoral studies in the field of Systems Engineering

The Systems Engineering doctoral field is to develop a highly specialized human resource for research-development and innovation, competent in the design and management of technical systems and technological processes (with various degrees of automation complexity). Skills are assured necessary for progress in academic and industrial environments, for advanced scientific research, for approaches interdisciplinary and for the promotion of scientific collaborations at national and international level.

International cooperation

Erasmus + agreements	The elbows
<ul style="list-style-type: none"> • Ghent University, Belgium • Eindhoven University of Technology, Netherlands • Vienna University of Technology, Austria • University of Duisburg-Essen, Germany • University Joseph Fourier Grenoble, France • University of Zaragoza, Spain • University of Sheffield UK 	<ul style="list-style-type: none"> • Research Group on Dynamical Systems and Control, Ghent University, Belgium • Department of Computer Science and Systems Engineering, University of Zaragoza, Spain

Research directions and projections

Research in the field of *Systems Engineering* is oriented towards modern directions/themes, with a pronounced interdisciplinary character, in agreement with the scientific progress reported in the specialized literature:

- Qualitative theory of dynamical systems (structural properties, polytopic structures, switched structures, hybrid structures, systems with discrete events, waiting systems);
- Advanced control techniques (model-free control, distributed predictive control, based distributed control
- on multi-agent concepts);
- Dynamic control of car systems (intelligent mobility - cooperative, connected and automatic mobility, cooperation of automated vehicles through communication networks, reliability assessment network communications for interconnected vehicles, optimal sensor data fusion);
- Control strategies for electric and hybrid vehicles (electric systems and drives, modeling and control propulsion systems);
- Robotic systems equipped with visual sensors (algebraic and geometric modeling and control methods, trajectory planning algorithms, algorithms for computer vision, real-time implementations in robotics).

Doctoral field: *Computers and Information Technology (CTI)*

Doctoral studies in Computers and Information Technology

The scope of ***Computers and Information Technology*** doctoral field is to develop a human resource highly specialized through research for R&D and innovation, competent in designing and exploitation of hardware and software structures, with various degrees of complexity of implementation, capable of insertion on the highly qualified labor market, by ensuring a creative, deontological framework suitable for studies academics, advanced scientific research, interdisciplinary approaches and the promotion of scientific collaborations at national and international level.

International cooperation

Erasmus + agreements	The elbows
<ul style="list-style-type: none"> • Vienna University of Technology, Austria • University of Helsinki, Finland • University of Eastern Finland, Finland • Institut National Polytechnique de Toulouse, France • Ecole Nationale Supérieure d'Ingenieurs de Caen, France • Institut Supérieur d'Electronique de Paris ISEP, France • University of Applied Sciences Konstanz, Germany • Goethe University Frankfurt am Main, Germany • Universidade do Minho, Portugal • University of Granada, Spain 	<ul style="list-style-type: none"> • Vienna University of Technology, Austria • University of Eastern Finland, Finland

Research Directions and Prospects

The researches are oriented towards modern directions/themes, with a pronounced interdisciplinary character, in agreement with the scientific progress reported in the specialized literature:

- High performance computing
- Combinatorial optimization
- Artificial intelligence
- Quantum computing
- Heuristics inspired by nature
- Machine learning, deep learning
- Image processing
- Cyber security
- Multi-agent systems

Contact:

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Responsible for the CTI field

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"Cristofor Simionescu" Faculty of Chemical Engineering and Environmental Protection

<https://icpm.tuiasi.ro/studii/doctorat/>

PhD fields: *Chemistry, Chemical Engineering, Environmental Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Partners

The companies RENAULT, GreenFiber International Iasi, USV Iasi, SC APAVITAL SA Iasi, the Institute of Macromolecular Chemistry "Petru Poni" Iași, Antibiotice SA Iași, Politehnica University Bucharest, TeraPlast Bistrita, Plastor SA Oradea, Chimcomplex SABorzești, SC TAPARO SA Tg Lăpuș



Doctoral studies in the fields of *Chemistry, Chemical Engineering, Environmental Engineering*

Doctoral studies in the fields of *Chemistry, Chemical Engineering and Environmental Engineering* are of paramount importance for several reasons. These advanced studies not only contribute to the academic and professional development of doctoral students, but also play a critical role in addressing some of the most pressing challenges society is facing today. Doctoral research in these fields leads to the advancement of scientific knowledge and technological innovation.

In *Chemistry*, PhD students explore the fundamental properties of matter, leading to the development of new materials, pharmaceuticals and chemical processes. In *Chemical Engineering*, doctoral research often focuses on optimizing industrial processes, improving energy efficiency, and developing sustainable manufacturing techniques. *Environmental Engineering* PhD students work to design and develop solutions to mitigate pollution, manage waste and protect natural resources, contributing to the sustainability of our planet.

Today the world faces numerous challenges that require advanced scientific and engineering solutions. Climate change, energy sustainability, water scarcity and environmental pollution are just a few examples. Doctoral studies in these fields provide researchers with the expertise to develop innovative solutions to these problems. For example, environmental engineers might develop new methods for water purification or waste management, while chemical engineers might create more efficient renewable energy systems.

International cooperation

Erasmus + agreements	Cooperation agreements (Erasmus KA3, KA 107, MoU)	The elbows
<ul style="list-style-type: none"> • Vienna University of Technology, Austria • Universiteit Antwerpen, Belgium • Aalborg University, Denmark • University of Avignon, France • University of Nice Sophia Antipolis, France • Ecole Nationale Supérieure de Chimie de Rennes, France • Aristotle University of Thessaloniki, Greece • Technical University of Crete, Greek • Sapienza University of Rome, Italy • New University of Lisbon, Portugal • University of Twente, Netherlands 	<ul style="list-style-type: none"> • Colorado State University, USA • University of Sherbrooke, Canada • Universidade Paulista - UNIP, Sao Paulo, Brazil • Mahatma Gandhi University, India • Université Ibn Zohr, Morocco • Norwegian University Science, Norway 	<ul style="list-style-type: none"> • University of Angers, France • Littoral University, Dunkerque, France • Université Côte d'Azur, Nice, France • University of Antwerp, Belgium • Politecnico di Torino, Italy • Politecnico di Bari, Italy • University of Minho, Braga, Portugal • Vienna University of Technology, Austria • University of Bologna, Italy

Research directions and projections

- Polymers sensitive to external stimuli (light, temperature, pH), with biological applications
- Utilization of waste to obtain adsorbent materials with applications in environmental remediation
- Energy recovery of waste from the food industry

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- Advanced nano-heterostructures for applications in catalysis
 - Polymeric composite materials based on vegetable fibers
 - Ferroelectric/antiferroelectric liquid crystals
 - Artificial intelligence with applications in autoimmune diseases
 - Wastewater treatment processes and sustainability assessments
 - Conversion of molecules derived from biomass through non-polluting catalytic processes (green chemistry)
 - Nanocatalysts for the removal of organic micropollutants from water
 - Bioremediation processes of environmental components through biosorption and bioaccumulation and recovery of some critical metals from biomass.
 - Advanced wastewater treatment for the elimination of priority and emerging pollutants
 - Coordination compounds with special properties
 - Diffusion in controlled release polymer systems
 - Dermatocosmetic formulations using bioactive compounds from indigenous natural sources
 - Sustainable recovery of critical metals from secondary resources

Contact:

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Faculty of Construction and Installations

Faculty of Hydrotechnics, Geodesy and Environmental Engineering



<http://sdfci.ci.tuiasi.ro/>

PhD field: *Civil Engineering and Installations*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Partners

Mapei Romania, ISC Iasi, DRDP Iasi, Iasicon SA, Conest SA, Clima Therm Center SRL, Dimmer SRL, Apavital Iasi, ANIF Iasi, Aba Prut-Bârlad



Doctoral studies in the field of Civil Engineering and Installations

Doctoral studies in the field of *Civil Engineering and Installations* are an excellent option for those who want to advance in this field and contribute to scientific and technological progress in construction and infrastructure. These PhD programs offer opportunities for advanced research and specialization in various aspects of civil and facilities engineering, such as structural design, construction management, geotechnical engineering, hydraulic engineering, water supply and sewage systems, energy efficiency etc.

PhD students in *Civil Engineering and Installation* engage in advanced research, focusing on real problems in the field and developing innovative solutions to them. This may involve designing and testing new technologies, developing mathematical models or simulations to better understand the behavior of structures or plant systems, or exploring new materials or construction technologies.

Civil and facilities engineering are interdisciplinary fields, and doctoral studies encourage collaboration between different disciplines such as structural engineering, geotechnical engineering, hydraulic engineering, mechanical engineering and electrical engineering. This helps PhD students to gain a more comprehensive understanding of the field and approach complex issues from multiple perspectives.

Doctoral studies encourage innovation and technological development in civil engineering and facilities. PhD graduates are often involved in the creation and implementation of new or improved technologies to make construction safer, more efficient and more sustainable.

Completing a PhD program in *Civil Engineering and Installations* opens doors to various career opportunities in the construction industry, academia, research and development, government or the private sector. PhD students can become researchers, university teachers, consulting engineers, project managers or construction contractors.

Research and innovation in civil and facilities engineering has a significant impact on society and the economy. The solutions developed in doctoral studies can contribute to building more disaster-resistant infrastructures, reducing resource consumption and carbon emissions from construction, improving the efficiency and safety of transportation systems, and other social and economic benefits.

International cooperation

Erasmus + agreements	Cooperation agreements (Erasmus KA3, KA 107, MoUs, research cooperation agreements, etc.)
Johannes Kepler University Linz, Universiteit Ghent, Visshe Stroitelno Uchilishte (VSU)- "Lyuben Karalov"*, Todor Kableshkov Higher School of Transport, Brno University of Technology, Brno University of Technology, University of Cyprus, Universite d'Orleans, University of Reims Champagne- Ardenne, Universite Lille 1- Sciences et Technologies, Universite Paris Est Creteil Val-de Marne UPEC, ENTPE -Ecole Nationale des Travaux publics de l'Etat, Technische Universitat Dresden, Universitat Kassel,	University of Pretoria, Epoka University/Tirana, Royal University of Bhutan, University of Ottawa, Beijing Jiaotong University, Universidad Adolfo Ibanez, Universidad Andres Bello, Pontificia Universidad Católica de Chile, Universidad fidelity,

<p>National Technical University of Athens, Democritus University of Thrace, Università degli Studi di Firenze, University of Padua, University of Studies di Cassino, Second University of Naples, University of Basilicata, University of Parma, University of Mediterranean Studies in Reggio Calabria, University of Palermo, University of Northumbria at Newcastle, Barhale Limited, AGILYSIS Limited, SS Cyril and Methodius University in Skopje, Wroclaw University of Technology, Universidade do Minho, Universidade Nova de Lisboa, University of Porto, Universidade da Beira, Instituto Politecnico de Tomar, Portugal, Universidad de A Coruna, Universidad Polytechnic of Madrid, University of Castilla La Mancha, Universidad de Leon, University of Huelva, University Polytechnic of Valencia, University of Maribor, Slovak University Technology in the Bratislava, Gediz universities, Istanbul Aydin University</p>	<p>Mansoura University, Technological University of the Philippines, Samara State University of Economics, Georgian Technical University GTU, JadaVpur University, Indian Institute of Technology Bombay, Universitas Atma Jaya Yogyakarta, Universitas Pelita Harapan, Institute Teknologi Sepuluh Nopember Surabaya, Mutah University, Al Karak, Université IBN ZOHR, University Mohamed 5 Rabat, Universidad de Lima, State Agrarian University of Moldova, Technical University of Moldova, Mae Fah Luang, Asian Institute of Technology AIT, Lviv Polytechnic National University, Odessa State Academy of Civil Engineering and Architecture</p>
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Research directions and perspectives

- sustainable development, interior comfort, energy efficient buildings, green buildings
- constructions, energy efficiency, composite materials, waste recycling, passive house
- land, foundation, infrastructure rehabilitation, slope stability, improvement of foundation land
- concrete, precast, prestressed, consolidation
- roads, asphalt, markings
- constructions, construction materials, composite structures, structure calculation, structural safety
- construction economy; construction project management, quality management, safety in construction
- heat exchangers with heat pipes, energy storage systems, energy renewable, CFD numerical analysis
- water quality, pollution, protection, treatment plants
- hydrology, water resources management, hydrogeology, flood risk management, safety hydrotechnical works
- fluid, flow, modeling
- soil, evaluation, improvement

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<http://sdfci.ci.tuiasi.ro/>

Faculty of Machine Manufacturing and Industrial Management

<https://cmmi.tuiasi.ro/studii/doctorat/>



Doctorate fields: *Industrial Engineering, Mechanical Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Partners

OMCO, BorgWarner, Continental, Groupe Renault Romania, Vitesco Technologies, BMT Aerospace, BMT Romania, TotalGaz Industries, Schaeffler Romania, Autoliv Braşov, Rulmenti Bîrlad, Aerostar Bacău/Iasi



Doctoral studies in the fields of Industrial Engineering, Mechanical Engineering

Doctoral studies in *Industrial Engineering* and *Mechanical Engineering* respectively are important for advancing technology, improving industrial processes and addressing complex engineering challenges. These areas are fundamental to the development and optimization of systems and machinery that drive modern industry and innovation.

Doctoral research focuses on the optimization of complex systems and processes. This includes improving efficiency, productivity and quality in manufacturing and service industries. PhD students in this field develop advanced methodologies for operations research, supply chain management and logistics, which are essential for business competitiveness and sustainability.

Industrial Engineering PhD programs often emphasize the integration of technology with human factors. Researchers work to design systems that improve human performance and safety, such as ergonomic workstations, user-friendly interfaces, and automated systems. This interdisciplinary approach ensures that technological advances are aligned with human capabilities and needs.

Doctoral studies in *Mechanical Engineering* stimulate innovation in the design and manufacture of mechanical systems. PhD students explore advanced topics such as robotics, nanotechnology and additive manufacturing (3D printing). Their research leads to the development of new materials, more efficient machines and cutting-edge manufacturing techniques that revolutionize industries.

With the increase in the volume of data and the need to analyze it, PhD students can be at the forefront of developing data-driven decision-making tools. They create models and algorithms that help organizations make informed decisions based on data analysis, predictive modeling and machine learning. This capability is essential for optimizing operations and strategic planning in various industries.

International cooperation

Erasmus + agreements	The elbows
<ul style="list-style-type: none"> • Technical University of Varna, Bulgaria; • Universite Lille 1, France; • COST - Collegium Sciences et Techniques - • Universite d'Orleans, France; • University Claude Bernard Lyon, France; • Ansbach University of Applied Sciences (Hochschule Ansbach), Germany; • Aristotle University of Thessaloniki, Greece; • University of Udine, Italy; • University of Modena and Reggio Studies Emilia, Italy; • University of Naples Federico II, Italy • University of Palermo, Italy; • University of Cagliari, Italy; • University of Parma, Italy; • Universidade Nova de Lisboa, Portugal; • Universidade de Aveiro, Portugal; • Polytechnic Institute of Tomar, Portugal; • Politechnika Slaska, Poland; • Poznan University of Technology, Poland; • University of Valladolid, Spain; 	<ul style="list-style-type: none"> • Ansbach University of Applied Sciences (Hochschule Ansbach), Germany; • Tor Vergata University of Rome, Italy • Silesian University of Technology, Gliwice, Poland

- | | |
|---|--|
| <ul style="list-style-type: none"> • University of A Coruna, Spain; • University of Cadiz, Spain; • University of Córdoba, Spain; • University of Málaga, Spain; • Gazi University, Turkey; • Selcuk / Konya University, Turkey | |
|---|--|

Research directions and perspectives

- The study of manufacturing components from composite materials using 3D printing techniques;
- Application of LEAN methodologies in the management of automotive activities;
- Making molds for thermoforming using additive manufacturing;
- Constructive and functional optimization of cooling systems used in automobile construction;
- Study of the operation of an internal combustion engine with textured cylinders;
- Creative synthesis of airfoil clamping devices;
- Constructive and functional optimization of a bionic hand;
- Monitoring and diagnosis of manufacturing systems;
- Optimization of prosthetic systems;
- Surface texturing of liquid wood landmarks;
- 3D printing of reinforced plastic materials and research on the characterization of the parts obtained by 3D printing;
- Research on the construction and operation of grippers in the structure of industrial robots;
- The study of hydraulic energy production, transport, transformation, distribution and consumption systems and thermal;
- Research on hydromechanical equipment in hydroelectric plants and piping systems.

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Faculty of Electronics, Telecommunications and Information Technology

<https://etti.tuiasi.ro/studii/doctorat/>

Doctoral field: *Electronic Engineering, Telecommunications and Information Technologies*



PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Partners

Continental Automotive Romania; Vitesco Technologies; OSRAM Continental Romania; Infineon Technologies Romania; Microchip; Orange; Huawei; Ericsson; ELECTRA; ANCOM; Honey; WOMAN Application





Doctoral studies in the field of *Electronic Engineering, Telecommunications and Information Technology*

At the heart of current research, electronics and telecommunications contribute significantly to enrichment knowledge and the development of cutting-edge technologies of the future and the generation of innovative solutions for progress society and increasing the quality of life. The research fields grouped under the name of *Electronic Engineering, Telecommunications and Information Technologies* are among the most dynamic in current scientific research and ensures the development of applications with a significant impact on the evolution of society. Research directions offered to PhD students are diverse and highly current: power electronics, efficient transmission of information on fixed and mobile media, sophisticated signal processing, analog and digital VLSI circuits, complex man-machine interface applications, intelligent technologies (neural systems, fuzzy systems, genetic algorithms, "machine learning", "deep learning", artificial intelligence).

International cooperation

Erasmus + agreements	Cooperation agreements (Erasmus KA3, KA 107, MoU, agreements of research)
<ul style="list-style-type: none"> • Institut National des Sciences Appliques de Lyon, INSA, France (F LYON12); • Universite d'Orleans, France (F ORLEANS01); • Universite Paul Sabatier Toulouse III, France (F TOULOUS03); • Universite de Poitiers, France (F POITIERS01); • Telecom Paris Tech, France (F PARIS 083); • University of L`Aquila, Italy (I L-AQUIL01); • Universita`di Roma "Tor Vergata", Italy (I ROMA02); • University of Calabria, Italy (I COSENZA01); • Northumbria University, Great Britain (UK NEWCAST02); • Universidade do Minho, Portugal (P BRAGA01); • Universidad Politecnica de Valencia, Spain; • Istanbul Technical University, Turkey (TR ISTANBU04); • Ankara University, Turkey (TR ANKARA01); 	<ul style="list-style-type: none"> • Yanka Kupala State University of Grodno, Belarus (www.en-grsu.by); • Mansoura University, Egypt (www.mans.edu.eg); • Institut Teknologi Sepuluh Nopember Surabaya, Indonesia (www.its.ac.id); • International University for the humanities and development - IUHD, Ashgabat, Turkmenistan (https://iuhd.edu.tm/);

Research directions and perspectives

- contributions on the use of artificial intelligence concepts in autonomous systems;
- contributions to the correlative analysis of the vocal signal in various forms of speech in the Romanian language;
- contributions to the design of polar and turbo codes;
- applications of *deep learning architectures* in cyber security;
- contributions on the intelligent management of vehicular traffic;
- contributions to improving the reliability of power converters;
- contributions regarding the optimization of the VLSI implementation of some blocks used in telemedicine;
- contributions to the development of human-machine interfaces with applications in assistive technologies;
- deep neural traffic management systems;
- thermal image processing for reconnaissance purposes.

Contact:

Director CCPD – ETTI

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Faculty of Electrical Engineering, Energetics and Applied Informatics

<http://www.phd-school.ee.tuiasi.ro/>

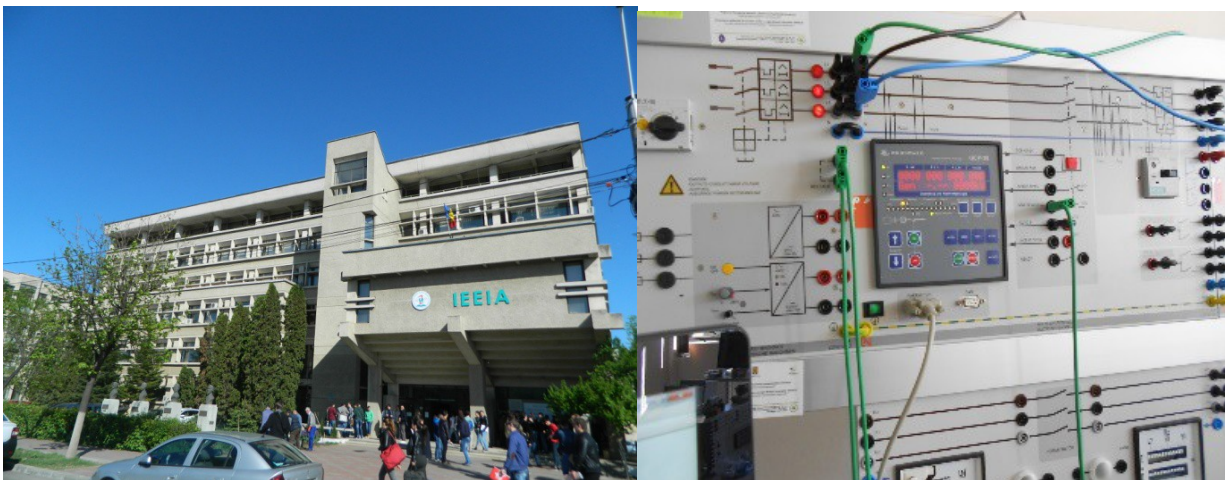
Doctorate fields: *Electrical Engineering, Energy Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>

Top partners

ANCOM, National Authority for Communications Administration and Regulation, Continental Automotive Romania, DELGAZ Grid SA, Transelectrica SA, Vitesco Technologies, Hidroelectrica SA, SMART SA, Arcelor Mittal Iasi, SC DAS SRL , SC Electromontaj SA



Doctoral studies in the field of *Electrical and Energy Engineering*

The first doctoral thesis at the "Gheorghe Asachi" Polytechnic School (operating continuously under the form of an independent technical-engineering higher education institution starting in 1938) was defended (on March 18, 1939) by Eng. Gérard d'Albon, under the scientific direction of the great scientist Ștefan Procopiu (Nobel Prize candidate, first dean of the newly established Faculty of Electrical Engineering), having a topic in the field of electromagnetism. Over time, the doctoral studies organized in the current Faculty of Electrical Engineering, Energetics and Applied Informatics have evolved in accordance with the academic context, economic and social, in accordance with the proposed mission and objectives, being perfectly connected with the policies and national and European research strategies. We train highly qualified specialists for research, design, higher education or the productive and social sphere, with a versatile orientation, able to assimilate and integrate theoretical and practical knowledge in the development and modernization of the economic sector, having an immediate absorption on such a dynamic and competitive labor market.

International cooperation

Erasmus + agreements	The country
University of Cyprus; Cyprus University of Technology,	CYPRUS
Le Havre University; University of Angers; Universited'Orleans; COST - Collegium Sciences et Techniques - Universite d'Orleans; CentraleSupelec Rennes, INSA Strasbourg- Université de Strasbourg	France France
Technische Universitaet Chemnitz,	Germany
University of Iceland	Iceland
University of Mediterranean Studies of Reggio Calabria; University of Catania; University of Turin; University of Roma Tre Studies; Università degli Studi del Sannio, UNISANNIO)-Benevento	Italy Italy
Riga Technical university	Latvia
New University of Lisbon; University Institute of Lisbon (ISCTE-IUL)	Portugal
University of Ljubljana	Slovenia
Karabuk University; Mersin University; Firat University; Kahramanmaras Sutcu Imam University	Turkey

Research directions and perspectives

- Internet of Things, networks of sensors and transducers;
- Digital processing of signals and images, virtual instrumentation, measurements of environmental parameters;
- Driver assistance systems in traffic, autonomous cars, automotive;
- Smart electrical grids;
- Optimizations in power systems;
- Renewable energies, maintenance and reliability;
- Transient electromagnetic regimes, High Voltage Technique, environmental pollution control;
- Availability and adequacy of power systems;
- Power quality, quality management in electrical systems;
- Electrical devices and equipment, FACTS devices;
- Nano-/micro-composites and technologies for electromagnetic applications, electrochemistry, ecotechnologies;
- Complex isolation and electromagnetic shielding systems, electromagnetic compatibility;
- Intelligent sampling and processing of biological signals;
- Mobile robotics, human movement analysis, rehabilitation robotics, neuroprostheses;
- Brain-computer interfaces, functional electrical stimulation for neuromotor recovery;
- Polarization, dielectrophoresis, screen-printing, dielectrics, bioimpedance.

Contact:

CCPD-IEEIA Director:

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<http://www.alexandrusalceanu.ro/>

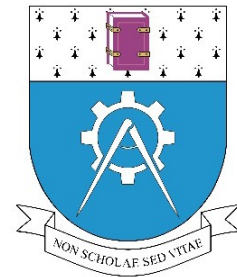
Faculty of Mechanics

<https://mec.tuiasi.ro/studii/doctorat/>

Doctoral fields: *Mechanical Engineering, Materials Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>



Partners

Borgwarner Romania SRL; Arcelormittal Tubular Products; Continental Automotive Romania Iasi; Northeastern University Boston USA; CNUD EFCO Romania SRL; PREH Romania SRL; National Technical University Of Athens, Greece; ENSYRO SRL Cluj Napoca; TESS Industry Iasi; VFU electric power Pascani



Doctoral studies in the field of *Mechanical Engineering, Materials Engineering*

Engineering... is a great profession. It is the fascination of seeing how a creation a imagination is transformed with the help of science into a plan on paper. Doctorate in Engineering Mechanics creates the possibility to be the engine of your generation!

CCPD-Mec manages and facilitates concrete interdisciplinary research in modern laboratories with exceptional endowment having the following motivations:

- research related to the needs of economic operators zonal;
- modern materials and technologies for automotive applications; biocompatible materials biodegradable;
- optimizing the operation of the car's propulsion systems;
- research for growth bearing reliability;
- development of knowledge in the field of vibroacoustic diagnosis;
- modeling wear phenomena in complex industrial systems;
- study of the mechanical behavior of biological structures human;
- robots with various applications;
- applied research in thermal systems (cogeneration, refrigeration, energy renewable).

Completion of doctoral studies creates the prerequisites for a university career, in scientific research and the accumulation of professional skills at the highest level for future industry leaders.

International cooperation

Erasmus + agreements	Cooperation agreements (Erasmus KA3, KA 107, MoUs, research cooperation agreements, etc.)
<ul style="list-style-type: none"> - National Technical University of Athens, Greece - Aristotle University of Thessaloniki, Greece - INSA de Lyon – France - Minho University, Guimaraes, Portugal - Universite d'Artois, France - HTW des Saarlandes, Germany - Vrije Universiteit Brussel, Belgium - Royal Military Academy of Brussels, Belgium - Technical University of Kaiserslautern, Germany - Blaise Pascal University, Clermont Ferrand, France 	<ul style="list-style-type: none"> - Ben Gurion University of the Negev, Israel - Naresuan University, Thailand (KA107) - University La Sapienza ROME 1, Italy - University of LORRAINE, France - Technical University of Lisbon, Portugal

Research directions and prospects

- Research on the regenerative braking system of motor vehicles;
- Study of tribological processes in mechanical, mechatronic and biological micro systems;
- Experimental research on the combustion of alternative fuels and hydrogen mixtures;
- Advanced materials used for hydrogen storage for automotive applications;
- Biodegradable metal materials used in medical applications;

- Surface engineering through thermal and cold coatings for military applications;
- Research in the field of bearing capacity of components when plastic deformations occur;
- Development of new complex road traffic monitoring systems;
- Solar assisted cogeneration and trigeneration systems;
- Hybrid energy production systems from local resources;
- New limit state theories, with applications to the study of compound demands;
- Vibroacoustic diagnostic systems in the automotive field;
- Robots with applications in agriculture and intelligent systems with natural interaction.

Contact:

CCPD Director – MEC:

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Faculty of Materials Science and Engineering

<https://sim.tuiasi.ro/studii/doctorat/>

Doctoral field: *Materials Engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>



Partners

Arcelor Mittal Tubular Products Iasi; SC RANCON SA; SC R&D Consultancy and Services, NETZSCH; "P. Poni" Institute of Macromolecular Chemistry, Iasi; National Institute for Technical Physics, Iasi; Iasi Regional Railway Branch; Cablero Steel Group SRL; University Istanbul Tech; Catholic University of Leuven



Doctoral studies in the field of *Materials Engineering*

From carbon nanotubes to superelastic and shape memory steels, from metallic biomaterials to multifunctional ceramic layers, the materials of the future wait in our labs to connect to the world of science and engineering.

Materials represent one of the most dynamic sectors of the economy. Permanently, they are reported discoveries of new materials. After carbon nanotubes and metal foams came the materials nanostructured by severe plastic deformation or the self-repairing ones. A wide range of themes are offered research, starting from structural metallic materials (steels, cast irons, aluminum alloys, copper, titanium, magnesium, etc) and up to the latest multifunctional materials (shape memory alloys, nanofluids for thermal transfer, biomaterials for prosthetics and implantology, thin layers and osmotic membranes). By investigating their structure, down to the nanometric level, PhD students can contribute to the progress of science and development. Our PhD students have participated in numerous international conferences, for example HTMSAs 2015, at Wildbad Kreuth, Germany.

International cooperation

Erasmus + agreements	Cooperation agreements	The elbows
Technical University of Lisbon, Portugal Montanuniversitat Leoben, Austria University of Beira Interior, Portugal University of Vigo, Spain University of Poitiers, France Technical University Of Athens, Greece University of Chemical Technology and Metallurgy, Bulgaria Universita degli Studi di Campagna , Italy	URFU-South Ural State University- Russia Tambov State Technical University – Russia Ruhr University from Bochum, Germany University of Parma, Italy NTNU, Norway NETZSCH, Selb, Germany	University Alexander Ioan Cuza, Iasi

Research directions and perspectives

- superelastic and shape memory materials (national leaders)
- new fluids for energy efficiency, including alternative energy resources
- advanced materials used in medical applications, including combating and preventing the spread of disease
- obtaining and characterizing metallic biomaterials
- obtaining new ferrous and non-ferrous alloys (HEA type alloys, self-repairing materials)
- fire resistant composite and nanocomposite materials
- surface engineering, including the reduction of corrosion phenomena
- obtaining and characterizing geopolymers
- technologies for obtaining transparent metallic materials
- metal/ceramic multilayer structures for biomedical applications
- advanced metal materials (massive and thin layers) for vibration and sound attenuation
- hyper-resistant materials produced by advanced biotechnologies (e.g. obtaining long filaments hyper-resistant with spider web structure)

Contact

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<https://sim.tuiasi.ro/studii/doctorat/>

Faculty of Industrial Design and Business Management

<https://dima.tuiasi.ro/doctorat-2/>

PhD fields: *Industrial Engineering, Engineering and Management, Chemical engineering*

PhD supervisors:

<https://doctorat.tuiasi.ro/conducatori-de-doctorat/>



Partners

GEMINI CAD SYSTEMS, Katty Fashion, INCDTP Bucharest, SC Aerostar SA, Continental AG, SC Biocomp SRL, SC MAGNUM SX. SRL, ADR Nord-Est, REDU, ASTRICO Nord-Est



Doctoral studies at the Faculty of Industrial Design and Business Management

"A goal should scare you a little and excite you a lot" (Joe Vitale)

The doctoral fields of *Industrial Engineering, Chemical Engineering and Engineering and Management* are components important in reshaping the future of a fascinating textile and fashion industry. The robots which assemble and cut textiles, artificial intelligence algorithms that predict trends, mirrors which incorporates virtual reality for trying on clothes, and a host of other innovations, it shows how technology automates, personalizes and accelerates the fashion space. All these trends it also reflects in the challenging approaches within the doctoral studies that thus open new perspectives.

The purpose of a PhD is to make an original contribution to knowledge and to discover something new. Studies PhDs can certainly contribute to:

- developing fundamental knowledge in the field of specialization;
- the development of original research on the topic addressed;
- mastery of the analytical and methodological skills needed to evaluate and conduct research in field of specialization and in other related fields;
- the capacity for critical analysis, evaluation and synthesis of new and complex ideas;
- the ability to further develop the progress achieved in technological, social or cultural terms in an academic and professional context;
- demonstrating the ability to communicate research findings in a clear and effective manner;
- demonstrating the ability to work with others from different ethnic, educational and de professional experience;
- achieving the standards associated with prestigious national and international publications;
- improving interpersonal skills such as networking and strengthening relationships, including international ones, invaluable in your future career.

International cooperation

Erasmus + agreements		The elbows
<ul style="list-style-type: none"> - University College Ghent - Faculty of Science and Technology, Belgium - Tomas Bata University in Zlin, Czech Republic - Technical University of Liberec, Czech Republic - Universite de Haute-Alsace, France - University of the Aegean, Greece - Technologhiko Ekpaideftiko (TEI) Piraeus, Greece - University of Mediterranean Studies from Reggio Calabria, Italy - Universite d'Angers, France - Polytechnic Kritis, Greece 	<ul style="list-style-type: none"> - University of Granada, Spain - Lodz University of Technology, Poland - University of Bielsko, Poland - Universe v Ljubljana, Slovenia - University of Maribor, Slovenia - Uludag University, Turkey - Bursa Teknik University, Turkey - Ege University, Turkey - Namik Kemal University, Turkey - University of Gaziantep, Turkey 	<ul style="list-style-type: none"> - University of Lille, France - University of Nord Pas de Calais, ENSAIT, France - University of Boras, Sweden - University Soochow, China

Research directions and perspectives

Responding to the evolving dynamics of the complex environment of values and opportunities, doctoral studies within the Faculty of Industrial Design and Business Management focus on interdisciplinarity and international cooperation in research, which outline several main perspectives:

- the development and efficient realization of new complex textile structures;
- much more efficient processing techniques;
- new recycling concepts and technologies;
- developing substitutes for risky and polluting chemical processes;
- adopting solutions based on biochemistry and biomaterials, and a better exploitation of natural fiber resources;
- advanced materials used in medical applications, including combating and preventing the spread of disease;
- design and virtual design of fiber-based materials and products and other textile products;
- digitization and flexibility of production processes in factories;
- the development of new personalized solutions, the adaptation of offers and services to the requirements of the new type of consumer;
- digitization of solutions for the entire value chain in the fashion industry, and new business models;
- new approaches in the context of the circular economy.

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