

TO: The Faculty of the College of Engineering

FROM: Elmore Family School of Electrical and Computer Engineering of the College of Engineering

RE: New Joint PhD Program with the Technical University of Crete

The faculty of the Elmore Family School of Electrical and Computer Engineering has approved the following joint PhD degree program. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Joint PhD Degree Program between the Elmore Family School of Electrical and Computer Engineering, Purdue University and the School of Electrical and Computer Engineering, Technical University of Crete

Program Summary: With this joint program, a student will earn a joint PhD degree in ECE between Purdue University and TUC. Students will spend at least four cumulative semesters at Purdue and at least four cumulative semesters at TUC. The international joint supervision and cooperation of the partners will be indicated on the diploma. The joint degree awarded will be expressed through one diploma signed by each institution.

Reason: This Joint PhD program stands as a significant step forward in ECE PhD education, promising to meet the highest academic, professional, and industry standards while fostering international collaboration and research excellence. Its establishment will not only benefit the participating students and schools but also contribute significantly to the advancement of international PhD education.

Advantages and benefits of the joint PhD degree program to students

The program will boost both institutions' visibility, attracting talented students who might be apprehensive about relocating to a foreign country for the duration of their PhD studies. It will offer exceptional Greek/EU students the opportunity of premier PhD education, without the necessity to relocate to the US for 5 to 6 years. It will also offer US students the opportunity to live in Greece during their PhD studies (which is important, provided that Greece is currently the 8th top study-abroad destination for US students). US-based individuals with strong ties to Greece and Crete, such as Greek-Americans or US military personnel stationed overseas, will also have the option to take advantage of this opportunity, through the proposed joint PhD degree program. Finally, the proposed program will give more opportunities to students from southeast Europe and the eastern Mediterranean region to immerse themselves in US culture and benefit

from Purdue's world-class reputation.

PhD students will gain invaluable experience from living, studying, and conducting research in two distinct environments and countries. The program will broaden international research networking opportunities, better preparing graduates for future employment and research opportunities in both the US and the EU.

Advantages and benefits of the joint PhD degree program to the institutions and departments
Both Purdue's and TUC's ECE departments offer established, high-quality PhD programs renowned for their rigorous standards and excellent reputations in both academia and industry. However, PhD studies in ECE are expected to experience robust demand in the following years. In 2022, nearly 30% of all PhD degrees in engineering awarded by US institutions were in ECE fields. The proposed joint PhD degree program is designed to meet the growing demand for PhD-level education in ECE, enhancing the quality of PhD education at both institutions. Through the proposed program, the two institutions will increase their visibility among candidate students and recruit better students.

Moreover, recent trends show that research within the ECE discipline is increasingly becoming collaborative. This shift towards a more integrated global job market for PhD holders, whether in academia or industry, signals a paradigm shift in PhD education. The emphasis on academic mobility is growing, enriching a PhD candidate's experience significantly. The EU has been at the forefront of this movement with its co-tutelle programs (joint and dual PhD programs), benefiting from extensive and positive experience, strongly supported by EU funding initiatives like the “Marie Curie Actions.” The proposed program will strengthen research collaboration and researchers’ mobility between the two institutions, as well as partnerships with the industry. It will serve as a vital platform for enhancing faculty interaction between both schools, fostering research collaboration and opening up new academic disciplines.

While Purdue has a rich history of participating in international joint degree programs, this initiative marks the ECE Department's first foray into a joint PhD endeavor. TUC ECE, meanwhile, is new to joint degree programs at any level. The program’s international nature may unlock new funding avenues for PhD studies, including scholarships, Marie Curie actions, and industry sponsorships.

Advantages and benefits of the joint PhD degree program to electrical and computer engineering
The proposed joint PhD degree program will meet the market need and increasing demand for researchers and engineers in the field of ECE, which is projected to see significant growth in the coming decade, not only in the EU and the US but globally as well. This anticipated increase, coupled with an ongoing shortage of skilled professionals in ECE, is driving a surge in the popularity of ECE studies at all academic levels. The joint PhD degree program will attract top candidates and “produce” more skilled researchers to meet the aforementioned need and contribute research work in key areas projected for future growth, such as artificial intelligence, automation, robotics, climate change solutions, and biotechnology.

This joint PhD degree program will stand as a significant step forward in ECE PhD education, promising to meet the highest academic, professional, and industry standards while fostering international collaboration and research excellence. Its establishment will contribute significantly

to the advancement of international PhD education.

Additional Information: Full joint PhD program proposal

A handwritten signature in black ink on a light gray background. The signature reads "T.S. Mithuna" followed by a long, sweeping horizontal stroke.

Mithuna Thottethodi,
Associate Head for Teaching and Learning
Elmore Family School of Electrical and Computer Engineering

Proposal for the establishment of a

Joint PhD Degree Program

between the
Elmore Family School of Electrical and Computer
Engineering, Purdue University,

and the
School of Electrical and Computer Engineering,
Technical University of Crete

version 3.1
October 22, 2024

Table of Contents

A. Program Justification, Curriculum, and Impact	7
1 Justification	7
1.1 Market analysis.....	7
1.2 Ranking and reputation of TUC and the TUC School of ECE.....	9
1.3 Statements from both departments that their faculties endorse the proposal	24
1.4 An explanation of any dissenting opinions among faculty.....	24
2 Proposed Curriculum for a Joint PhD Degree Program	24
2.1 Course work requirement for the program	24
2.2 Fraction of the courses to be taken at each university	28
2.3 Time the student will spend on each campus	28
2.4 Plans of Study and Work	28
3 Impact of the Program.....	29
3.1 Advantages and benefits of the joint PhD degree program to students.....	29
3.2 Advantages and benefits of the joint PhD degree program to the institutions and departments.....	29
3.3 Advantages and benefits of the joint PhD degree program to electrical and computer engineering	30
D. Administration for the Joint PhD Degree Program	31
1 Admission Procedure	31
1.1 Application	31
1.2 Acceptance.....	31
1.3 Enrollment and Advisory Committees	32
1.4 Transferring Students	34
1.5 Registration.....	34
1.6 Student status	34
1.7 Time to degree	36
2 Preliminary Examination.....	36
3 Dissertation Defense Committee.....	37
4 Dissertation Defense Process	38
4.1 Final Examination.....	38
4.2 Degree approval.....	38
5 Collaborative Interaction.....	38
5.1 Publications	39

5.2 Intellectual rights	39
6 Format of the Dissertation.....	39
7 Responsible Conduct of Research.....	39
F. Program Assessment Plan	41
G. Program Sustainability Plan.....	42
H. Background of Partner Institution.....	43
1 Current Degree Requirements/Procedures	43
1.1 Program description.....	43
1.2 Admission.....	43
1.3 Course and research work.....	44
1.4 Dissertation defense.....	44
2 Objectives and Requirements for the Joint PhD Degree Program	45
2.1 Joint PhD degree program	45
2.2 Program regulations.....	45
2.3 Eligibility and admission of applicants	46
2.4 Time to degree - Obligations and rights of PhD students.....	47
2.5 PhD thesis supervision.....	47
2.6 Dissertation defense.....	48
2.7 Other regulations	48
3 CVs of Representative Faculty.....	49

A. Program Justification, Curriculum, and Impact

1 Justification

1.1 Market analysis

1.1.1 Market need for the joint PhD degree program

The demand for researchers and engineers in the field of electrical and computer engineering (ECE) is projected to see significant growth in the coming decade, not only in the EU and the US but globally as well. This anticipated increase, coupled with an ongoing shortage of skilled professionals in ECE, is driving a surge in the popularity of ECE studies at all academic levels. Specifically, PhD studies in ECE are expected to experience robust demand. In 2022, nearly 30% of all PhD degrees in engineering awarded by US institutions were in ECE fields. Furthermore, ECE plays a crucial role in key areas projected for future growth, such as artificial intelligence, automation, robotics, climate change solutions, and biotechnology.

Both Purdue's and TUC's ECE departments offer established, high-quality PhD programs renowned for their rigorous standards and excellent reputation in both academia and industry. The proposed joint PhD degree program is designed to meet the growing demand for PhD-level education in ECE, enhancing the quality of PhD education at both institutions.

1.1.2 Unique value proposition

Recent trends show that research within the ECE discipline is increasingly becoming collaborative. This shift towards a more integrated global job market for PhD holders, whether in academia or industry, signals a paradigm shift in PhD education. The emphasis on academic mobility is growing, enriching a PhD candidate's experience significantly. The EU has been at the forefront of this movement with its co-tutelle programs (joint and dual PhD programs), benefiting from extensive and positive experience, strongly supported by EU funding initiatives like the “Marie Curie Actions.”

While Purdue has a rich history of participating in international joint degree programs, this initiative marks the ECE Department's first foray into a joint PhD endeavor. TUC ECE, meanwhile, is new to joint degree programs at any level. This joint PhD program promises substantial benefits:

- PhD students will gain invaluable experience from living, studying, and conducting research in two distinct environments and countries.
- The program will broaden international research networking opportunities, better preparing graduates for future employment and research opportunities in both the US and the EU.

- It will serve as a vital platform for enhancing faculty interaction between both schools, fostering research collaboration and opening up new academic disciplines.
- The program will boost both institutions' visibility, attracting talented students who might be apprehensive about relocating to a foreign country for the duration of their PhD studies.
- Its international nature may unlock new funding avenues for PhD studies, including scholarships, Marie Curie actions, and industry sponsorships.

1.1.3 Target audience and anticipated throughput

Given the program's novelty, it is challenging to make precise predictions about outcomes.

We anticipate the primary demographic will be exceptional Greek/EU students seeking premier PhD education but reluctant to relocate to the US for 5 to 6 years. Our experience at TUC suggests this demographic is significant, potentially yielding 5-10 candidates annually.

As the program gains recognition, we expect interest from other demographics, including:

- US students that are drawn to living in Greece during their PhD. Despite its small population, Greece is currently the 8th top study-abroad destination for US students: about 4,500 US students were studying in Greece during 2021/22 [8].
- US-based individuals with strong ties to Greece and Crete, such as Greek-Americans or US military personnel stationed overseas.
- Students from Southeast Europe and the Eastern Mediterranean region who are attracted by the opportunity to immerse themselves in US culture and benefit from Purdue's world-class reputation.

Based on an estimate of 5-10 admissions per year, and assuming an average of 5 years for graduation, we predict an enrollment of 25-50 students in the long term.

Other points: Competition, Industrial partnerships, Secondary benefits

Strengths	Weaknesses
• Benefit student personal growth • Student networking in two continents • Faculty interaction	• Administrative overhead • Lack of experience
Opportunities	Threats
• Recruit better students • New funding of PhD studies • Increase Purdue/TUC visibility among candidate students • Industrial partnerships	• Legal impediments • Competition from other programs

1.1.4 Conclusion

This Joint PhD program stands as a significant step forward in ECE PhD education, promising to meet the highest academic, professional, and industry standards while fostering international collaboration and research excellence. Its establishment will not only benefit the participating students and schools but also contribute significantly to the advancement of international PhD education.

1.1.5 Resources

- 1) [Doctoral Networks | Marie Skłodowska-Curie Actions](#)
- 2) [Joint Degrees, Dual Degrees, and International Research Collaborations](#)
- 3) Chan, R., [Understanding International Joint and Dual Degree Programs: Opportunities and Challenges during and after the COVID-19 Pandemic](#), J. of Comparative and Int'l Higher Ed., 13(5), 2021
- 4) [The future of work: Researchers and engineers - European Commission](#)
- 5) [By the Numbers – IRA | ASEE](#)
- 6) [R&D personnel - Statistics Explained](#)
- 7) [Co-tutelles in European universities: concept, aims and implementation](#)
- 8) [Open Doors 2023: Greece climbs in rankings as a top destination for US students](#)

1.2 Ranking and reputation of TUC and the TUC School of ECE

1.2.1 Unique features and international reputation of the TUC School of ECE

The TUC School of ECE focuses on academic excellence in both teaching and research, with emphasis on its internationalization, through publications in the internationally best-available journals and the successful acquisition of competitive research funding. Many graduates of the School of ECE currently hold faculty positions at top US institutions (Carnegie Mellon, Georgia Tech, Ohio State, UW Madison, Rice, UMass Amherst, UC Riverside, UT San Antonio) and European institutions (UCL, Delft, HEC Paris). Others hold research positions at top institutions (IMEC, UC Barcelona) or have founded and run technology startups in the US, as well as Greece and other European countries.

To achieve its goals, the School has adopted a unique set of features, in comparison to all other Greek Universities, Schools, and Departments:

- Since 2004, the School has established individual-level [annual activity reports](#) to promote excellence in research and set benchmarks.
- The School has established an [External Advisory Board](#) whose members have PhD degrees from the US and hold leading positions in the international academia and industry.
- The faculty hiring procedure includes well publicized calls and teaching-research excellence based evaluation. As a result, most of the 28 [faculty members](#) of the School have earned their degrees from top international universities:

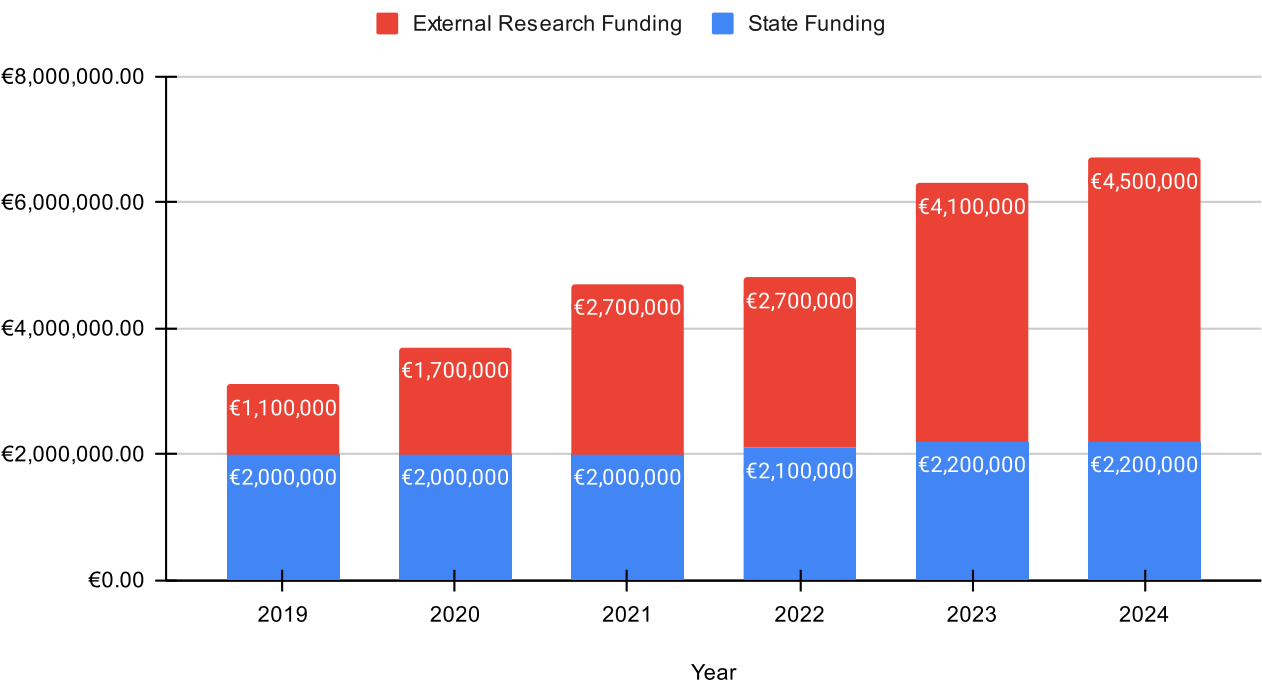
- 14 from the US (MIT, UT Austin, UIUC, UCSD, USC, UCLA, UM College Park, UPenn, Duke, Princeton, UW Madison, Boston Univ., UV Charlottesville, and SUNY Buffalo)
- 3 from the University of Toronto
- 2 from the UK (Imperial College, Univ. Bristol)
- 1 from EPFL
- Especially, since 2022, the School has hired the following faculty members.
 - [Konstantinos Gyftakis](#) (Mar. 2022), former Associate Professor with the School of Engineering, University of Edinburgh, UK (specialization: electrical machines)
 - [Thrasyvoulos Spyropoulos](#) (Mar. 2022), former Professor with the Communication Systems Department, EURECOM, France (specialization: communication networks)
 - [Nikos Giatrakos](#) (Nov. 2022), former Researcher with the Software Systems Technology and Network Applications Laboratory, TUC, Greece (specialization: software technology)
 - [Georgios Peppas](#) (Mar. 2024), former R&D Director, Raycap SA, Greece (specialization: high voltage)
 - [Ioannis Pefkianakis](#) (Sept. 2024), former Staff Wireless Architect / Tech Lead in Apple's 5G Software, Apple Inc, CA (specialization: system architecture and software)
 - [Evangelos Kalogerakis](#) (will join in Jan. 2025), Associate Professor with the College of Information and Computer Sciences, University of Massachusetts Amherst, MA (specialization: machine vision)
- Since 2010, the School has introduced [prerequisite courses](#) in its undergraduate curriculum.
- The School invests strongly in its internationalization. In 2023 it established a new undergraduate student exchange program admitting students from (and seconding students to) the [Viterbi School of USC](#) as well as European universities, offering in English most of its graduate courses and 25% of its undergraduate courses.

The levels of competitive research funding and peer-reviewed scientific publication activity are testament to the talent, visibility, and productivity of the faculty.

1.2.2 Competitive research funding of the TUC School of ECE

The TUC School of ECE has been attracting a constantly increasing budget of external funding to perform basic and applied research. The following table presents the annual budget of external research funding from 2019 to today. As a reference, the total (approximate) state contribution for the School of ECE is added. It is worth noting that, since 2021, the budget that the School attracts from external funding sources annually is constantly higher than the annual state funding.

Annual Funding of the School of ECE, TUC



1.2.3 Best paper awards of the TUC School of ECE

In addition to professional recognition in terms of associate editor and technical committee member appointments, as well as leadership in conference organization in Greece and abroad, the TUC School of ECE is proud to include seven (7) best paper awards in IEEE Transactions, as well as and twenty-eight (28) conference paper awards, listed below.

TUC School of ECE - Best Paper Awards in IEEE Transactions			
Journal Title	Year	Award Title	Recipient
<i>IEEE Transactions on Speech and Audio Processing</i>	1999	Signal Processing Society Best Paper Award	V. Digalakis [link]
<i>IEEE Transactions on Speech and Audio Processing</i>	2000	Signal Processing Society Young Author Best Paper Award	V. Digalakis [link]
<i>IEEE Transactions on Neural Networks</i>	2003	Computational Intelligence Society Outstanding Paper Award	G. Karystinos [link]
<i>IEEE Transactions on Wireless Communications</i>	2008	Marconi Prize Paper Award in Wireless Communications	A. Bletsas [link]
<i>IEEE Transactions on Power Electronics</i>	2013	Power Electronics Society Second Prize Paper Award	E. Koutroulis [link]
<i>IEEE Transactions on Intelligent Transportation Systems</i>	2019	George N. Saridis Best Transactions Paper Award for Outstanding Research	N. Bekiaris-Liberis [link]
<i>IEEE Transactions on Industry Applications</i>	2024	Industry Applications Society Power Systems Protection Prize Paper Award	G. Peppas [link]

TUC School of ECE - Best Paper Awards in Conferences		
Conference	Award Title	Recipient
2001 Infotech Oulu International Workshop on Information Retrieval	Best Student Paper Award	E. Petrakis [link]
2001 IEEE International Conference on Telecommunications (IEEE ICT 2001)	Best Paper Award	G. Karystinos

2008 World Summit on the Knowledge Society / Track of Culture and Tourism	Best Paper Award	S. Christodoulakis (Emeritus) [link]
2009 IEEE International Symposium on Wireless Communication Systems (IEEE ISWCS 2009)	Best Paper Award, selected as one of the five (5) best papers in ISWCS 2009	A. Bletsas [link]
2009 IEEE International Conference on Data Engineering	Best Paper Award	M. Garofalakis [link]
2009 IEEE International Conference on Data Engineering	Best Student Paper Award	A. Deligiannakis [link]
2011 IEEE International Conference on RFID - Technology and Applications (IEEE RFID-TA 2011)	Second Prize for the Best Student Paper Award Competition	A. Bletsas and G. Karystinos [link]
2012 Conference on Prestigious Applications of Intelligent Systems (PAIS)	Best Student Paper Award	G. Chalkiadakis and E. Koutroulis [link]
2012 IEEE International Conference on Tools with Artificial Intelligence (IEEE ICTAI 2012)	Best Student Paper Award	M. Lagoudakis [link]
2013 International Conference on Autonomous Robot Systems and Competitions (ROBOTICA 2013)	Best Paper Award	M. Lagoudakis [link]
2013 IEEE International Symposium on Wireless Communication Systems (IEEE ISWCS 2013)	Best Paper Award	G. Karystinos
2013 IEEE Sensors Conference	Best Paper Award	A. Bletsas and E. Koutroulis [link]
2015 IEEE International Conference on Acoustics, Speech, and Signal Processing (IEEE ICASSP 2015)	Best Student Paper Award	A. Bletsas and G. Karystinos [link]
2016 ACM Conference on Data and Application Security and Privacy (CODASPY)	Outstanding Paper Award	S. Ioannidis

2016 IEEE International Conference on Telecommunications (IEEE ICT 2016)	Best Paper Award	S. Ioannidis
2017 IEEE International Symposium on Field-Programmable Custom Computing Machines (IEEE FCCM 2017)	HiPEAC Paper Award	A. Dollas [link]
2017 IEEE International Conference on RFID - Technology and Applications (IEEE RFID-TA 2017)	Best Student Paper Award	A. Bletsas [link]
2017 International World Wide Web Conference (WWW)	Best Paper Honorable Mention Award	S. Ioannidis
2017 International Conference on Interactive Collaborative and Blended Learning (ICBL 2017)	Best Paper Award	S. Christodoulakis (Emeritus) and A. Deligiannakis
2018 International Conference on Modern Circuits and System Technologies for Electronics and Communications (IEEE MOCAST 2018)	Best Student Paper and Presentation Award	A. Bletsas and G. Karystinos [link]
2019 International Conference on Knowledge Science, Engineering, and Management (KSEM 2019)	Best Student Paper Award	G. Chalkiadakis [link]
2019 European Solid-State Device Research Conference (ESSDERC 2019)	Best Paper Award	M. Bucher [link]
2021 IEEE International Workshop on Wireless Communications and Networking in Extreme Environments (IEEE WCNEE 2021)	Best Paper Award	A. Bletsas [link]
2023 IEEE International Conference on RFID (IEEE RFID 2023)	Best Poster Award	A. Bletsas [link]
2023 International Conference on Modern Circuits and System Technologies for Electronics and Communications (IEEE MOCAST 2023)	Best Student Paper and Presentation Award	F. Kanellos and E. Koutroulis [link]
2023 ACM ASIA Conference on Computer and Communications Security (ASIACCS)	Distinguished Paper Award	S. Ioannidis

2023 European Conference on Artificial Intelligence (ECAI 2023)	Top-4 Placement	G. Chalkiadakis [link]
2024 International Conference on Advanced Information Networking and Applications (AINA 2024)	Best Paper Award	E. Petrakis [link]

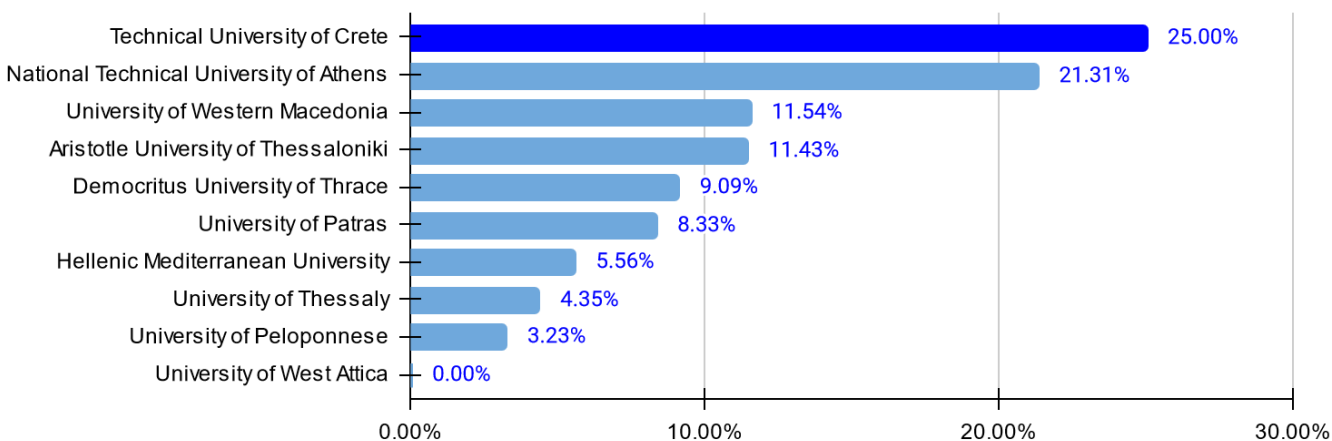
1.2.4 National ranking of the TUC School of ECE

The School has demonstrated continuous improvement in academic quality due to the unwavering efforts of the faculty, staff, and students, which places it in the top position between Schools or Departments of the same or similar discipline in Greece, counting in the size of each entity.

Stanford's list of World's Top 2% Scientists

Focusing purely on research excellence, a ranking metric that counts in the size of each evaluated entity (School or Department) is the percentage of acting faculty members that are included in the "Stanford's list of World's Top 2% Scientists." Considering the most recent list, i.e. the "[2003 Stanford's list of World's Top 2% Scientists](#)" (published in Oct. 2023) based on the impact of their published work during the year 2022, it includes seven (7) acting faculty members of the School of ECE of TUC (that is, the 25% of TUC ECE School faculty population). The following graph compares all ECE Schools or Departments in Greece according to the percentage of their acting faculty that are included in the "2023 Stanford's list of World's Top 2% Scientists." **The TUC School of ECE is ranked first in Greece.**

Percentage of ECE faculty members that are included in the 2023 Stanford's list

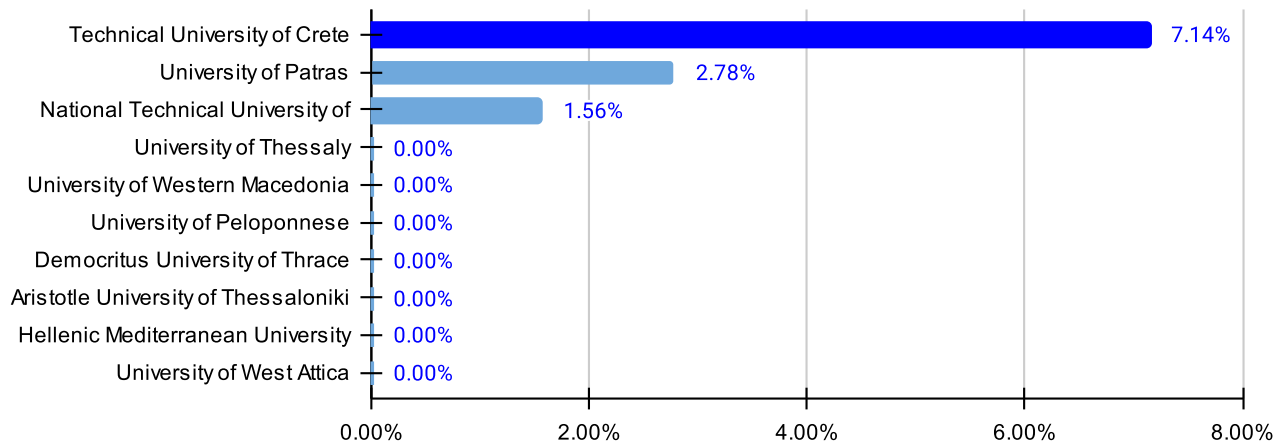


European Research Council projects

Another metric that is based on research excellence is the number of [European Research Council](#) (ERC) projects that each School or Department has attracted. ERC projects are single-PI grants at the amount of around 2M EUR per grant and are amongst Europe's most prestigious and competitive, considered equivalent to NSF career awards.

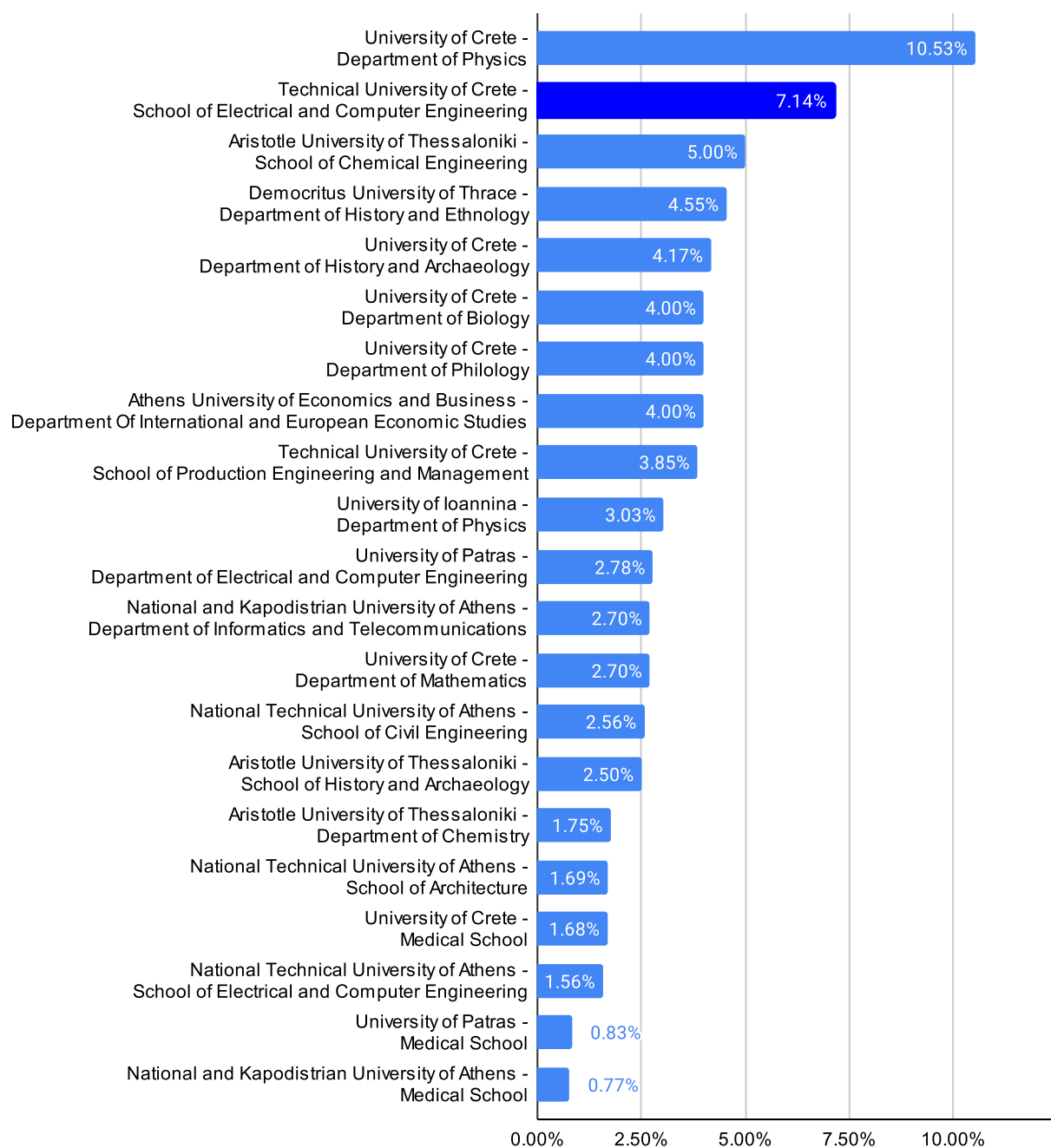
Currently, the School of ECE of TUC has two (2) ongoing ERC projects (the first one started in Dec. 2023 and the second one will start in Oct. 2024, both ones with a duration of five years). The following graph compares all nine (9) ECE Schools or Departments in Greece according to the percentage of faculty members that are PIs of ongoing ERC projects. **The TUC School of ECE is ranked first in Greece.**

Percentage of ECE faculty members that are PIs of ongoing ERC projects



The following graph compares all Schools or Departments of all Universities in Greece according to the percentage of faculty members that are PIs of ongoing ERC projects. **The TUC School of ECE is ranked second in Greece, among 416 University Schools or Departments in all disciplines.**

Percentage of ongoing ERC projects divided by the number of faculty members



Other national rankings

Conventional rankings do not consider the size of the Universities, so they are biased in favor of larger institutions. As a result, in the rankings that follow below, the TUC School of ECE, due to the small size of TUC (five engineering Schools with a total of 124 faculty members), is usually ranked lower than its value.

TUC is one of the five (5) Greek Universities ranked in the area “[electrical engineering, electronic engineering, information engineering](#)” by EngiRank, which ranks the top European universities in engineering. Specifically, among the nine (9) Greek Universities that host ECE Schools or Departments, TUC is ranked #3.

According to EduRank, among the nine (9) Greek Universities that host ECE Schools or Departments, TUC is ranked #4 in Greece in [computer engineering, electronic engineering, artificial intelligence](#), and [electrical engineering](#), based on its research performance.

Finally, in the 2022 QS World University Rankings by Subject, TUC is one of the four (4) Greek Universities that are included in the subject “[electrical and electronic engineering](#)” and one of the eight (8) Greek Universities that are included in the subject “[computer science and information systems](#).” Among the nine (9) Greek Universities that host ECE Schools or Departments, TUC is ranked #4 in both subjects.

TUC School of ECE - National Ranking	
Metric	National Ranking
Percentage of faculty members included in the 2023 Stanford’s list of World’s Top 2% Scientists	1 (out of 9)
Percentage of faculty members that are PIs of ongoing ERC projects	1 (out of 9)
Percentage of faculty members that are PIs of ongoing ERC projects (ranking among all 416 Schools or Departments in all disciplines)	2 (out of 416)
EngiRank (electrical engineering, electronic engineering, information engineering)	3 (out of 9)
EduRank (computer engineering, electronic engineering, artificial intelligence, electrical engineering)	4 (out of 9)
2022 QS World University Rankings by Subject (electrical and electronic engineering, computer science and information systems)	4 (out of 9)

1.2.5 International ranking of the TUC School of ECE

According to [EngiRank](#), TUC is ranked #89 in Europe in the area “electrical engineering, electronic engineering, information engineering,” which, at TUC, is served mainly by the School of ECE.

According to EduRank, TUC, based on its research performance, is ranked #68 in Europe and #232 Worldwide in [computer engineering](#), #200 in Europe and #598 Worldwide in [electronic engineering](#), #247 in Europe and #651 Worldwide in [artificial intelligence](#), and #278 in Europe and #770 Worldwide in [electrical engineering](#).

Finally, according to the 2022 QS World University Rankings by Subject, TUC is ranked #160 in Europe and #451-500 Worldwide in the subject “[electrical and electronic](#)

[engineering](#)” and #219 in Europe and #551-600 Worldwide in the subject “[computer science and information systems](#).”

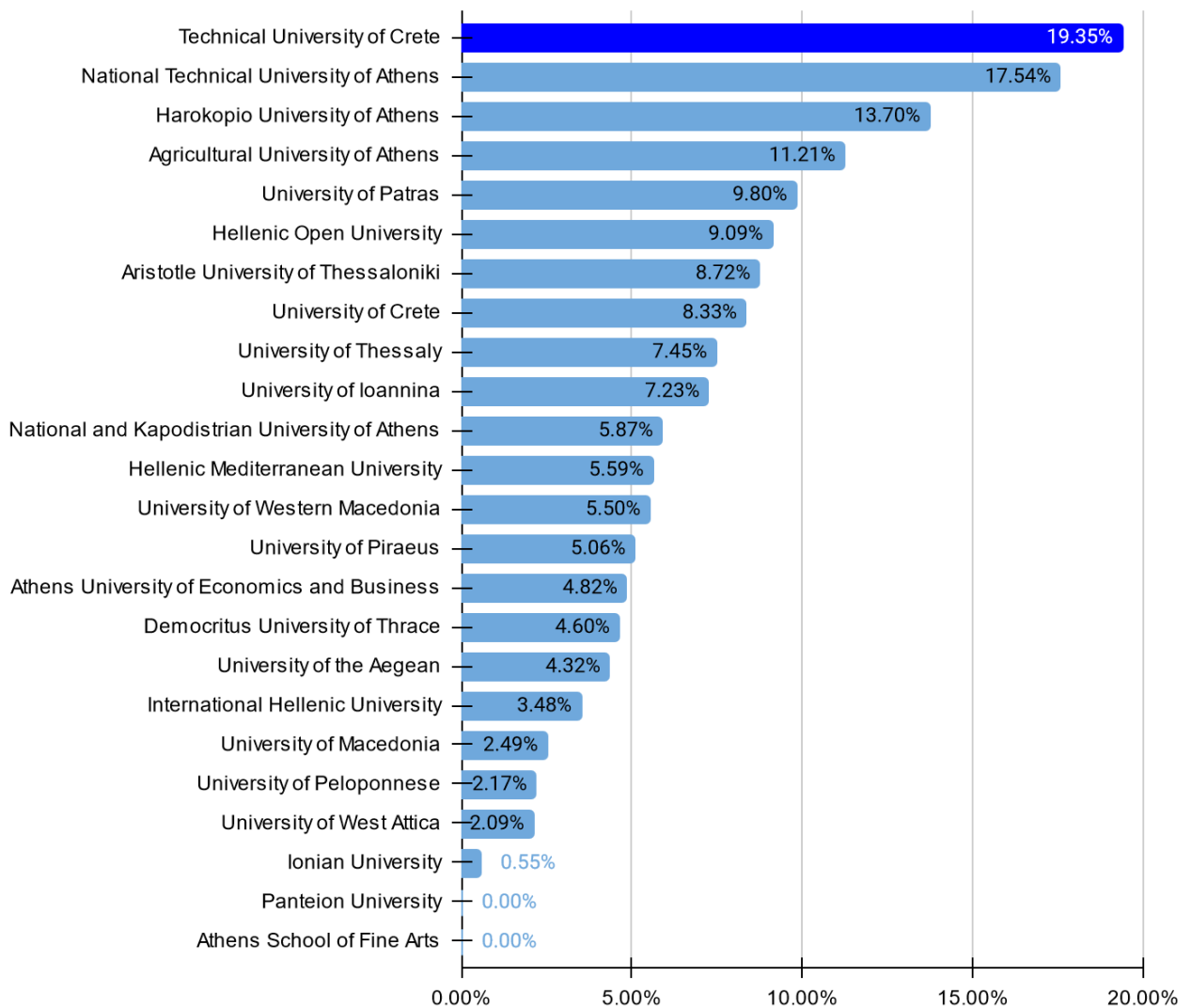
TUC School of ECE - International Ranking		
Metric	European Ranking	Worldwide Ranking
EngiRank (electrical engineering, electronic engineering, information engineering)	89	-
EduRank (computer engineering)	68	232
EduRank (electronic engineering)	200	598
EduRank (artificial intelligence)	247	651
EduRank (electrical engineering)	278	770
2022 QS World University Rankings by Subject (electrical and electronic engineering)	160	451-500
2022 QS World University Rankings by Subject (computer science and information systems)	219	551-600

1.2.6 National ranking of TUC

Stanford's list of World's Top 2% Scientists

The “[2003 Stanford's list of World's Top 2% Scientists](#)” (published in Oct. 2023), based on the impact of their published work during the year 2022, includes twenty four (24) acting faculty members of TUC (that is, the 19.35% of TUC faculty population). The following graph compares all Universities in Greece according to the percentage of their acting faculty that are included in the “2023 Stanford's list of World's Top 2% Scientists.” **TUC is ranked first in Greece.**

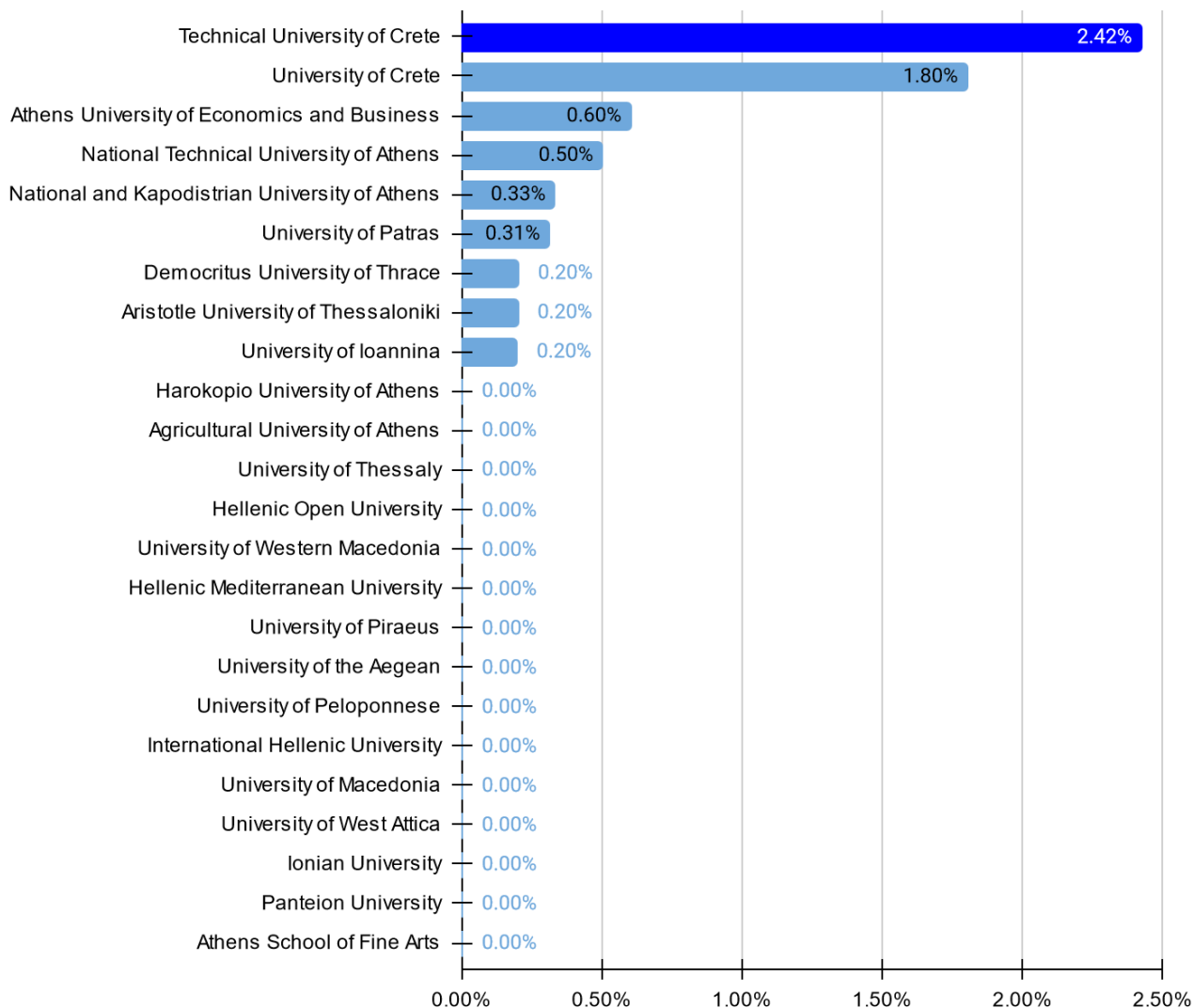
Percentage of faculty members that are included in the 2023 Stanford's list



European Research Council projects

Currently, TUC has three (3) ongoing ERC projects. The following graph compares all Greek Universities according to the percentage of faculty members that are PIs of ongoing ERC projects. **TUC is ranked first in Greece.**

Percentage of faculty members that are PIs of ongoing ERC projects



Other national rankings

As mentioned before, conventional rankings do not take into account the size of the Universities, so they are biased in favor of larger institutions. As a result, in the rankings

that follow below, TUC, due to its small size (five engineering Schools with a total of 124 faculty members), is usually ranked lower than its value.

Nevertheless, TUC is ranked #3 in Greece at the [institutional level](#) by EngiRank, which ranks the top European Universities in engineering. It is worth noting that the two universities that precede it, namely the National Technical University of Athens and the University of Patras, have sizes 3 to 5 times larger than TUC.

According to EduRank, TUC is ranked #7 in Greece in [engineering](#) and #13 in Greece in [all disciplines](#), based on its research performance.

Finally, TUC is ranked #7 in Greece in the 2024 QS World University Rankings ([Europe](#)) and #8 in Greece in the 2024 QS World University Rankings ([Worldwide](#)).

TUC - National Ranking	
Metric	National Ranking
Percentage of faculty members included in the 2023 Stanford's list of World's Top 2% Scientists	1
Percentage of faculty members that are PIs of ongoing ERC projects	1
EngiRank (institutional level)	3
EduRank (engineering)	7
EduRank (all disciplines)	13
2024 QS World University Rankings (Europe)	7
2024 QS World University Rankings (Worldwide)	8

1.2.7 International ranking of TUC

According to EngiRank, TUC is ranked #127 in Europe at the [institutional level](#).

According to EduRank, TUC is ranked #361 in Europe and #1000 Worldwide in [engineering](#) and #621 in Europe and #1831 Worldwide [all disciplines](#), based on its research performance.

Finally, TUC is ranked #389 in Europe in the 2024 QS World University Rankings ([Europe](#)) and #488 in Europe and #1401+ Worldwide in the 2024 QS World University Rankings ([Worldwide](#)).

TUC - International Ranking		
Metric	European Ranking	Worldwide Ranking
EngiRank (institutional level)	127	-
EduRank (engineering)	361	1000
EduRank (all disciplines)	621	1831
2024 QS World University Rankings (Europe)	389	-
2024 QS World University Rankings (Worldwide)	488	1401+

1.3 Statements from both departments that their faculties endorse the proposal

The statement from the TUC School of ECE will be available directly after a preliminary agreement between the two Schools on the proposal.

1.4 An explanation of any dissenting opinions among faculty

The explanation will be available directly after a preliminary agreement between the two Schools on the proposal.

2 Proposed Curriculum for a Joint PhD Degree Program

2.1 Course work requirement for the program

2.1.1 Language

The PhD dissertation will be written in English and follow the academic regulations of both universities. The preliminary and final examinations as well as all coursework will take place in English.

2.1.2 Definitions

Students admitted to the joint PhD degree program must take graduate-level courses. Unless specifically stated otherwise, graduate-level courses refer to (a) the 500- or 600-level courses offered by Purdue and (b) the 600- up to 900-level courses offered by TUC, listed in Table 1 (information on these courses is available at <https://www.ece.tuc.gr/en/studies/graduate-studies/msc-in-electrical-and-computer-engineering-1/course-catalog>).

Table 1: TUC Graduate-level Courses	
Course Code	Course Title
MTH 611	Introduction to Quantum Computing
TEL 611	Statistical Modeling and Pattern Recognition
MTH 613	Algorithms of Quantum Information
MTH 711	Quantum Information and Quantum Estimation
PHY 711	Quantum Technology
ECA 712	Optoelectronics
MTH 712	Stochastic Processes and Time-Series Analysis

ECA 713	Security of Systems and Services
ENE 714	Advanced Electrical Machines
TEL 714	Optimization
INF 715	Computational Geometry
INF 719	Principles of Distributed Systems
ECA 720	Advanced Micro-nanoelectronic Devices
TEL 722	Large and Social Networks: Modeling and Analysis
INF 723	Reinforcement Learning and Dynamic Optimization
TEL 811	Number Theory and Cryptography
ECA 813	Electronic Energy Management Systems
INF 825	Modern Mobile Systems, Applications, and Services
ECA 901	Advanced Secure Systems
MTH 901	Time Series Modeling and Analysis
SYS 901	Nonlinear Systems
MLDS 901	Programming and Database Fundamentals
TEL 901	Probability Theory and Introduction to Machine Learning
MLDS 902	Practical Data Science and Applications
ECA 902	Selected Topics in CMOS Analog Circuit Design
MTH 902	Advanced Topics in Time Series Analysis with R
TEL 902	Detection and Estimation
INF 903	Big Data Processing and Analysis
TEL 903	Theory of Probability and Random Processes
ECA 904	Optoelectronic Imaging and Medical Endoscopy
INF 904	Decision Making and Learning in Multiagent Worlds
INF 905	Machine Learning
TEL 905	Advanced Topics in Convex Optimization

TEL 910	Special Topics in Signal and Natural Language Processing
---------	--

All courses are expected to be at-least-3-credit-hour Purdue courses or at-least-6-ECTS TUC courses.

2.1.3 Requirements

Students in the PhD program must select one of the seven ECE research areas listed in Table 2 (along with the core courses associated with each of the seven areas) as their primary area. The primary area encompasses the body of knowledge the students choose for their professional expertise. The core courses in Table 2 are offered by Purdue and may also be offered by TUC.

Table 2: ECE Research Areas and Core Courses	
ECE Research Area	Core Course
Automatic Control (AC)	ECE 60200: Lumped System Theory
Communications Networks and Signal and Image Processing (CS)	ECE 60000: Random Variables and Signals
Computer Engineering (CE)	ECE 60800: Computational Models and Methods
Fields and Optics (FO)	ECE 60400: Electromagnetic Field Theory
Microelectronics and Nanotechnology (MN)	ECE 60600: Solid State Devices I
Power and Energy Devices and Systems (PE)	ECE 61000: Energy Conversion
VLSI and Circuit Design (VC)	ECE 55900: MOS VLSI Design

Requirement 1: A PhD student with an MS, Diploma, or BSc must complete a minimum of 4, 7, or 7-12¹, respectively, graduate-level courses.

Requirement 2: A PhD student with a Diploma or BSc must complete a minimum of 2 core Purdue courses (of Table 2) or equivalent TUC courses.

Requirement 3: A PhD student with an MS, Diploma, or BSc must complete a minimum of 2 approved math Purdue courses (of [Appendix B](#)) or equivalent TUC courses.

A single course can meet more than one requirements.

For PhD students with an MS, Requirement 3 may have been partially or totally fulfilled previously in the MS program.

ECE 69600 (Advanced Projects) and ECE 69700 (Directed Reading) are not to appear on the plan of study and cannot be used to fulfill this requirement.

The table below summarizes the course requirements for the joint PhD degree.

Table 3: Summary of Course Requirements

¹The exact minimum number of courses for PhD students with a BSc will be determined by the ad-hoc committee.

	PhD student with an MS	PhD student with a Diploma	PhD student with a BSc
Course Requirement in PhD Program	4 graduate-level courses (2 of them must be Purdue ECE 600-level courses)	7 graduate-level courses	7-12 ¹ graduate-level courses
Required Core Courses	0	2	2
Required Math Courses	2 (This requirement can be partially or totally fulfilled with coursework taken previously in the MS program.)	2	2

2.1.4 Common course requirements

Required Research-Course Registration

All PhD students are required to register for at least one credit hour of Purdue ECE 69200 (Introduction to Graduate Research) or Purdue ECE 69900 (PhD Thesis Research), or equivalent TUC ECE courses, in their first and second semesters in the PhD program.

In each subsequent semester, students must enroll in at least one credit hour of Purdue ECE 69900 or the equivalent TUC ECE course.

2.1.5 Written English requirement

All PhD students must demonstrate acceptable proficiency in written English before graduating. Students will not be allowed to graduate until this requirement has been met. They are strongly recommended to fulfill the English requirement as early as possible (first semester in Purdue) in their academic program. Methods that may be used to fulfill the English requirement are detailed in [Appendix C](#).

2.1.6 Graduate seminar requirement

All ECE PhD students must satisfactorily complete one semester of [ECE 69400, Graduate Seminar](#). This course carries no credit, but a grade of Satisfactory or Unsatisfactory is assigned at the end of the semester.

ECE 69400 should not be listed on the plan of study. Also, it is strongly recommended that students take ECE 69400 during their first year in Purdue.

2.2 Fraction of the courses to be taken at each university

A PhD student with an MS or a Diploma must complete a minimum of 2 graduate-level courses at Purdue and a minimum of 2 graduate-level courses at TUC.

A PhD student with a BSc must complete a minimum of 2-4¹ graduate-level courses at Purdue and a minimum of 2-4¹ graduate-level courses at TUC.

2.3 Time the student will spend on each campus

A student must spend at least four cumulative semesters at Purdue and at least four cumulative semesters at TUC.

2.4 Plans of Study and Work

All PhD students must file a Plan of Study and a Plan of Work at the beginning of the program, upon agreement by

- a. the Purdue Advisor,
- b. the TUC Advisor,
- c. the Purdue ECE Associate Head of Graduate and Professional Programs,
- d. the Purdue Graduate School,
- e. the TUC ECE Dean, and
- f. the student.

The Plans of Study and Work are signed by all parties involved and ensure a logical curriculum and agreement on the research outlines/expectations and the timeline for completion of the degree, set a clear pathway toward completion of the student's degree, and help the two institutions plan and monitor the overall joint PhD degree program.

The Plan of Study includes

- i. the selected ECE Research Area,
- ii. a list of the courses to be taken from both institutions,
- iii. a statement and explanation of how many courses will be taken from each institution.

The Plan of Work includes

- i. an explanation of the general direction of the graduate student's research,
- ii. a general timetable of (a) when the student will complete the proposal for the research to be conducted, (b) when the student's coursework is expected to be completed, (c) when the student will become a candidate (with a proper justification), and (d) how often the committee will meet,
- iii. an outline of the approvals needed from each institution.

If conditions arise that make it desirable to change the Plan of Study or the Plan of Work, as a student's program progresses, any change to either plan, when based upon sound academic reasons, is encouraged and must be submitted for approval by all parties that

signed the original plan. A course may not be removed from the plan of study once a grade of “D” or lower has been received in the course.

If the requirements for the joint PhD degree program are modified, there is no need for students to revise their previously approved Plans of Study or Plans of Work to conform to the new rules. All approved plans remain valid. Students have the option to change their plan of study to conform to the new rules but are not required to do so.

If the Advisory Committees membership is modified, there is no need for the student to revise his/her previously approved Plan of Study or Plan of Work.

3 Impact of the Program

3.1 Advantages and benefits of the joint PhD degree program to students

The program will boost both institutions' visibility, attracting talented students who might be apprehensive about relocating to a foreign country for the duration of their PhD studies. It will offer exceptional Greek/EU students the opportunity of premier PhD education, without the necessity to relocate to the US for 5 to 6 years. It will also offer US students the opportunity to live in Greece during their PhD studies (which is important, provided that Greece is currently the 8th top study-abroad destination for US students). US-based individuals with strong ties to Greece and Crete, such as Greek-Americans or US military personnel stationed overseas, will also have the option to take advantage of this opportunity, through the proposed joint PhD degree program. Finally, the proposed program will give more opportunities to students from southeast Europe and the eastern Mediterranean region to immerse themselves in US culture and benefit from Purdue's world-class reputation.

PhD students will gain invaluable experience from living, studying, and conducting research in two distinct environments and countries. The program will broaden international research networking opportunities, better preparing graduates for future employment and research opportunities in both the US and the EU.

3.2 Advantages and benefits of the joint PhD degree program to the institutions and departments

Both Purdue's and TUC's ECE departments offer established, high-quality PhD programs renowned for their rigorous standards and excellent reputations in both academia and industry. However, PhD studies in ECE are expected to experience robust demand in the following years. In 2022, nearly 30% of all PhD degrees in engineering awarded by US institutions were in ECE fields. The proposed joint PhD degree program is designed to meet the growing demand for PhD-level education in ECE, enhancing the quality of PhD education at both institutions. Through the proposed program, the two institutions will increase their visibility among candidate students and recruit better students.

Moreover, recent trends show that research within the ECE discipline is increasingly becoming collaborative. This shift towards a more integrated global job market for PhD

holders, whether in academia or industry, signals a paradigm shift in PhD education. The emphasis on academic mobility is growing, enriching a PhD candidate's experience significantly. The EU has been at the forefront of this movement with its co-tutelle programs (joint and dual PhD programs), benefiting from extensive and positive experience, strongly supported by EU funding initiatives like the “Marie Curie Actions.” The proposed program will strengthen research collaboration and researchers’ mobility between the two institutions, as well as partnerships with the industry. It will serve as a vital platform for enhancing faculty interaction between both schools, fostering research collaboration and opening up new academic disciplines.

While Purdue has a rich history of participating in international joint degree programs, this initiative marks the ECE Department's first foray into a joint PhD endeavor. TUC ECE, meanwhile, is new to joint degree programs at any level. The program’s international nature may unlock new funding avenues for PhD studies, including scholarships, Marie Curie actions, and industry sponsorships.

3.3 Advantages and benefits of the joint PhD degree program to electrical and computer engineering

The proposed joint PhD degree program will meet the market need and increasing demand for researchers and engineers in the field of ECE, which is projected to see significant growth in the coming decade, not only in the EU and the US but globally as well. This anticipated increase, coupled with an ongoing shortage of skilled professionals in ECE, is driving a surge in the popularity of ECE studies at all academic levels. The joint PhD degree program will attract top candidates and “produce” more skilled researchers to meet the aforementioned need and contribute research work in key areas projected for future growth, such as artificial intelligence, automation, robotics, climate change solutions, and biotechnology.

This joint PhD degree program will stand as a significant step forward in ECE PhD education, promising to meet the highest academic, professional, and industry standards while fostering international collaboration and research excellence. Its establishment will contribute significantly to the advancement of international PhD education.

D. Administration for the Joint PhD Degree Program

1 Admission Procedure

1.1 Application

To be eligible to apply for admission to the joint PhD degree program, the applicant must be

- a. a last-year student in or a graduate of a BSc degree program or
- b. a last-year student in or a graduate of a Diploma (five-year) degree program equivalent to 300 ECTS or
- c. a last-year student in or a graduate of an MS degree program and must fulfill the ECE PhD program admission requirements set by Purdue.

The application deadline is on December 1 for admission to the next Fall Semester and May 1 for admission to the next Spring Semester.

The application is submitted to Purdue and the admission decision is made by the Purdue Graduate School, according to criteria that meet the academic requirements of both Purdue and TUC.

1.2 Acceptance

If the application is accepted by the Purdue Graduate School, the Purdue ECE Associate Head of Graduate and Professional Programs assigns a Purdue ECE faculty member as the “Purdue Advisor” of the applicant. The applicant’s Purdue Advisor proposes a TUC ECE faculty member to serve as the applicant’s “TUC Advisor.” The selection of the Purdue Advisor and the TUC Advisor (hereinafter referred to as “the co-Advisors”) requires their consent.

The primary duty of the co-Advisors is to jointly guide the applicant’s research and offer the applicant financial support as a Research Assistant. Since the co-Advisors are primarily responsible for providing funding to the applicant, the invitation letter to the accepted applicant includes

- a. a statement by the Purdue Advisor mentioning explicitly the monthly financial support the applicant will receive as a graduate student while resident at Purdue and
- b. a statement by the TUC Advisor mentioning explicitly the monthly financial support the applicant will receive as a graduate student while resident at TUC.

Either statement may include alternative funding options (e.g. financial support by the department or school), if funding provided by the Purdue Advisor or the TUC Advisor, respectively, is not possible.

1.3 Enrollment and Advisory Committees

1.3.1 Enrollment as a student with an MS or a Diploma

If the applicant who accepts the offer stated on the invitation letter is a last-year student in or a graduate of an MS degree program or a Diploma (five-year) degree program equivalent to 300 ECTS, then he/she enrolls in the joint PhD degree program according to the following procedure.

1. The student enrolls to the Purdue Graduate School, as a “student with an MS or a Diploma, enrolled to the joint PhD degree program,” upon submission of all documents required by Purdue.
2. After graduating from the MS or Diploma program, the student applies to TUC for enrollment to the joint PhD degree program, determining his/her co-Advisors and a thesis title and abstract and submitting all documents required by TUC. The thesis title and abstract must be determined in collaboration with the student’s co-Advisors.
3. The TUC ECE School Assembly validates the admission of the applicant to the joint PhD degree program and, upon recommendation of the co-Advisors, establishes the TUC PhD Advisory Committee, consisting of
 - i. the TUC Advisor, serving as the committee chair,
 - ii. the Purdue Advisor, and
 - iii. a TUC faculty member.
4. The student enrolls to the School of ECE of TUC in the joint PhD degree program.
5. After the student’s Plan of Study and Plan of Work are approved by all parties involved, the Purdue ECE Associate Head of Graduate and Professional Programs and the Dean of the Graduate School of Purdue appoint, at the beginning of the program and upon recommendation of the co-Advisors, the Purdue PhD Advisory Committee, consisting of
 - i. the Purdue Advisor, serving as the committee chair,
 - ii. the TUC Advisor,
 - iii. a Purdue ECE faculty member, and
 - iv. a Purdue faculty member.

1.3.2 Enrollment as a student with a BSc

If the applicant who accepts the offer stated on the invitation letter is a last-year student in or a graduate of a BSc degree program, then he/she enrolls in the joint PhD degree program according to the following procedure.

1. The student enrolls to the Purdue Graduate School, as a “student with a BSc, enrolled to the joint PhD degree program,” upon submission of all documents required by Purdue. At the same time, the student enters the MS/PhD track of TUC. That is, intending to work toward a PhD, the student will acquire an MS degree from TUC along the way. During the first stage of his/her graduate career, he/she will be simultaneously working toward the MS degree and compiling a portfolio, both of which are requirements of the PhD.
2. After graduating from the BSc program, the student applies to TUC for enrollment to the Research MS degree program, determining his/her co-Advisors and an MS thesis title

and submitting all documents required by TUC. The MS thesis title must be determined in collaboration with the student's co-Advisors.

3. The TUC ECE School Assembly validates the admission of the applicant to the Research MS degree program and, upon recommendation of the co-Advisors, establishes the TUC MS Advisory Committee consisting of
 - i. the TUC Advisor, serving as the committee chair,
 - ii. the Purdue Advisor, and
 - iii. a TUC faculty member.
4. The student enrolls to the School of ECE of TUC in the Research MS degree program.
5. After the student's Plan of Study and Plan of Work are approved by all parties involved, the Purdue ECE Associate Head of Graduate and Professional Programs and the Dean of the Graduate School of Purdue appoint, at the beginning of the program and upon recommendation of the co-Advisors, the Purdue PhD Advisory Committee, consisting of
 - i. the Purdue Advisor, serving as the committee chair,
 - ii. the TUC Advisor,
 - iii. a Purdue ECE faculty member, and
 - iv. a Purdue faculty member.
6. The student is required to complete a minimum of 3 graduate-level courses (taken from TUC or Purdue) while enrolled in the Research MS degree program. At least two of them must be TUC ECE courses. The student is also required to complete an MS thesis. The minimum duration of the studies in the Research MS degree program is three academic semesters.
7. The student may be resident at Purdue during part or all of the Research MS degree program. In this case, the student attends the required graduate courses of TUC remotely.
8. After graduating from the Research MS degree program, the student enrolls to TUC in the joint PhD degree program, determining his/her TUC PhD Advisory Committee (which is the same as the TUC MS Advisory Committee) and the PhD thesis title and abstract, and submitting all documents required by TUC. The thesis title and abstract must be determined in collaboration with the student's co-Advisors.
9. The TUC ECE School Assembly validates the admission of the applicant to the joint PhD degree program and establishes the TUC PhD Advisory Committee.
10. All courses that the student has taken and the time the student has spent at TUC and Purdue while enrolled in the Research MS degree program count toward graduation from the joint PhD degree program.

1.3.3 Duties of the Purdue and TUC PhD Advisory Committees

The primary duties of the Purdue and TUC PhD Advisory Committees (hereinafter referred to as "the Advisory Committees") are to advise the students during the course of their thesis research and to conduct the students' Preliminary and Final Examinations.

Changes of the co-Advisors and changes to the Advisory Committees require approval by the Purdue ECE Associate Head of Graduate and Professional Programs, the Dean of the Graduate School of Purdue, and the TUC ECE School Assembly.

If the TUC Advisor moves to another School of the Technical University of Crete, he/she may continue to hold the position of TUC Advisor, provided he/she consents.

1.4 Transferring Students

Students that are enrolled in the PhD degree program of the Purdue School of ECE or the TUC School of ECE are allowed to transfer into the joint PhD degree program. To do so, they must follow the procedures described in Sections 1.1-1.3 of Chapter D.

For transferring students, the coursework requirements described in Section 2.1 of Chapter A, the requirements on the fractions of courses to be taken at each university, and the requirements on the time the student will spend on each campus may have been partially or totally fulfilled previously during their PhD studies at the institution of origin.

1.5 Registration

Students in the joint PhD program will be registered to at least one of the two universities at any time during their PhD studies. PhD students with a BSc must be registered to TUC during their enrollment in the Research MS degree program of TUC.

Semester tuition and fees are determined by the institution (Purdue or TUC) to which the student is registered for credits in each semester.

1.6 Student status

1.6.1 Academic standards

The PhD student is expected to maintain the following standards throughout his/her academic program:

- Maintain a plan of study grade point average (GPA), based on his/her currently approved plan of study, of at least 3.3 out of 4.00 over the courses on the plan of study and at least 2.0 out of 4.00 at each semester, with no grade less than C-.
- Earn grades of “Satisfactory” in thesis research credit hours.
- Satisfactorily complete [ECE 69400: Graduate Seminar](#) and the [written English proficiency requirement \(Appendix C\)](#) within the first two semesters in Purdue.
- Make continuous and significant progress each semester toward completion of his/her degree requirements.
- Complete all degree requirements and graduate within the corresponding deadlines.

1.6.2 Plan of study GPA

The cumulative plan of study GPA is calculated using the courses on the PhD plan of study, excluding courses taken as part of the Master’s program. Transfer courses and graduate-level courses taken while an undergraduate student are not included in the computation.

In the case of a deficiency in the cumulative plan of study GPA, courses may be repeated. If a course is repeated, only the most recent grade received will be used in computing GPA.

1.6.3 Grades of D or F

No grade of D or F is allowed in a course on the plan of study. Any plan of study course in which a grade of D or F is received must be repeated and completed successfully; it cannot be dropped from the plan of study.

1.6.4 Academic probation

The student will be placed on academic probation if he or she completes any semester or summer session with a deficiency in any of the above standards. If the student remains on academic probation at the end of the succeeding semester or summer session, he or she may be prohibited from registering for further graduate study. Students concerned about their academic progress should schedule an appointment with the Purdue ECE Graduate Programs Director or the TUC ECE Director of the Joint PhD Program.

Any grade change due to a reporting error will result in a recalculation of the GPA and determination of probation standing. Academic standing will not be assessed in summer sessions.

1.6.5 Dropping of students for academic deficiency

A student on academic probation shall be dropped from the joint PhD degree program at the close of any fall or spring semester in which his/her semester and cumulative GPA is less than a 2.0. Any grade change due to a reporting error will result in a recalculation of the GPA and determination of drop status.

1.6.6 Obligations and rights

PhD students have the following obligations.

- a. They submit a detailed written report on the progress of their thesis on an annual basis to the Advisory Committees.
- b. They cooperate with the co-Advisors and the members of the Advisory Committees to support the planned research tasks.
- c. They participate in the educational process and are assigned supplementary auxiliary teaching assistance in accordance with the needs and regulations of the institution (Purdue or TUC) to which they are registered for credits in each semester.

PhD students have the following rights.

- a. They have the rights of graduate students
- b. They have any other rights defined by the PhD program regulations.
- c. They may participate in research projects/programs of the institution (Purdue or TUC) to which they are registered for credits in each semester.
- d. They receive scholarships for the financial support of their PhD research.

Purdue University will offer the PhD students financial support as Research or Teaching Assistants and tuition and fee waiver during the time the students spend at the West Lafayette campus.

1.7 Time to degree

The minimum duration of the joint PhD degree studies is 4 years (8 semesters). For transferring students, the minimum duration is 3 years, if they have another year of PhD studies at the institution of origin, otherwise the minimum duration increases accordingly so that the students graduate from the joint PhD degree program after at least 4 years of PhD studies.

The student's PhD program termination is decided jointly by the Purdue Graduate School and the TUC ECE School Assembly, when the student does not graduate by the cited time limit or does not comply with the program requirements.

2 Preliminary Examination

The [Preliminary Examination](#) is given to (a) determine whether the PhD student is adequately prepared to conceive and undertake the assigned research topic and (b) provide research direction and feedback. The Preliminary Examination is managed by the Preliminary Examination Committee, which is a five-member committee consisting of the members of the Advisory Committees. The co-Advisors serve as the two co-chairs of the Preliminary Examination Committee.

To ensure timely academic progress, the Preliminary Examination is to be taken after no more than six semesters in the PhD program. If this deadline is not met, the student must request an extension of the deadline with the Purdue ECE Graduate Office before being able to register for the subsequent semester. The reason(s) for the delay in taking the Preliminary Examination, specific actions planned to remedy the situation, and a new proposed date for the preliminary exam, no more than one year past the deadline, must be indicated on the form. The form must be signed by all members of the Preliminary Examination Committee and the Purdue ECE Associate Head of Graduate and Professional Programs.

The Preliminary Examination may include a written exam component, if the Committee so requires, but normally it is an oral examination primarily associated with a written thesis proposal, submitted to the Committee at least two weeks before the examination. The proposal normally contains the first two chapters of the thesis and a detailed plan of future work on the remaining chapters.

During the Preliminary Examination, the student is typically expected to exhibit

- a clear understanding of the research problem,
- an awareness of pertinent background literature and current efforts in the research area of interest,
- some initial progress toward solving the research problem, and
- a plan to execute the remainder of the thesis research.

Students that fail the Preliminary Examination may not retake the exam until the next semester.

After the semester of the preliminary exam, a student must register for two semesters of research before the semester of final defense.

3 Dissertation Defense Committee

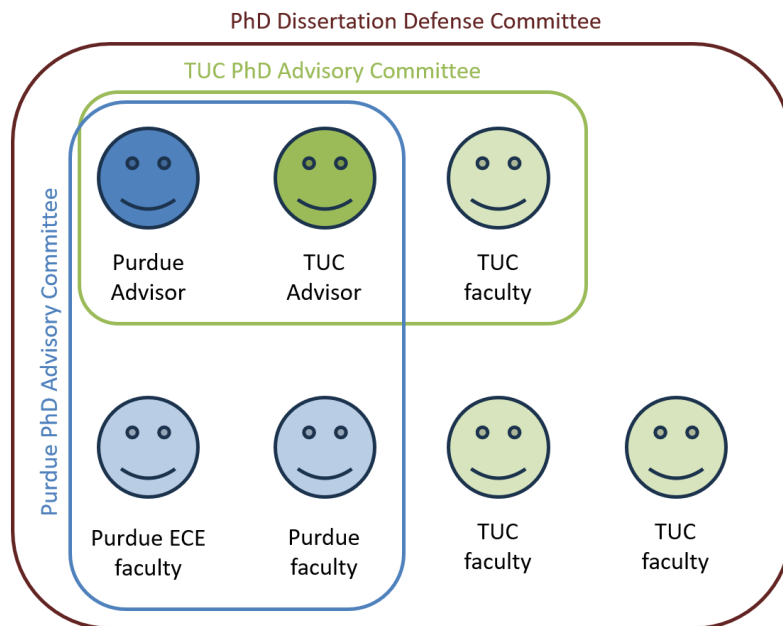
The PhD thesis must be prepared according to a preset format and processed (revised, signatures obtained, bound, distributed) following specified procedures. Detailed information relative to the preparation and processing of the thesis is contained in [Appendix E](#). Once the thesis is prepared and all other requirements have been completed, the student must present and defend his/her work in a Final Examination.

As noted previously, there must be at least two academic sessions (counting regular semesters and summer sessions for which the student is registered for PhD research) between the Preliminary Examination and the Final Examination.

After a positive written recommendation of the five members of the Advisory Committees, the TUC ECE School Assembly appoints the seven-member Dissertation Defense Committee for the evaluation of the PhD thesis, consisting of

- i. the five members of the Advisory Committees and
- ii. two TUC faculty members.

The co-Advisors serve as the two co-chairs of the Dissertation Defense Committee. The appointment of the Dissertation Defense Committee is validated by the Purdue ECE Associate Head of Graduate and Professional Programs and the Dean of the Graduate School of Purdue.



4 Dissertation Defense Process

4.1 Final Examination

The purpose of the Final Examination of the dissertation is to determine if the thesis research warrants granting the PhD degree. PhD research must be original and merit publication in scholarly literature.

The student, the Dissertation Defense Committee, and the Purdue ECE Graduate Office schedule the Final Examination at least three weeks in advance. The examination date is approved from the Purdue Graduate School. Any requests to schedule a Final Examinations less than three weeks in advance must be approved by the Purdue ECE Associate Head of Graduate and Professional Programs and will be approved only in exceptional circumstances.

The time and location of the Final Examination are posted to both the Purdue ECE faculty and the TUC ECE faculty, as well as the websites of both institutions. The examination is hybrid. Visitors are permitted to attend the Final Examination and ask questions of the candidate, but they may not be present while the Dissertation Defense Committee deliberates on its decision.

The Dissertation Defense Committee evaluates the PhD thesis in terms of its quality, completeness, originality, and contribution to the science and, based on these criteria, approves or rejects the certification of the candidate to receive the PhD degree.

4.2 Degree approval

In certifying the candidate to receive the joint Purdue-TUC PhD degree,

- a. no more than one dissenting vote in the Purdue PhD Advisory Committee is acceptable,
- b. no more than two dissenting votes in the Dissertation Defense Committee are acceptable.

If both requirements are satisfied, then the PhD degree is approved by the Dissertation Defense Committee and the partner institutions shall confer a single joint PhD degree. The international joint supervision and cooperation of the partners will be indicated on the diploma. The joint degree awarded will be expressed through one diploma signed by each institution.

If requirement “a” or requirement “b” is not satisfied, then the candidate may retake the exam, but not before the next semester.

5 Collaborative Interaction

The collaborative interaction between the students and the relevant faculty will be monitored by means of annual student progress reports that will be available to the joint

Advisory Committees. The annual progress report will be submitted by the students to both School offices.

The interaction will be ensured by means of regular meetings between the student and the Advisors that will aim to guide students in their research, discuss solutions to potential problems and bottlenecks, and decide upon future steps.

An indicator of successful collaborative interaction will be the number and quality of joint publications in international, peer-reviewed conference proceedings and journal articles, as well as the number of awarded grants supporting the research of the students.

The graduating students will be asked to fill out a questionnaire (survey) which will aim to provide feedback and rate the collaborative interaction between the student and the relevant faculty throughout the study period.

Both Schools will periodically review the results of the student surveys, receive feedback from the participating faculty, and make necessary adjustments to ensure improvement of collaborative interactions.

5.1 Publications

The results of the research will be published following approval of the co-Advisors and the student. The students will list the joint affiliation with both Schools in the author list of each paper they co-author.

5.2 Intellectual rights

Intellectual property rights related to PhD research shall be divided equally between Purdue and TUC. In the case of a patentable invention, the share of students and mentors in the proceeds of the invention will be determined by Purdue and TUC in accordance with their contribution to the invention and will be provided equally from each institution's share.

6 Format of the Dissertation

The dissertation will be written in English and its format will follow the standard regulations of both universities and involved ECE Schools.

7 Responsible Conduct of Research

Both departments participating in this joint PhD program are committed to research integrity and the responsible conduct of research. To ensure that all faculty, staff and PhD students of both ECE Purdue and ECE TUC that participate in this joint PhD program are trained to conduct their research in an informed and responsible manner, the [Responsible Conduct of Research \(RCR\) Standard \(S20\)](#) developed by Purdue University will be applied. All students and faculty must satisfactorily complete the Responsible Conduct of Research

course as instructed in the ECE online orientation. This is an online course offered through the [Collaborative Institutional Training Initiative \(CITI\)](#).

With respect to research involving human subjects, the Institutional Review Board (IRB) procedures described in Purdue's [Human Research Protection Program Office](#) will be followed, i.e., protocols will be submitted to Purdue's IRB for review whenever the conducted research in the joint program involves human subjects, listing the faculty, staff, and students of both Schools involved in the human subject research.

F. Program Assessment Plan

The five-year assessment plan will aim to evaluate the effectiveness of the joint degree program and ensure its continuous improvement. The assessment will be based on specific targets and measurable student learning outcomes which will be defined by the respective faculties for each research area.

The assessment will consider both direct measures (e.g., student performance on exams, PhD theses, number of courses taken at each University, number of joint papers published) as well as indirect measures (e.g., information from surveys, advisory boards, etc.). In addition, the assessment will include an analysis of the yearly expenditures and revenues, including expenses involving the support of the joint program, awarded grants, joint patent income, donations or any other income related to research conducted by students in the joint program.

The findings of the five-year assessment, including recommendations for improvement, will be reported to the relevant administration offices (e.g., Office of the Provost, Purdue University; Office of the Dean, Technical University of Crete).

The interpretation of the results should address the following questions:

1. What are the strengths and weaknesses of the student learning in each research area?
2. How does the performance of the learning outcomes compare with the respective (single-site) PhD programs?
3. What is the reported student satisfaction from the joint program?
4. How do the answers to the above questions evolve over time?
5. What opportunities for collaboration between faculty have emerged?
6. Has the research collaboration in the context of the PhD been recognized academically (by awards, grants, scholarships, etc.)?
7. How does the job market (academic and industry) evaluate the program? --- Note: findings may only be preliminary in the first five-year assessment.

G. Program Sustainability Plan

Both ECE Purdue and ECE TUC will provide faculty, offices, laboratories, and administration services as necessary for teaching and research within the framework of this joint PhD program. The students will be provided academic services (e.g. student id card, access to electronic services and libraries, health insurance etc.) according to the regulations of the institution (Purdue or TUC) to which they are registered for credits in each semester.

Based on the target audience and anticipated throughput analysis in Section A.1.1.3, an estimate of 5-10 admissions per year can be achieved, and assuming an average of 5 years for graduation, an enrollment of 25-50 students is predicted in the long term.

PhD students may participate in research projects/programs of the institution (Purdue or TUC) to which they are registered for credits in each semester. Also, they may receive scholarships for the financial support of their PhD research, depending on the relevant funding available at each institution. Semester tuition and fees are determined by the institution (Purdue or TUC) to which the student is registered for credits in each semester. Purdue University will offer the PhD students financial support as Research or Teaching Assistants and tuition and fee waiver during the time the students spend at the West Lafayette campus. TUC will not charge tuition or other fees to enrolled students for the entire period they are registered to TUC for credits.

In the long term, the joint program will provide sustainability benefits to both institutions, in terms of sharing research expertise in areas of strength by both schools, opening more career opportunities for graduates in both the north American and the European market and preparing candidates more successfully for a global career, and enhancing the visibility and reputation of both institutions.

H. Background of Partner Institution

1 Current Degree Requirements/Procedures

1.1 Program description

The TUC School of ECE offers a “stand-alone” [PhD degree program in ECE](#). Its strategic goal is to educate new scientists and engineers able to produce high-caliber, internationally competitive research outputs. The PhD candidates are expected to contribute, enable, sustain, and constantly improve the research conducted by the ECE School, as well as to enrich the research and innovation ecosystem of the School and the Technical University of Crete.

Specialization is sought in the following areas.

- Electronics and Computer Architecture
- Telecommunications
- Systems
- Informatics
- Applications of Information Society
- Data Analysis Including Big Data
- Electric Power
- Physics
- Mathematics

The program has a minimum duration of six academic semesters.

1.2 Admission

Admission opens three times per year, usually February, July, and September. To be eligible to apply for admission to the PhD degree program of the TUC School of ECE, the applicant must be a last-year student in or a graduate of a Diploma (five-year) degree program equivalent to 300 ECTS or a last-year student in or a graduate of an MS degree program.

Applications to the PhD degree program in ECE, as well as all graduate programs of the Technical University of Crete, are submitted online. Required application documents include

- a copy of the applicant’s university degree or diploma (or the expected graduation date, if the applicant does not yet have a degree or diploma, but it is expected soon),
- copies of graduate degrees (if applicable),
- transcripts for undergraduate studies and (if applicable) graduate studies,
- a copy of a certificate confirming good or excellent knowledge of the English language (at least B2 level, preferably higher),
- curriculum vitae,

- a summary of the undergraduate and/or graduate thesis/dissertation (if applicable),
- a brief statement of the applicant's scientific and professional interests and a statement of the reasons he/she is interested in pursuing PhD studies,
- copies of scientific publications and awards (if applicable), and
- at least three letters of recommendation, at least two of which must be obtained from teaching staff in the department awarding existing degree(s).

Before submitting an application, the applicant must contact a [faculty member](#) (who will serve as the applicant's Advisor) to discuss potential topics for his/her thesis. The student and the Advisor determine a title and an abstract for the student's thesis, which accompanies the student's application.

The admission decision is made by the TUC ECE School Assembly, according to criteria that meet the School's academic requirements. If the decision is positive, a three-member PhD Advisory Committee (which includes the student's Advisor) is also established. The primary duties of the PhD Advisory Committee are to advise the student during the course of his/her thesis research and to monitor its progress.

1.3 Course and research work

Upon admission to the program, each student needs to successfully complete 3-6 graduate-level courses depending on his/her educational background. The list of the courses that PhD students can take is available on the [Courses page](#). Additional course credits from the undergraduate program of School of ECE may be requested for specific PhD applicants, if the department judges that attending such courses will help the applicant obtain the necessary background for his/her research topics covered by the department. Coursework is considered completed if the student achieves a grade of at least six (out of ten) in each course and the average grade over all courses is at least seven and a half (i.e., 75%).

The minimum duration of the PhD degree studies is 3 years (6 semesters). The maximum duration is 6 years (12 semesters). Students may request, in writing, an extension to the cited time limit, upon agreement of the PhD Advisory Committee. The request must be approved by the TUC ECE School Assembly. The student's PhD program termination is decided by the TUC ECE School Assembly, when the student does not graduate by the cited time limit or does not comply with the program requirements.

1.4 Dissertation defense

Each student is also required to complete and successfully defend a PhD dissertation thesis. Once the thesis is prepared and all other requirements have been completed, the student must present and defend his/her work in a Final Examination. The purpose of the Final Examination of the dissertation is to determine if the thesis research warrants granting the PhD degree. PhD research must be original and the student is expected to publish (or report mature research results that can be published) in first class conferences and/or journals.

After a positive written recommendation by the PhD Advisory Committee, the TUC ECE School Assembly appoints the seven-member Dissertation Defense Committee for the evaluation of the PhD thesis. The Dissertation Defense Committee is a superset of the PhD Advisory Committee.

A public defense of the thesis is mandatory. The time and location of the Final Examination are posted to the TUC ECE faculty, as well as the School's website. The examination is hybrid. Visitors are permitted to attend the Final Examination and ask questions of the candidate, but they may not be present while the Dissertation Defense Committee deliberates on its decision. The Dissertation Defense Committee evaluates the PhD thesis in terms of its quality, completeness, originality, and contribution to the science and, based on these criteria, approves or rejects the certification of the candidate to receive the PhD degree. In certifying the candidate to receive the joint Purdue-TUC PhD degree, no more than two dissenting votes in the Dissertation Defense Committee are acceptable.

Before graduation, the PhD thesis supervisor is expected to submit a brief report, summarizing the thesis contributions.

2 Objectives and Requirements for the Joint PhD Degree Program

The Technical University of Crete does not have a specific document describing objectives and requirements for joint degree programs. Any requirements to the proposed joint PhD degree program are set by Greek state regulations for PhD degree programs and are described below (tailored to the establishment of a joint PhD degree program between TUC and a foreign institution).

2.1 Joint PhD degree program

A joint PhD degree program can be established between TUC and a foreign institution, with co-advisors from the cooperating institutions. The program must aim to promote original scientific research and to make a substantial contribution to the development of knowledge in at least one (1) scientific discipline. The program may include an independent program of graduate courses of at least 30 ECTS (i.e., at least 4-5 courses). The preparation and successful defense of a PhD thesis is required. The successful completion of the joint PhD degree program may lead to the awarding of a single joint PhD degree by the cooperating institutions, in accordance with the Special Cooperation Protocol, which is drawn up by the cooperating Schools or Departments and approved by a decision of the TUC Senate.

2.2 Program regulations

The Joint PhD degree program and the Special Cooperation Protocol (which includes the program regulations) are determined by decision of the TUC Senate, following a recommendation by the Assembly of the TUC School that initiates the program. If the program includes an organized course program or other educational and research activities, the decision includes the titles of the courses, their content, the weekly lecture

hours, any prerequisites, and the number of ECTS assigned to each course. The TUC Senate decision includes (at least)

1. the more specific terms and conditions that candidates are required to meet to be eligible to apply to the program,
2. the supporting documents required to prove the fulfillment of the conditions for participation in the program,
3. the obligatory provision of preparation of the PhD thesis in English or other foreign language,
4. the procedure for submitting and evaluating applications and the deadlines for their submission, as well as the conditions and procedure for exemption, in whole or in part, from the obligation to attend graduate courses,
5. the procedure for assigning the student's PhD Advisor and the maximum number of PhD theses that can be supervised by the same professor,
6. the specific reasons and conditions for substituting the Advisor or another member of the PhD Advisory Committee,
7. the obligations and rights of the PhD students,
8. the deadline and any other issue related to the obligation to present the progress of the thesis orally and to submit a relevant progress report, the conditions for a successful thesis defense, as well as additional conditions for the award of a PhD degree,
9. the obligation to attend or participate in courses, workshops, or seminars related to the PhD thesis, as well as additional obligations of PhD students, such as interim deliverables, and of their supervisors, such as periodic progress reports,
10. the involvement of PhD students, as teaching assistants, in the undergraduate and MS programs of the TUC School that participates in the program,
11. the maximum duration of the joint PhD degree studies,
12. the conditions and procedure for the student's PhD program termination,
13. issues related to the public thesis defense, the awarding of the PhD degree, the form and content of the PhD degree,
14. the process of remote participation to the thesis defense,
15. any other issue related to the establishment and operation of the joint PhD degree program.

The Special Cooperation Protocol between the cooperating Schools or Departments includes all above elements, plus the obligations of each partner and the participation and representation of each partner in the PhD committees.

2.3 Eligibility and admission of applicants

To be eligible to apply for admission to the joint PhD degree program, the applicant must hold (a) an undergraduate degree from a program that has a minimum duration of 5 years and a minimum effort of 300 ECTS or (b) an MS degree. The decision for admission to the PhD program is made by the Assembly of the TUC School that participates in the program. Further eligibility and evaluation criteria may be determined in the Special Cooperation Protocol.

The application to the joint PhD degree program includes at least

1. the proposed title of the PhD thesis,
2. a short description of the subject of the PhD thesis,
3. the language of the PhD thesis, if there is an option for selection of one among two or more languages, and
4. the proposed PhD Advisor from TUC, whose specialization and/or scientific work is related to that of the proposed PhD thesis.

The application is accompanied by a detailed curriculum vitae of the applicant, as well as the necessary documents determined by the Special Cooperation Protocol.

2.4 Time to degree - Obligations and rights of PhD students

The minimum duration of the joint PhD degree studies cannot be less than three (3) full calendar years from the date of appointment of the three-member TUC PhD Advisory Committee. The maximum duration is six (6) calendar years.

Students may request, in writing, an extension to the cited time limit for an important reason, with the consent of the TUC PhD Advisory Committee. The request must be approved by the TUC ECE School Assembly. The maximum duration of the extension and the specific issues regarding the right to extend the duration of the joint PhD degree studies are determined in the Special Cooperation Protocol.

PhD students are obliged to

1. submit in writing a detailed progress report of their thesis on an annual basis to the TUC PhD Advisory Committee and orally present its progress, in accordance with what is defined in the Special Cooperation Protocol,
2. cooperate with the TUC Advisor and the members of the TUC PhD Advisory Committee to support the thesis research work,
3. provide supplementary teaching work in accordance with the needs of the undergraduate and MS programs of the TUC School that participates in the program, upon TUC Advisor's suggestion, and
4. fulfill any other obligation defined by the Special Cooperation Protocol and the TUC Graduate Studies Regulations.

PhD students have the rights of TUC graduate students and any other rights defined by the Special Cooperation Protocol. PhD students may participate in research projects/programs of TUC and receive scholarships for the financial support of their PhD research.

2.5 PhD thesis supervision

The TUC Advisor and the three-member TUC PhD Advisory Committee that includes the TUC Advisor are appointed by the Assembly of the TUC School that participates in the program.

Eligible to become members of the TUC PhD Advisory Committee are

1. Professors of TUC or other universities or other higher-education institutes (e.g., the Supreme Military Education Institutions),
2. Emeritus and retired Professors,
3. Researchers of research organizations, if they hold a PhD degree and carry research activity related to the PhD student's thesis,
4. Professors of foreign institutions and Researchers of foreign research organizations.

The TUC PhD Advisory Committee cannot have more than one retired Professor.

The members of the TUC PhD Advisory Committee have either the same or related expertise and/or research work as the subject of the student's PhD thesis. The primary duties of the committee are to advise the student during his/her thesis research and to monitor its progress.

2.6 Dissertation defense

Once the PhD thesis is prepared and all other requirements have been completed, the student must present and defend his/her work in a Final Examination. Upon an official request by the student and a positive written recommendation by the PhD Advisory Committee, the TUC ECE School Assembly appoints the seven-member Dissertation Defense Committee for the evaluation of the PhD thesis. If, after the student's official request, the PhD Advisory Committee does not submit a positive written recommendation or submits a negative recommendation, the procedure can be continued at the student's request, in accordance with the Special Cooperation Protocol.

The Dissertation Defense Committee consists of (a) the three members of the PhD Advisory Committee and (b) four additional members, with the same eligibility criteria as the ones used for the TUC PhD Advisory Committee. At least four (4) out of the seven (7) members of the Dissertation Defense Committee are TUC Professors.

A public defense of the thesis is mandatory. The examination can be hybrid, if the physical presence of all Dissertation Defense Committee members is not possible. During the defense, the candidate answers questions made by the Dissertation Defense Committee. Visitors are permitted to attend the Final Examination and ask questions of the candidate, but they may not be present while the Dissertation Defense Committee deliberates on its decision. The Dissertation Defense Committee evaluates the PhD thesis in terms of its quality, completeness, originality, and contribution to the science and, based on these criteria, approves or rejects the certification of the candidate to receive the PhD degree. In certifying the candidate to receive the PhD degree, no more than two dissenting votes in the Dissertation Defense Committee are acceptable.

2.7 Other regulations

If any of the three members of the TUC PhD Advisory Committee, including the TUC Advisor, is unable to fulfill his/her duties, he/she can be substituted, at the request of him/her or the PhD student, through the appointment by the Assembly of the TUC School

that participates in the program of a new committee member who serves until the completion of the student's PhD studies.

If any of the three members of the TUC PhD Advisory Committee, including the TUC Advisor, moves to another School of TUC or another university or retires, he/she may continue to hold his/her role in the committee, if he/she consents, and the joint PhD title is awarded by TUC and the foreign institution, as originally planned.

3 CVs of Representative Faculty

- **Minos Garofalakis**, Professor
PhD University of Wisconsin-Madison
Research interests: Database systems, data flows, data summaries and approximate question evaluation, probabilistic and uncertain databases, network data management, XML/text databases, data mining.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Thrasyvoulos Spyropoulos**, Professor
PhD University of Southern California
Research interests: Communication and computer networks, modeling of stochastic processes and systems, theory of continuous, discrete and distributed optimization, social networks, recommendation algorithms, artificial intelligence and machine learning with applications in network problems.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Sotiris Ioannidis**, Professor
PhD University of Pennsylvania
Research interests: Computer security, privacy, computer systems, computer hardware.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Dimitris Angelakis**, Professor
PhD Imperial College London, UK
Research interests: Quantum optics, quantum technologies, nanophotonics, quantum information and computing, quantum simulators.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)

- **Evangelos Kalogerakis**, Associate Professor (will join in Jan. 2025)
PhD University of Toronto
Research interests: computer graphics, computer vision, machine learning, neural networks, deep learning, geometric modeling, geometry processing, 3D/4D reconstruction, generative models, animation, image synthesis.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Nikolaos Bekiaris-Liberis**, Associate Professor
PhD University of California San Diego
Research interests: Control of distributed parameter systems, systems with delays, nonlinear control, adaptive control, traffic flow control and estimation, connected and automated vehicle control, occupancy detection in smart buildings, vehicle catalyst control, vibration control in oil extraction, networked control systems.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Konstantinos Gyftakis**, Associate Professor
PhD University of Patras, Greece
Research interests: Electrical machines, fault diagnosis and prognosis in electrical machines, condition monitoring, electromagnetic analysis of electrical machines, design of electrical machines.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)
- **Ioannis Pefkianakis**, Assistant Professor
PhD University of California Los Angeles
Research interests: Networked and mobile systems, wireless communications, network analytics.
[Curriculum Vitae \(pdf\)](#), [Google Scholar](#)