Electrical & Computer Engineering PhD Map

Applying to and Navigating Graduate Studies

GRAD MAP FOR PhD STUDENTS

Why GRADUATE STUDIES in ELECTRICAL & COMPUTER ENGINEERING?

As a PhD student in the important field of Electrical and Computer Engineering (ECE), you can play a vital role in future developments in such areas as microchip design, bioelectronics, artificial intelligence, machine vision, IoT, autonomous vehicle & robots, speech and language processing, wireless and optical communications, nanoelectronics, photonics, power electronics and systems, green energy, cybersecurity, supercomputing, software engineering, and thousands of other areas. Almost every aspect of modern life is impacted by electrical and computer engineering.

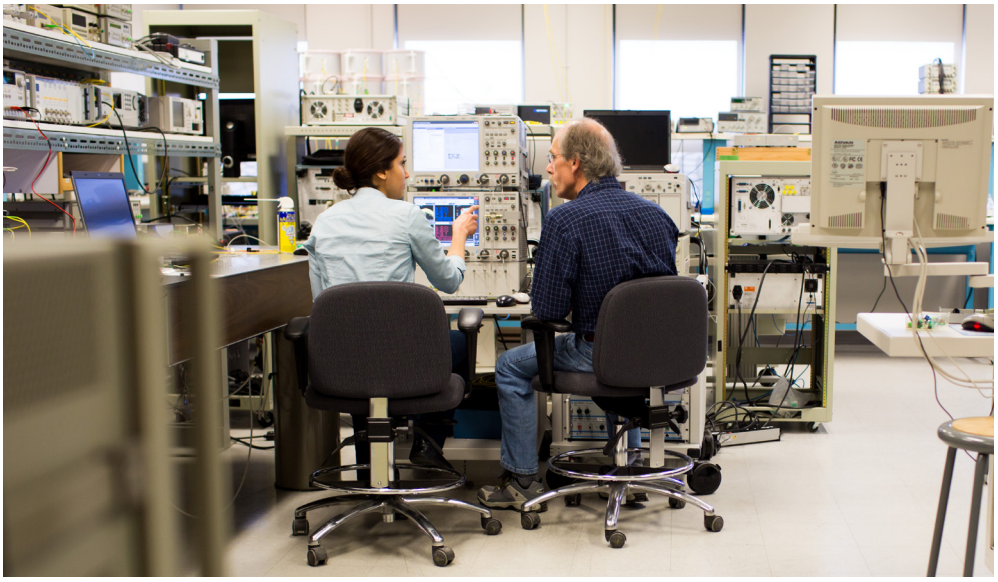
Graduate students and their work are an important part of an ongoing research process that provides the community with ways of understanding natural, cultural, imaginative, social, and technological phenomena.

Why QUEEN'S?

As a PhD student in ECE at Queen's you are part of one of the most research intensive universities in Canada. Our research program is internationally renowned with a wide range of research activities in all of the major specialization areas of electrical and computer engineering.

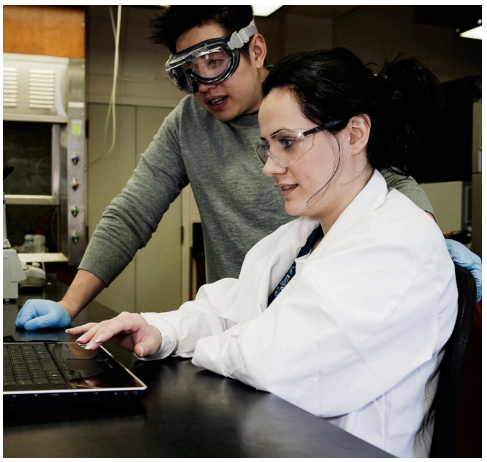
Queen's ECE offers a number of cross-disciplinary opportunities in collaboration with the departments of Mathematics & Statistics, Physics, Computing, Mechanical Engineering, Mining, the School of Kinesiology and Health Studies, as well as the collaborative graduate program in Biomedical Engineering.

Our students come from all over the world. At Queen's, graduate students from all disciplines learn and discover in a close-knit intellectual community.



"Thanks to Queen's ECE, where my MASc and PhD study paved the way for my rewarding career as a professor. Besides my thesis supervisor, I also collaborated with student and faculty researchers at Queen's and other universities. I presented my research at companies and government labs to cultivate connections, and I took stints as a visiting researcher at a university and a company in Europe."

— Tiago Falk, MASc, PhD



Program STRUCTURE

PhD (4 years): 4 courses and seminars, thesis background and proposal exams, and thesis defense.

SMITH ENGINEERING
Queen's University

GRADUATE STUDIES AND POSTDOCTORAL AFFAIRS

2023-2024

Electrical & Computer Engineering PhD Map

DOCTOR OF PHILOSOPHY

Queen's University

	YEAR I	YEAR II	YEAR III	YEAR IV
ACHIEVE YOUR ACADEMIC GOALS	• Key priorities include your relationship with your supervisor, forming your committee, coursework, and comprehensive exams. • Meet early with your supervisor to set expectations and discuss roles, responsibilities, program requirements, resources, research/ occupational goals, timelines, and any required accommodation plans. • Look to Student Academic Success Services and SGSPA professional development for supports and workshops. • Attend the Departmental Speaker Series (ELEC 891).	• Write and defend your thesis proposal. • Embark on your substantive research. • Set up regular meetings with your supervisor to discuss progress and obstacles to timely completion. • Find your way through the academic process with help from SGSPA professional development workshops, and the SGSPA website. • If an industry internship is of interest, consult your supervisor. Seek experiential/professional development opportunities.	• Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out the SGSPA writing camps, such as Dissertation Boot Camp. • Use conference presentations to create, discuss, and explore ways to disseminate research findings. • Begin discussion of potential thesis defence examiners.	• Plan date of thesis submission for examination. • Present your research to ECE graduate students and faculty or at conferences and work with supervisor to prepare for defence. • Review submission and examination guidelines. • Secure necessary oral defence accommodations. • Discuss career pathways, references letters, and publication options with your supervisor.
MAXIMIZE RESEARCH IMPACT	• Think about audiences for your research. • Apply to NSERC, OGS, and other funding. • Apply for the Graduate Dean's Travel Grant for Doctoral Field Research. • Consider targeting your research outputs for innovation ventures: check out Queen's Innovation Connector.	• Present your work at IEEE and other research conferences as often as possible. • Expand your research audience through social media. • Consider publishing elements of your research in (e.g., IEEE, ACM) journals.	• Consider participating in the 3 Minute Thesis (3MT) competition. • Consider patent filing, e.g., through Partnerships and Innovations. • Set up a meeting with the School of Graduate Studies and Postdoctoral Affairs for a Grad Chat to discuss your research interests.	• Continue to attend conferences and connect with scholars in your field and with community partners. • Contact the Queen's Media Centre for guidance on speaking to news outlets about your work. List yourself on the Faculty of Engineering and Applied Science research website.
BUILD SKILLS AND EXPERIENCE	• Serve on faculty or university committees. Talk to the Graduate Electrical & Computer Engineering (GECE) Student Society for tips on getting involved. • Consider positions in student services, the SGPS, or media outlets like the Queen's Journal, CFRC, and the SGSPA Blog. Look in the AMS Club Directory. • Use Teaching Assistant and Research Assistant positions to develop your skills and experience.	• Start keeping an eportfolio of your skills, experiences, and competencies. • For help with teaching, get support from the Centre for Teaching and Learning. Enrol in SGS902 or the PUTL Certificate for more professional development in teaching and learning.	• Find opportunities for extra training through CTL, School of Graduate Studies and Postdoctoral Affairs, Mitacs, or other sources to boost your skills. Investigate internships from MITACS and other sources. • Take part in the various international, multidisciplinary opportunities, and collaborate with other departments, such as Mechanical, Math and Eng., Mining Engineering, School of Computing, and ECE at RMC.	• Practice articulating the skills you have been developing in settings outside the university, such as casual conversation, networking, and interviews. Get help from a Career Services workshop. • Prepare for work or studies in a multi-cultural environment by taking the Intercultural Awareness Training Certificate hosted by QUIC and FDISC.
ENGAGE WITH YOUR COMMUNITY	• Consider volunteering with different community organizations, such as an Engineering Society Design Team.	• Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups.	• Do some targeted networking with people working in careers of interest, through Queens Connects on LinkedIn, the Queen's Alumni Association, professional associations, and at conferences. Get help from a Career Services workshop.	• Join professional associations like the Institute of Electrical and Electronics Engineers (IEEE). • Join groups on LinkedIn reflecting specific careers or topics of interest.
LAUNCH YOUR CAREER	• Tune into IEEE messages and publications targeting student members and career building. Learn about the jobs and careers of other ECE grads. • Take a Career Services workshop or meet with a career educator and coach for help. • Start reading publications like University Affairs and the Chronicle of Higher Education. Browse non-academic labour market websites. • Stay on the lookout for special events like School of Graduate Studies and Postdoctoral Affairs Career Week to explore your career pathways.	• Start building your teaching portfolio including student evaluations, and seeking mentorship. • Explore different careers of interest by using Queens Connects on LinkedIn to connect with Queen's alumni. For more information check out Career Cruising. • Investigate requirements for professional positions or other opportunities related to careers of interest.	• Participate in hiring committees and attend job talks. Research academic careers of interest. Craft your CV and job application materials. • Start focusing on non-academic areas of interest. Research organizations of interest and start putting together your industry resume and begin your job search plan.	• Build connections with faculty outside of your department. Pursue interviews for faculty positions and apply for post-doc fellowships and positions. • Apply to jobs or make plans for other adventures. Get help from Career Services with job searching, resumes, and interviews. • If considering jobs abroad, research possible immigration regulations. If you are an international student interested in staying in Canada, consider speaking with an International Student Advisor.

WHAT WILL I LEARN?

A graduate degree in Electrical and Computer Engineering can equip you with valuable and versatile skills, such as:

- **Knowledge** and **technical** skills
- Effective **communication skills** in multiple forms for diverse audiences
- **Information management**: prioritize, organize, and synthesize large amounts of information
- **Time management**: Meet deadlines and manage responsibilities despite competing demands
- **Project management**: develop ideas, gather information, analyze, critically appraise findings, draw and act on conclusions
- **Creativity** and **innovation**
- **Perseverance**
- **Independence** and experience as a **collaborative** worker
- **Awareness**, an understanding of sound **ethical** practices, **social responsibility**, responsible research, and **cultural sensitivity**
- **Professionalism** in all aspects of work, research, and interactions
- **Leadership**: initiative and vision leading people and discussion

WHERE CAN I GO?

A PhD in Electrical and Computer Engineering can take your career in many directions. In Canada, less than 40% of all PhDs will work in post-secondary education.

Graduates from the PhD program have found careers with:

- Startups in all sectors, such as wearable devices, intelligent apps
- Services such as financial, pension, actuarial, intellectual properties
- Tech companies, such as Qualcomm, Ciena, Microsoft, Google, IBM, Cisco Systems, General Dynamics, Nvidia, Intel, Amazon, and Samsung
- Universities as professors

Taking time to explore career options, build experience, and network can help you have a smooth transition to the world of work after graduation.

How to use this map

Use the 5 rows of the map to explore possibilities and plan for success in the five overlapping areas of career and academics. The map just offers suggestions – you don't have to do it all! To make your own custom map, use the My Grad Map tool.

Graduate Studies FAQs

How do I make the most of my time at Queen's?

Use the Grad Map to plan for success in five overlapping areas of your career and academic life. Everyone's journey is different - the ideas on the maps are just suggestions to help you explore possibilities. For more support with your professional development, take advantage of the SGSPA professional development framework and the new Individual Development Plan (IDP) process to set customized goals to help you get career ready when you graduate.

Where can I get help?

Queen's provides you with a broad range of support services from your first point of contact with the university through to graduation. Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming environment offers the programs and services you need to be successful, both academically and personally. Check out the SGSPA website for available resources.

What is the community like?

At Queen's, graduate students from all disciplines learn and discover in a close-knit intellectual community. You will find friends, peers and support among the graduate students enrolled in Queen's more than 130 graduate programs within 50+ departments & research centres. With the world's best scholars, prize-winning professional development opportunities, excellent funding packages and life in the affordable, historic waterfront city of Kingston, Queen's offers a wonderful environment for graduate studies. Queen's is an integral part of the Kingston community, with the campus nestled in the core of the city, only a 10-minute walk to downtown with its shopping, dining and waterfront. For more about Kingston's history and culture, see Queen's University's Discover Kingston page.

Application FAQs

What do I need to know to APPLY?

ACADEMIC REQUIREMENTS

- Master of Applied Science or Master of Science.
- **Grades Required:** minimum cumulative average of 75% or B from Canadian or US Universities, or 80% for international students.

ADDITIONAL REQUIREMENTS

- Statement of Interest/Statement of Research.
- Curriculum Vitae.
- English Proficiency Requirements as listed on the ECE graduate website.

KEY DATES & DEADLINES

- **Application due:**
- Fall Semester Start: January 31 (international), March 1 (domestic).
- Winter Semester Start: August 15th.
- **Notification of acceptance:** usually before the end of April for international students, end of May for domestic students.

Before you start your application, please review the Graduate studies application process.

What about FUNDING?

Minimum funding guarantee for PhD students both domestic and international is $25,000 per year throughout years 1-4. Students are usually funded through a combination of research assistantships, teaching assistantships, and/or scholarships.

You are encouraged to apply for external funding from OGS, NSERC, and other sources. Queen's will automatically issue a one time $10,000 award to incoming PhD students who have won federal government tri-council awards. For more information, see the School of Graduate Studies and Postdoctoral Affairs' information on awards and scholarships.

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SMITH ENGINEERING
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