

Mechanical & Materials Engineering PhD Map

Applying to and Navigating Graduate Studies

Why Graduate Studies in Mechanical & Materials Engineering?

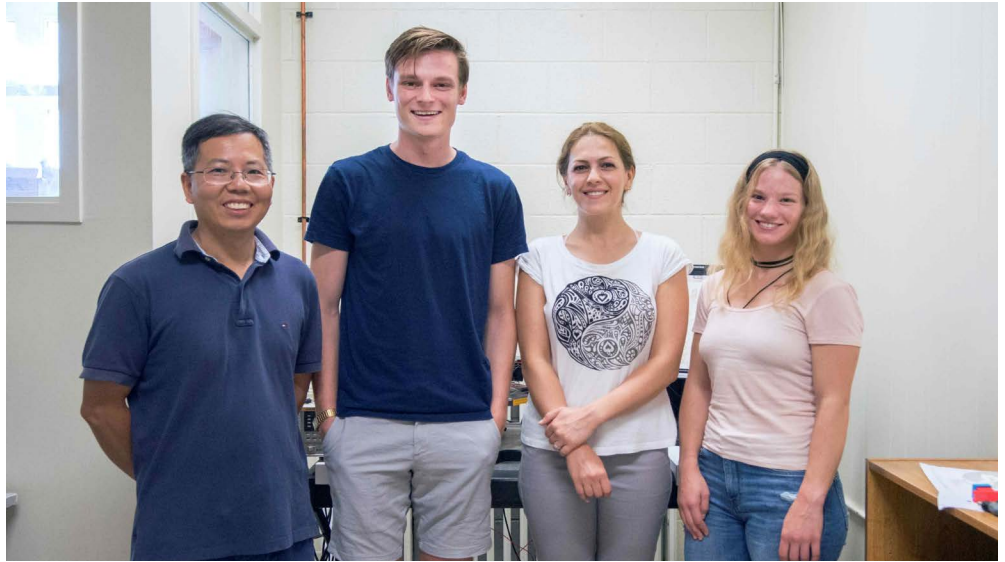
As a PhD student in the field of Mechanical and Materials Engineering (MME), you can play a vital role in future developments in such areas as: ergonomics, biomechanics and tissue engineering, assistive technologies, emerging techniques in MRI and CTI imaging, fuel cells, fluid flow, gas turbines, design optimization, robotics, atomistic simulations on long and short timescales, corrosion and environmental degradation of materials, development of improved materials for nuclear reactor applications, laser additive manufacturing of metals, and many other areas. Mechanical & Materials Engineering continues to play a vital role in modern life.

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 Mechanical and Materials Engineering 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 Mechanical and Materials Engineering.

The Mechanical and Materials graduate program has been recognized for



"My research work provides me with skills and experience working on cutting edge healthcare technology which in the future I will be able to apply in industrial or academic positions." – Rick Helgason , PhD

the quality of its academic and research programs. It also focuses on multidisciplinary, collaborative research with faculty in other departments, other faculties, and other universities.

Research Areas

- Biomechanical
- Energy and Fluid Systems
- Mechatronics
- Manufacturing and Dynamic Systems
- Materials Engineering

We encourage you to identify an area of research interest and contact a potential supervisor before applying.

Visit the [Mechanical and Materials Engineering website](#) to read about research groups and faculty profiles.

When you find a faculty member with similar research interests to yours, contact them and tell them about your interest in graduate work and related experience. This is also an opportunity for you to find out if the faculty member is accepting new graduate students to supervise. Meet with your potential supervisor at departmental events for prospective students.

Program Structure

PhD (4 years): 3 graduate-level courses required (successfully passed with 70% or higher), comprehensive exams (Parts A & B successfully completed), seminar course (MECH 997) "pass/fail" only, and the research thesis – successfully defended.



Mechanical & Materials Engineering PhD Map

DOCTOR OF PHILOSOPHY (PhD)



Knowledge & Workplace Skills

A graduate degree in Mechanical and Materials 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

Career Possibilities

A PhD in Mechanical & Materials Engineering can take your career in many directions. In Canada, less than 40% of all PhDs will work in post-secondary education – the majority will work in industry, government, or non-profits.

- Academia – Professorships
- Consulting
- Government
- Industry – Design Engineer
- Research Science – Simulation Engineer

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. To make your own custom map, use the My Grad Map tool: [careers.queensu.ca/gradmaps](#).

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 Professional Development Plan (PDP) 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?

Queen's offers graduate students from every discipline a close-knit intellectual community where they can learn, discover, and build lasting connections. With more than 130 graduate programs across 50+ departments and research centres, students benefit from world-class scholars, prize-winning professional development, generous funding packages, and life in the historic waterfront city of Kingston. The campus sits at the heart of Kingston, just a 10-minute walk from downtown's shops, restaurants, and waterfront, and is deeply integrated with the local community. For more on 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's degree in Applied Science or Engineering.
- Exceptional BSc students may be admitted directly to the PhD program.

ADDITIONAL REQUIREMENT

- If English is not a first language, nor was the language of instruction in undergraduate studies, prospective students must meet English language proficiency requirements in writing, speaking, reading, and listening as part of the application process, and before final acceptance is granted, as per School of Graduate Studies and Postdoctoral Affairs' regulations.

KEY DATES & DEADLINES

- **Application deadline:** No hard deadline. It is encouraged that prospective domestic and international students apply before March 1st to qualify for internal awards or to allow time to receive Visas.
- **Notification of acceptance:** End of March to July for September admissions.

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

What about Funding?

Currently, the minimum funding guarantee for PhD students \$27,000/ year throughout years 1-4 which includes mandatory teaching assistantships. Students are typically funded through a combination of research assistantships, teaching assistantships, and/or scholarships.

We encourage all students, if eligible, to apply for external funding – for example, tri-council (NSERC) during the Fall semester, Ontario Graduate Scholarships (OGS) during February/March, and other sources. For more information, see the School of Graduate Studies and Postdoctoral Affairs' information on awards and scholarships.

