Mechanical & Materials Engineering  

Applying to and Navigating Graduate Studies

Why GRADUATE STUDIES in MECHANICAL & MATERIALS ENGINEERING?

As a Master’s 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, ceramics and polymers, 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. Check out whygradstudies.ca for more reasons to choose graduate studies in engineering.

Why QUEEN’S?

As a Master’s 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.

“My [...] research project has involved collaboration with a surgeon in Sweden, researchers at the U of Queensland, Australia and NRC in Ottawa. This may sound extraordinary, but it is in fact closer to the norm for our Department.”

– Melanie Thompson, MASc

RESEARCH Areas

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

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

Combined BASc and MASc program: BASc students can take 2 MASc courses in their 4th year, and the other 2 courses during their MASc.

Program STRUCTURE

MASc (2-years): Research-based program with 4 term-length courses and a thesis. Seminar course also required (MECH 897). This course is a pass/fail only. Students present their research to their peers in year two (2).

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 him/her 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.
2022-2023

Mechanical & Materials Engineering

MASTER OF APPLIED SCIENCE (MASc)

GETTING STARTED

- ACHIEVE YOUR ACADEMIC GOALS
  - Start with key priorities like developing your relationship with your supervisor and starting your coursework.
  - Consider how your coursework can contribute to your thesis.
  - Find your way through the academic process with help from School of Graduate Studies and Postdoctoral Affairs professional development activities.

- MAXIMIZE RESEARCH IMPACT
  - Start to think about the audiences for your research.
  - If you will be continuing graduate studies, apply for NSERC and OGS funding.
  - Explore research facilities, including the Machine Shop, Reactor Materials Testing Lab, and the Solar Calorimetry Lab.

- BUILD SKILLS AND EXPERIENCE
  - Consider positions in student services, the SGPS, or media outlets like Queen's Journal, CFRIC, and the SGPS Blog. Look at the SGPS website for more ideas.
  - Serve on departmental faculty or university committees.
  - Check out professional development workshops from Expanding Horizons.

- ENGAGE WITH YOUR COMMUNITY
  - Explore how you can connect with your community through experiential opportunities on- and off-campus.
  - Consider volunteering with different community organizations, such as the Human Mobility Research Centre, and the Centre for Advanced Materials & Manufacturing.

INTERMEDIATE STAGE

- COMPLETE YOUR COURSEWORK
  - Complete your coursework; begin to research and write your thesis.
  - Attend the Departmental Graduate Seminar Series (MECH 897).

- ATTEND CONFERENCES
  - Attend or present at a conference through the Canadian Society of Mechanical Engineering, Canadian Society of Combustion Institute, or CFD Society of Canada.
  - Consider participating in the 3 Minute Thesis (3MT) competition.
  - Expand your research audience through social media such as Twitter or a blog.

- ENGAGE WITH THE COMMUNITY
  - Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups.
  - Prepare for work or studies in a multi-cultural environment by taking the Intercultural Awareness Training Certificate hosted by QUC and Four Directions Indigenous Student Centre.
  - If you are an international student interested in staying in Canada, consider speaking with an International Student Advisor.

- LEADERSHIP DEVELOPMENT
  - Do some targeted networking with people working in careers of interest through Queen's Connects on LinkedIn, the Queen's Alumni Association, professional associations, and conferences. Get help from a Career Services workshop.
  - Consider joining professional associations like the Professional Engineers of Ontario (PEO) or the Canadian Society for Mechanical Engineering.

- PRESENT YOUR RESEARCH
  - Present your research to Mechanical Engineering graduate students and faculty as part of MECH 897, and complete and defend your Masters research thesis.

- WRAP UP THE PROGRAM
  - Consider publication options for your research.
  - Attend a major conference in your field, such as a conference by the American Society of Mechanical Engineering.
  - Set up a meeting with the School of Graduate Studies and Postdoctoral Affairs for a Grad Chat to discuss your research interests.
  - Consider putting an article in The Conversation.

- PRACTICE SKILLS
  - 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.
  - Investigate internships from MITACS and other sources.
  - Check out opportunities for extra training through CTL, School of Graduate Studies and Postdoctoral Affairs professional developments, MITACS, or other sources to boost your skills.

- PREPARE FOR FUTURE CAREERS
  - Do some targeted networking with people working in careers of interest through Queen's Connects on LinkedIn, the Queen's Alumni Association, professional associations, and conferences. Get help from a Career Services workshop.
  - Consider joining professional associations like the Professional Engineers of Ontario (PEO) or the Canadian Society for Mechanical Engineering.

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WHERE CAN I GO?

A Master’s degree in Mechanical & Materials Engineering can take your career in many directions. Many of our MASc students choose to continue their academic inquiry with a PhD. Out Master’s students are equipped with a strong foundation for careers in:

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

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 Major Map tool.

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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 and 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
- Honours Bachelor’s degree in Applied Science or Engineering.
- Grade requirements: minimum cumulative average of a B (73-76.9%).

ADDITIONAL REQUIREMENTS
- If English is not a native language, prospective students must meet the English language proficiency requirements in writing, speaking, reading, and listening. The following minimum scores are required: (1) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30). Applicants must have the minimum score in each test as well as the minimum overall score, or (2) IELTS: 7.0 (academic module overall band score and a 7.0 for each test band), or (3) PTE Academics: 65, or (4) CAEL CE -70 (minimum overall score).

KEY DATES & DEADLINES
- Application deadline: No hard deadline. It is encouraged that prospective international students apply before March 1st 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?

MASc students receive minimum funding of $20,000 (domestic)/$25,000 (international) per year which includes mandatory teaching assistantships. Students are funded through a combination of research assistantships, teaching assistantships, and/or scholarships. Apply for external funding from OGS and other sources. Queen’s will automatically issue a one time $5,000 top-up to Masters winners of 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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