

Mechanical & Materials Engineering

MASc Map

Applying to and Navigating Graduate Studies

GRAD MAP FOR MASc STUDENTS 

Why GRADUATE STUDIES in MECHANICAL & MATERIALS ENGINEERING?

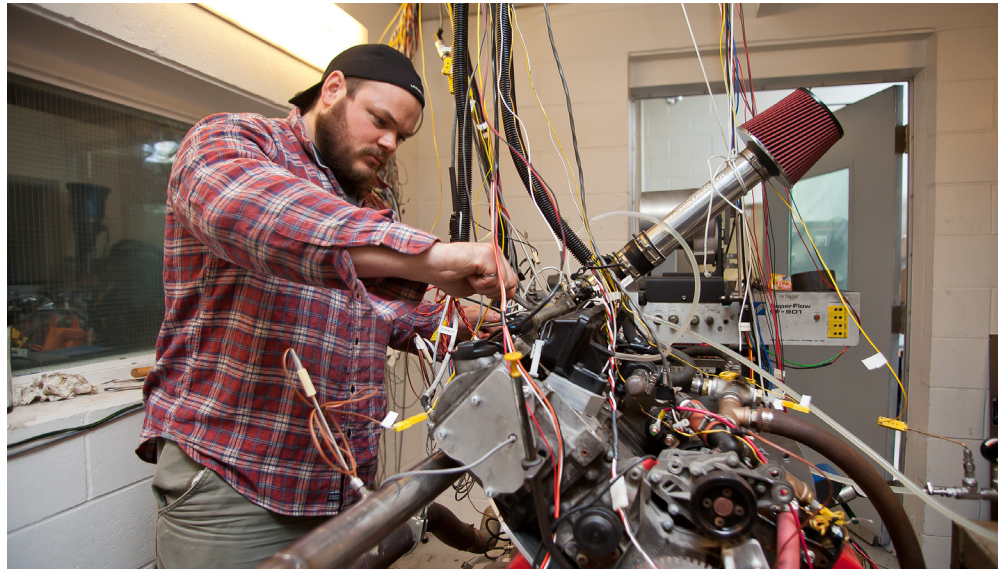
As a Master's student in the field of Mechanical and Materials Engineering (MME), you can play a vital role in future developments in such areas as: ergonomics, biomechanics and tissue engineering, assistive technologies, emerging techniques in MRI and CTI imaging, fuel cells, fluid flow, gas turbines, 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.



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.



The Mechanical and Materials graduate program has been recognized for 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.

"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

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).

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

RESEARCH Areas

- Biomechanical
- Energy and Fluid Systems
- Manufacturing, Mechatronics 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.



GRADUATE STUDIES AND POSTDOCTORAL AFFAIRS

queensu.ca/grad-postdoc

Mechanical & Materials Engineering MAsc Map

MASTER OF APPLIED SCIENCE (MASc)



GETTING STARTED

INTERMEDIATE STAGE

WRAPPING UP

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 (SGSPA) professional development.

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 the Queen's Journal, CFRC, and the SGSPA Blog. Look at the SGPS website for more ideas.
- Serve on departmental, faculty, or university committees.
- Check out professional development workshops from SGSPA.

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.

LAUNCH YOUR CAREER

- Finding a career that fits starts with knowing yourself. Get help by taking a Career Services workshop or meeting with a career educator and coach.
- Start reading publications like University Affairs and the Chronicle of Higher Education. Browse non-academic labour market websites.
- Check admission test deadlines if needed for further studies.

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

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

- Start keeping an ePortfolio of your skills, experiences, and competencies.
- Use a Research Assistant or Teaching Assistant position to develop your research or teaching skills.
- 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.

- 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 QUIC and Four Directions Indigenous Student Centre.
- If you are an international student interested in staying in Canada, consider speaking with an International Student Advisor.

- Explore different careers of interest by using Queens Connects on LinkedIn to connect with Queen's alumni. For more information, check out Career Cruising.
- If you are considering a PhD, explore programs of interest reach out to faculty, and apply to PhD programs and external scholarships.

- Present your research to Mechanical Engineering graduate students and faculty as part of MECH897, and complete and defend your Master's research thesis.

- Consider publication options for your research.
- Attend a major conference in your field, such as a conference by the American Society of Mechanical Engineering.
- Consider being interviewed on the SGSPA radio show Grad Chat to talk about your research.
- Consider putting an article in The Conversation.

- 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.

- Do some targeted networking with people working in careers of interest, through QueensConnects on LinkedIn, the Queen's Alumni Association, professional associations, and at 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.

- Participate in hiring committees and attend job talks. Start focusing on areas of interest. Research organizations of interest and start putting together your CV or resume for potential positions of interest. Get help from Career Services with job searching, resumes, or interviews.

Knowledge & Workplace Skills

A graduate degree in Mechanical 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 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. Our Master's students are equipped with a strong foundation for careers in:

- 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?

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

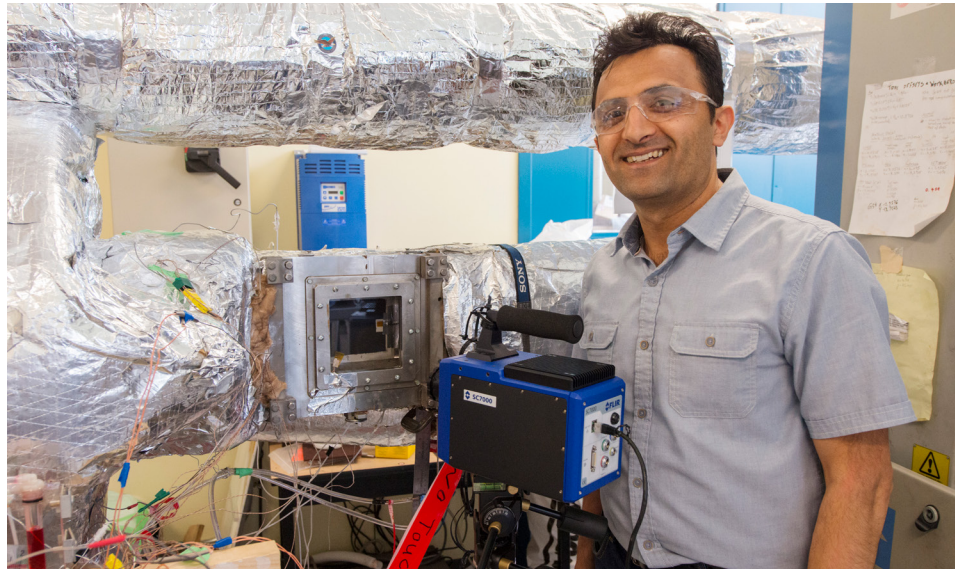
- Application deadline: No hard deadline. It is encouraged that prospective international students apply before March 1st to allow time to receive Visas.
- Notification of acceptance: End of March to July for September admissions.

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.



Graduate Program Assistant
(613) 533-6928

mme.graduate@queensu.ca
smithengineering.queensu.ca/mme/graduate/masc