Why GRADUATE STUDIES in MECHANICAL 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, fuel cells, fluid flow, gas turbines, design optimization, robotics, ceramics and polymers, and many other areas. Mechanical 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.

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.

Program STRUCTURE

MASc (2-years): Research-based program with 4 term-length courses and a thesis.

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

“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.
**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 departmental and **Expanding Horizons** professional development workshops, the department Grad Chair and the **SGS Habitat**

- **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 **SGS Blog**. Look in the **AMS Clubs Directory** 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.

- **LAUNCH YOUR CAREER**
  - Finding a career that fits starts with knowing yourself. Get help by taking a **Career Services career planning workshop** or meeting with a career counsellor. Check out books like *What Are You Going to do With That?* for advice on various career options.
  - 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 Graduate Student **Career Forum** to explore your career pathways.
  - Check admission test deadlines if needed for further studies.

**INTERMEDIATE STAGE**

- **COMPLETE YOUR COURSEWORK**
  - Complete your coursework, begin to research and write your thesis.
  - Attend the Departmental Graduate Seminar Series (MECH897).

- **MAXIMIZE ACADEMIC ACHIEVEMENT**
  - 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**. Enroll in **SGS901** or the **PUTL certificate** for more professional development in teaching and learning.

- **PARTICIPATE IN YOUR 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 **QUIC and Four Directions Aboriginal Student Centre’s Training Certificate**.
  - If you are an international student interested in staying in Canada, consider speaking with an **International Student Advisor**

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

- **EFFECTIVE COMMUNICATION**
  - 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**.
  - Check out opportunities for extra training through **Expanding Horizons**, **MITACS**, or other sources to boost your skills.
  - Investigate internships from **MITACS** and other sources.

- **LEAD AND MANAGE**
  - 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**.

- **PARTNER WITH INDUSTRY**
  - 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**.

**WHAT WILL I LEARN?**

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**
- **Cultural sensitivity**
- **Professionalism**
- **Leadership**: initiative and vision leading people and discussion

WHERE CAN I GO?

A Master's degree in Mechanical 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 – Professors**
- **Research Science – Simulation**
- **Consulting**
- **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.

Visit careers.queensu.ca/gradmaps for the online version with links!

*This map is intended to provide suggestions for activities and careers, but everyone's abilities, experiences, and constraints are different. Build your own Grad Map using our online My Grad Map tool.*
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 School of Graduate Studies requires the following minimum scores: TOEFL (paper-based): 550, (2) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30), for a total of 88/120 (applicants must have the minimum score in each test as well as the minimum overall score), or (3) IELTS: 7.0 (academic module overall band score), or (4) PTE Academics: 65.

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 $16,500 per year. Students are usually funded through a combination of research assistantships, teaching assistantships, and/or scholarships. Funding levels differ for international students.

Apply for external funding from OGS and other sources. Queen's will automatically issue a $5,000 top-up to Masters winners of federal government tri-council awards. For more information, see the School of Graduate Studies' information on awards and scholarships.