Faculty of Engineering

GRADUATE STUDIES VIEWBOOK

uOttawa

Faculté de génie
Faculty of Engineering

CONTENTS

A TIME TO LEARN AND BE AMAZED

Welcome to our Faculty of Engineering and welcome to the University of Ottawa! In a fast changing and interconnected world, with its significant challenges and opportunities, Graduate School has never been more important in pursuing an exciting and fulfilling career, particularly in science and engineering. While attracting some of Canada's most innovative and entrepreneurial minds, our graduate programs have gained tremendous reputation around the world: we attract some of the best students from over 150 countries. Our professors are excited to welcome and guide you with passion into a maze of technological knowledge. It has never been a better time to be a graduate student in our Faculty as we offer programs capable of responding to the world's rapid technological changes and to the requirements of a fast-paced job market.

From robotics and photonics to telecommunication and multimedia applications, from the development of new turbine technologies to novel energy and green technologies, our graduate programs have become tremendous launching pads for successful Canadian and international careers in a multitude of engineering and computer science enterprises and in academia.

Join us in our world-class laboratories and you *will* change the world!

Dr. Ioan Nistor
Vice-Dean Graduate Studies

STUDY IN
CANADA'S NATIONAL CAPITAL REGION

"THE UOTTAWA CAMPUS IS LOCATED IN CANADA'S NATIONAL CAPITAL REGION, THE BEST PLACE TO LIVE IN CANADA."

MoneySense magazine, 2012

OTTAWA IS GREAT FOR ENGINEERING AND COMPUTER SCIENCE STUDENTS!

Ottawa is an established global technology centre
Ottawa is home to more than 1,900 technology companies employing nearly 75,000 people, and its key industries include wireless, photonics, clean technologies, life sciences, aerospace and defence, financial services, film, TV and digital media.

Source: Invest Ottawa Knowledge-based Industry Survey, January 2011

Strong mix of multinational organizations and small-to medium-sized enterprises
Ottawa houses several multinational giants, including IBM, Alcatel-Lucent, Cisco Systems, Huawei, Ericsson, Ciena, Avaya, GENBAND, Nordion, Iogen, Plasco Energy Group, Aecon, Dessau, Pomerleau, Bombardier Aerospace, Bell Helicopter, Husky Energy, AECL, Agnico-Eagle Mines, RIM and Corel. In addition, there are over 1,500 active high-tech companies with fewer than 50 employees, creating a strong and diverse, yet balanced, private sector.

Source: Invest Ottawa Knowledge-based Industry Survey, January 2011

Ottawa is widely acclaimed as a world-class centre for research
Ottawa boasts a dynamic and comprehensive research infrastructure that focuses on government, university and industry partnerships. Some of Canada's most notable research and development organizations are located in Ottawa, such as the National Research Council, Communications Research Centre, National Sciences and Engineering Research Council, Ottawa Life Sciences Council, and Canada Institute for Scientific and Technical Information.

Source: City of Ottawa, "Do Business in Ottawa"

Strong entrepreneurial culture
The total amount of venture capital invested in Ottawa technology companies over the last decade amounted to over CDN$4.3 billion.

Source: The Ottawa Report 2010
Strong entrepreneurial culture

THE FACULTY OF ENGINEERING
AT UOTTAWA: YOUR DESTINATION OF CHOICE

Photo: Mélanie Provencher

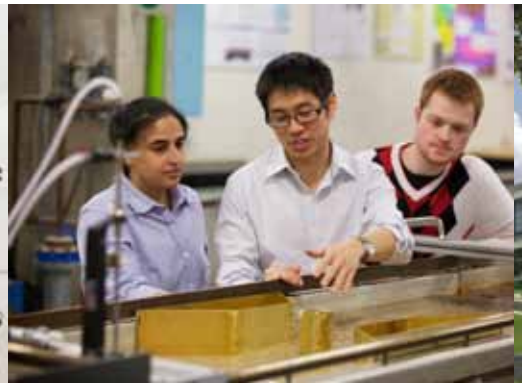

Photo: NSERC

A new $55-million centre for advanced photonics and environmental assessment is expected to be up and running by the end of 2013.

The Faculty of Engineering at the University of Ottawa provides you with a vibrant environment to pursue research and a strong foundation to build a successful and rewarding career.

Get excellent quality programs
Choose from a variety of graduate programs, such as diplomas, master's degrees and PhDs, all offering top-quality education in engineering and computer science.

Take advantage of excellent facilities
In our two main buildings, Colonel By and SITE, students have access to a large number of teaching laboratory facilities and equipment, as well as computer labs. Research laboratories and graduate student space make up 43% of the Faculty's surface area; teaching laboratories make up 34%.

Learn from reputable researchers
As an engineering or computer science graduate student, you will interact with professors who are leading researchers in their field. From photonics to web security, clean technologies to biomedical engineering, and civil to mechanical engineering, our professors are making world-changing discoveries—and you can be part of these extraordinary advancements!

Choose from a variety of research areas
The University of Ottawa is currently one of the top 10 research-intensive universities in Canada, and the Faculty of Engineering contributes to this ranking by leading research in over 35 areas. See the full list of research areas at www.engineering.uOttawa.ca/research.

Study in a vibrant research environment
As part of the Faculty of Engineering, the School of Electrical Engineering and Computer Science offers a vibrant research environment where the traditional disciplines of electronics, computer and software engineering, and computer science come together with a unique synergy. The School has over 70 researchers and over 400 graduate students working in many laboratories and groups.

Benefit from collaborations with many industry partners
The Faculty has strong connections with local industries, resulting in a dynamic environment of collaboration as well as practical impact and applications.

Receive financial support and funding opportunities
As a graduate student at the Faculty of Engineering, you have access to a variety of scholarships, such as admission scholarships, excellence scholarships, dean's scholarships and many external scholarships (NSERC, OGS, Vanier, Trillium, etc.). You may also obtain funding through research and teaching assistantships offered by the Faculty. These outstanding opportunities will enable you to acquire one-of-a-kind work and teaching experience, while providing you with additional ways of funding your graduate studies.

GET INVOLVED

LIVE IN A MULTICULTURAL STUDENT AND STAFF COMMUNITY

Enrich your learning experience by meeting students from all around the world. International students make up 45% of the Faculty's master's students and 30% of its doctoral students. Learn from and interact with professors who have extensive international experience: Professors of the Faculty of Engineering have lived, studied or conducted research in a combined total of over 35 different countries.

TAKE ADVANTAGE OF ACADEMIC SERVICES FOR STUDENTS

The Student Academic Success Service (SASS) offers a wide variety of programs and services designed to enrich your graduate studies experience and help you succeed at every stage. SASS provides mentoring services, a writing help centre, counselling and coaching services, and more. To learn more about SASS, visit: **www.sass.uOttawa.ca**.

As a graduate student, you will have the opportunity to get involved in and volunteer for various associations and clubs:

- Graduate Students' Association (GSAÉD) **www.gsaed.ca**
- Electrical Engineering Graduate Students' Association (EEGSA) **www.site.uOttawa.ca/school/eegsa**
- Green Engineers **www.greenengineers.ca**
- Women in Science and Engineering (WISE) **www.uOttawawise.ca**

and many more!

BUILD YOUR ENTREPRENEURIAL SPIRIT

Graduate students can learn the ABCs of entrepreneurship through targeted graduate coursework and by enrolling in the Master of Engineering Management, a program that prepares engineering professionals for leadership roles and entrepreneurial responsibilities.

To build their entrepreneurial spirit, students can tap into numerous opportunities, such as the annual Prizes in Entrepreneurship and Innovation Student Competitions, which have $45,000 in awards up for grabs. Watch what winners from last year had to say at **www.youtube.com/FacultyofEngineering**.

FOCUS ON ENTREPRENEURSHIP

AT THE UNIVERSITY OF OTTAWA'S FACULTY OF ENGINEERING, ENTREPRENEURIAL SAVVY GOES HAND-IN-HAND WITH ENGINEERING AND COMPUTER SCIENCE EXPERTISE. THE FACULTY SUPPORTS ENTREPRENEURIAL INITIATIVES THAT FOSTER AN ENTREPRENEURIAL CULTURE AND ENABLE GRADUATE STUDENTS TO DEVELOP ESSENTIAL BUSINESS SKILLS IN THEIR FIELD OF EXPERTISE.

During the Entrepreneurship Bridges Lecture Series, graduate students receive unique and valuable insight into the world of business technology from successful technological entrepreneurs.

On the path to commercializing their research results and creating spin-off companies that contribute to Canada's economic development, students can enter pre-professional competitions. Graduate students are encouraged to enter competitions by taking advantage of the space, tools and equipment provided by the Brunsfield Engineering Student Projects and Entrepreneurship Centre to design, build and test complex prototypes.

ENTREPRENEURIAL ALUMNI

Many Faculty of Engineering alumni start their own companies and become successful entrepreneurs.

Here are a few success stories:
Jason Kealey and Etienne Tremblay, LavaBlast Software
Jason and Etienne: *"The School of Electrical Engineering and Computer Science helped us perfect our versatility, which has proven to be our biggest asset in both the technical and business worlds. We entered university as programmers and left as entrepreneurial software engineers."*

In 2007, Jason and Etienne launched *LavaBlast Software*, a company that produces software for the franchise industry. Their product, FranchiseBlast, integrates the software that franchisees use on a day-to-day basis, making it possible for franchisors to accelerate their growth. After five years in business, Jason and Etienne are looking to expand the company. They won first place in the Best Sales/Value Proposition category at the Exploriem 2012 Bootstrap Awards. Kealey holds a BASc in software engineering (2005) and an MASc in computer science (2008), while Tremblay holds a BASc in software engineering (2005).

Eli Fathi and Aydin Mirzaee, Chide.it
Aydin: *"Experience is only necessary if you convince yourself that it is."*

Eli: *"Excellence does not just happen! It is always the result of planning, hard work, determination and skilled execution."*

Eli and Aydin's company, Chide.it, develops software that enables organizations to gather and analyze feedback from constituents and helps them make critical business decisions. Chide.it's two software products are FluidSurveys.com (online survey software) and myReviewRoom.com (online submission management software). The company has doubled in staff and tripled in sales every year since it began back in 2008, and it is currently one of Canada's fastest-growing tech companies. Eli and Aydin are both alumni of the Faculty of Engineering. Eli holds a BASc in electrical engineering (1978) and an MASc in electrical engineering (1981). Aydin holds a BASc in electrical engineering (2006).

Sally Daub, ViXS
Sally: *"The University of Ottawa's unique CO-OP program, plus combining engineering with a business minor, provided me with the foundation to excel in starting my own engineering firm."*

Sally Daub has served as president and chief executive officer of ViXS since co-founding it in 2001. Under Daub's leadership, ViXS has grown from a small semiconductor start-up to the leading provider of technologies at the heart of today's video revolution by designing and developing smart network multimedia processors that enable "anywhere, anytime" entertainment. Sally placed second in the prestigious PROFIT W100 annual ranking of Canada's top female entrepreneurs for 2011. She holds a BASc in chemical engineering (1987).

INTERNAL SCHOLARSHIPS

The following scholarships are offered through the Faculty of Graduate and Postdoctoral Studies (FGPS).
For more information, visit: www.grad.uOttawa.ca/awards.

SCHOLARSHIP NAME	LEVEL	VALUE	DURATION
ADMISSION SCHOLARSHIPS Available to Canadian citizens and permanent residents of Canada.	Master's with thesis	$7,500 from FGPS + $7,500 or more from Faculty of Engineering; minimum of $15,000 per year	2 years
	PhD	$9,000 from FGPS + $9,000 or more from Faculty of Engineering; minimum of $18,000 per year	4 years
EXCELLENCE SCHOLARSHIPS Available to both Canadian and international students.	Awarded to recipients of major external awards in lieu of the Admission Scholarship	Amount equivalent to tuition fees. Replaces Admission Scholarship. Recipients are not guaranteed matching funds by the Faculty of Engineering.	Awarded for each year that the student holds the external award
DEAN'S SCHOLARSHIPS Awarded to full-time students who complete their degree within a specific timeline. Available to Canadian citizens and permanent residents of Canada.	Master's with thesis (2 years)	6 sessions: $1,500 7 sessions: $1,000 8 sessions: $500	N/A
	Master's with research paper or research project	6 sessions or less: $500	N/A
	PhD	12 sessions or less: $3,000 13 sessions: $2,500 14 sessions: $2,000 15 sessions: $1,500	N/A

These internal scholarships are offered through the Faculty of Graduate and Postdoctoral Studies (FGPS).

International students

The Faculty of Engineering awards international scholarships to excellent international students, who must qualify in accordance with the criteria set forth by the Faculty of Graduate and Postdoctoral Studies (FGPS). No application is required; all eligible international students will be considered and notified.

EXTERNAL SCHOLARSHIPS

Only a few external scholarships are listed here. For more information and a more complete list, visit: www.grad.uOttawa.ca/awards.

AGENCIES	DESCRIPTION
Queen Elizabeth II graduate scholarships in science and technology (QEII — GSST)	The Queen Elizabeth II graduate scholarships in science and technology were created to encourage and support the best students involved in science and technology research. Valued at $15,000 per year ($5,000 per session) and available to Canadian students.
Vanier Canada Graduate Scholarships	The Vanier Canada Graduate Scholarship (Vanier CGS) was created to attract and retain world-class doctoral students and to establish Canada as a global centre of excellence in research and higher learning. **VALUED AT** $50,000 per year for three years and available to both Canadian and international PhD students studying at Canadian universities.
Natural Sciences and Engineering Research Council (NSERC)	The NSERC Postgraduate Scholarships (PGS) Program provides financial support to high-calibre students in master's or doctoral programs in the natural sciences or engineering. This support allows students to fully concentrate on their studies and to seek out the best research mentors in their chosen fields. **VALUE:** CGS M: $17,500 (for one year) PGS M: $17,300 (for one year) CGS D: $35,000 per year (for two or three years) PGS D: $21,000 per year (for two or three years) Available to Canadian citizens and permanent residents of Canada.
Ontario Graduate Scholarship	The Ontario Graduate Scholarship (OGS) program encourages excellence in graduate studies at the master's and doctoral levels. It is a merit-based scholarship. Awards are available to students in all disciplines of academic study. An Ontario Graduate Scholarship is awarded for one academic year, which may consist of two or three consecutive sessions. **VALUED** at $5,000 per session up to a maximum of $15,000 and available to both Canadian and international students.
Ontario Trillium Scholarships	The Ontario Trillium Scholarships (OTS) program helps the best doctoral students from around the world to study in Ontario. Ontario universities are responsible for selecting and awarding the OTS to international PhD students based on merit and program criteria. **VALUED** at $40,000 annually and is renewable for a maximum of four years.

Consult our resources for external scholarship applications for tools to help you complete all of your applications effectively at: www.grad.uOttawa.ca/awards.

What's your scholarship potential?
Find out what funding you may be eligible for based on your program of interest.
Try the easy-to-use Potential Scholarship Portfolio tool at www.grad.uOttawa.ca/awards.

TYPES OF PROGRAMS

At the Faculty of Engineering, you may choose to pursue your studies at the graduate level by completing a diploma, a master's with thesis, a master's with project, a master's by coursework or even a PhD.

PROGRAM AND DESCRIPTION	DURATION	FUNDING FROM UNIVERSITY	STRUCTURE
GRADUATE DIPLOMA: Ideal for those who want to further develop their skills in a specialized domain related to their particular field of employment	1 year*	No scholarship support provided	Depending on the program, typically 5 graduate courses from a closely related master's degree program
MASTER'S WITH THESIS: Combines graduate coursework with thesis research	2 years*	Funding possible for the full 2 years	Year 1: courses and thesis proposal Year 2: research and thesis writing
MASTER'S WITH PROJECT: Similar to the master's with thesis but with a greater portion of time devoted to the project	1 to 2 years	No scholarship support from the University	Coursework for the duration with a project lasting 1 to 2 sessions
MASTER'S BY COURSEWORK: Ideal for those who want to expand their knowledge or develop career-related skills while continuing to work full time	1 to 2 years	No scholarship support from the University	Coursework for the duration
PHD: Ideal for those considering careers in teaching or in research in a private or public setting. Graduates will acquire independence in conducting research and in preparing scholarly publications.	4 years	Funding possible for 4 years**	Typical structure: Years 1 and 2: coursework, comprehensive exam, thesis proposal Years 3 and 4: research and thesis writing

*If enrolled full-time.

**Funding is based on specific academic standards that must be met by the student. See the Scholarships and Funding section for more details.

Important information on our programs

- All courses in the graduate programs are offered in English and a few courses can be followed in French (such as Directed study courses).
- Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group. In accordance with University of Ottawa regulation, students have the right to answer examination questions and produce their work and thesis in French or in English.
- The programs operate within the general framework of the Regulations and Procedures for Joint Graduate Programs (www.ocjip.ca) and the General Regulations of the graduate faculty at the two universities. The General Regulations of the Faculty of Graduate and Postdoctoral Studies (FGPS) of the University of Ottawa are posted on the FGPS website (www.grad.uOttawa.ca).

OUR PROGRAMS

Below are the degrees offered by the Faculty of Engineering.

PROGRAM/DEGREE	GRADUATE DIPLOMA	MASTER OF APPLIED SCIENCE (MASc)	MASTER OF ENGINEERING (MEng)	MASTER OF COMPUTER SCIENCE	PhD
Advanced Material Manufacturing		X	X		X
Biomedical Engineering		X			
Chemical Engineering		X	X		X
Civil Engineering		X	X		X
Computer Science				X	X
Environmental Engineering		X	X		X
Electrical and Computer Engineering		X	X		X
Mechanical Engineering		X	X		X
Engineering Management			X		
Technology Project Management	X				
Modelling and Animation for Computer Games*	X				
Mobile Device Applications*	X				
Internet Technologies*	X				
E-Business	X				
E-Commerce	X				
E-Business Technologies**		X			
Systems Science***	X	X			

*New

**Master of Science (MSc) and Master in Electronic Business Technologies (MEBT)

***Master of Science (MSc) and Master in Systems Science (MSysSc)

ADVANCED MATERIAL MANUFACTURING

ESTABLISHED IN 1983, THE OTTAWA-CARLETON INSTITUTE FOR MECHANICAL AND AEROSPACE ENGINEERING (OCIMAE) COMBINES THE RESEARCH STRENGTHS OF THE DEPARTMENT OF MECHANICAL ENGINEERING AT THE UNIVERSITY OF OTTAWA AND THE DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING AT CARLETON UNIVERSITY.




THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Mechanical Engineering and in Advanced Material Manufacturing
Master of Engineering (MEng) in Mechanical Engineering and in Advanced Material Manufacturing
Doctor of Philosophy (PhD) in Mechanical Engineering and in Advanced Material Manufacturing

Research interests
Biomedical engineering
Dynamics, controls, automation and robotics
Thermal and fluids engineering
Materials and manufacturing engineering
Solid mechanics and design engineering
Aeronautical and space engineering

To learn more about the research done in our Department of Mechanical Engineering, visit: **www.engineering.uOttawa.ca/research**

To learn more about the research done through the OCIMAE, visit:

www.ocimae.ca/research

Professors at the Department
Consult the full list of professors of the Department of Mechanical Engineering at **www.engineering.uOttawa.ca/departments/mechanical_engineering_directory**

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold a bachelor's degree with a specialization or major in mechanical engineering (or equivalent), with a minimum average of 70% (B). **For the PhD:** Hold a master's degree in mechanical or aerospace engineering (or the equivalent).
2. Provide a statement of purpose indicating career goals and interests in the proposed research area.
3. **For the MASc, MEng (with project) and PhD:** Identify at least one professor who is willing and available to act as a project/thesis supervisor.

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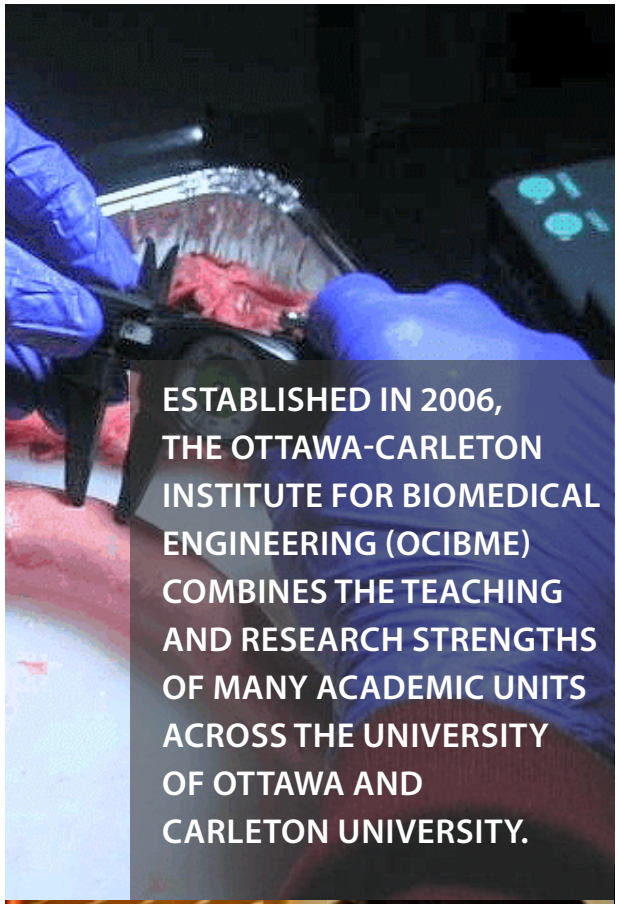

ESTABLISHED IN 2006, THE OTTAWA-CARLETON INSTITUTE FOR BIOMEDICAL ENGINEERING (OCIBME) COMBINES THE TEACHING AND RESEARCH STRENGTHS OF MANY ACADEMIC UNITS ACROSS THE UNIVERSITY OF OTTAWA AND CARLETON UNIVERSITY.

BIOMEDICAL ENGINEERING

THE INSTITUTE OFFERS A GRADUATE PROGRAM LEADING TO THE MASTER OF APPLIED SCIENCE (MASc) IN BIOMEDICAL ENGINEERING.

The Master of Applied Science in Biomedical Engineering is a joint, multidisciplinary program that combines the research input of seven primary participating academic units:

University of Ottawa:
- Department of Mechanical Engineering (MCG)
- School of Electrical Engineering and Computer Science (EECS)
- Department of Chemical Engineering (CHG)

Carleton University:
- Department of Systems and Computer Engineering
- Department of Mechanical and Aerospace Engineering
- School of Computer Science
- Department of Physics

The Institute benefits from the expertise of a number of prominent medical researchers and well-established University of Ottawa medical research units, including the University of Ottawa Heart Institute and the University of Ottawa Eye Institute. In addition to the participating academic units listed above, a number of others are involved in the program through the research activities of some of their faculty members or through graduate courses that may be taken as electives by students in the program.

Research interests
Medical instrumentation
Biomedical image processing
Biomechanics and biomaterials
Medical informatics and telemedicine

To learn more about the research done in our Department of Mechanical Engineering, visit: **www.engineering.uOttawa.ca/research**

To learn more about the research done through the OCIBME, visit: **www.ocibme.ca/research**

Professors at the Department
Consult the full list of professors of the Department of Mechanical Engineering at **www.engineering.uOttawa.ca/departments/mechanical_engineering_directory**

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Applied Science:** Hold a bachelor's degree with a specialization or major (or equivalent) in engineering, science, computer science or a related discipline, with a minimum average of 75% (B+).
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who have known the applicant and are familiar with the applicant's work.
4. Provide a statement of purpose indicating career goals and interests in the proposed research area.
5. Identify at least one professor who is willing and available to act as thesis supervisor.
6. Be proficient (understand, speak and write) in English.

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CHEMICAL ENGINEERING

THE DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING AT THE FACULTY OF ENGINEERING OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Mechanical Engineering and in Advanced Material Manufacturing
Master of Engineering (MEng) in Mechanical Engineering and in Advanced Material Manufacturing
Doctor of Philosophy (PhD) in Mechanical Engineering and in Advanced Material Manufacturing

The main objective of the master's programs is to refine the skills and research expertise of the students by expanding their specialized knowledge of chemical engineering, primarily through coursework, research seminars and technical training.

The PhD program prepares candidates for a career in teaching, research or development. Graduates are expected to have acquired independence in conducting research, preparing scholarly publications and promoting chemical engineering.

Research interests
Biomedical engineering
Clean technologies engineering
Materials development engineering
Process engineering
Renewable energy

To learn more about the research done in our Department of Chemical and Biological Engineering, visit: **www.engineering.uOttawa.ca/research**

Professors at the Department
Consult the full list of professors of the Department of Chemical and Biological Engineering at **www.engineering.uOttawa.ca/departments/chemical_engineering_directory**

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold an honours bachelor's degree with specialization or major in chemical engineering (or equivalent), with a minimum average of 70% (B).
   For the PhD: Hold a master's degree in chemical engineering (with thesis or equivalent in terms of scholarly publications), with a minimum average of 75% (B+).
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who have known the applicant and are familiar with the applicant's work.
4. Provide a statement of purpose indicating career goals and interests in the proposed research area.
5. For admission to the MASc or PhD: Identify at least one professor who is willing and available to act as thesis supervisor.
6. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group.

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CIVIL ENGINEERING

THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Civil Engineering
Master of Engineering (MEng) in Civil Engineering
Doctor of Philosophy (PhD) in Civil Engineering

The research facilities are shared between the two campuses. Students have access to the professors, courses and facilities at both universities; however, they must register at the "home university" of the thesis supervisor.

Research interests
Environmental
Geotechnical
Infrastructure
Water resources

To learn more about the research done in our Department of Civil Engineering, visit:
www.engineering.uOttawa.ca/research

To learn more about the research done through the OCICE, visit:
www.ocice.ca/research

Professors at the Department
Consult the full list of professors of the Department of Civil Engineering at
www.engineering.uOttawa.ca/en/departments/people_cvg/

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold an honours bachelor's degree with specialization or major in civil engineering, with a minimum average of B (70%).

   For the PhD: Hold a master's degree with thesis in civil engineering or in the sub-disciplines normally considered to be part of civil engineering.
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who are familiar with the applicant's work.
4. **For the MASc and PhD:** Identify at least one professor who is willing and available to act as thesis supervisor.
5. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group.

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COMPUTER SCIENCE

STUDENTS WHO WISH TO PURSUE STUDIES IN COMPUTER SCIENCE CAN DO SO IN JOINT PROGRAMS OFFERED BY THE SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (EECS) AT THE UNIVERSITY OF OTTAWA AND THE SCHOOL OF COMPUTER SCIENCE AT CARLETON UNIVERSITY UNDER THE AUSPICES OF THE OTTAWA-CARLETON INSTITUTE FOR COMPUTER SCIENCE (OCICS).

THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Computer Science (MCS)
Doctor of Philosophy (PhD) in Computer Science

The Institute is responsible for supervising these programs and for providing a framework for interaction between the universities in graduate computer science education. In addition to the faculty members from the two computer science programs, the Institute also has members with computer science expertise from other departments. The program includes a CO-OP option.

Research facilities are shared between the two campuses. Students have access to the professors, courses and facilities at both universities; however, they must register at the "home university" of the thesis supervisor.

Research interests
Algorithms
Broadband networks
Distributed computing and systems
Information management and data mining
Multimedia and interactive virtual environments
Software engineering
Text analysis and machine learning

To learn more about the research done at our School of Electrical Engineering and Computer Science, visit:
www.eecs.uOttawa.ca/research

To learn more about the research done through the OCICS, visit:
www.ocics.ca

Professors at the School
Consult the full list of professors of the School of Electrical Engineering and Computer Science at
www.eecs.uOttawa.ca/professors

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the MCS (with project or with thesis):** Hold an honours bachelor's degree with specialization or major in computer science or equivalent, with a minimum average of B (70%).

   For the PhD: Hold a master's degree with thesis in computer science.

2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.

3. Provide at least two confidential letters of recommendation from professors who are familiar with the applicant's work.

4. For the MCS with thesis or PhD: Identify at least one professor who is willing and available to act as thesis supervisor.

5. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted either in English, French or both, depending on the language used by the professor and the members of his or her research group.

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ESTABLISHED IN 2000, THE OTTAWA-CARLETON INSTITUTE FOR ENVIRONMENTAL ENGINEERING (OCIEE) COMBINES THE TEACHING AND RESEARCH STRENGTHS OF THE DEPARTMENT OF CIVIL ENGINEERING AND THE DEPARTMENT OF CHEMICAL ENGINEERING AT THE UNIVERSITY OF OTTAWA WITH THOSE OF THE DEPARTMENTS OF CIVIL AND ENVIRONMENTAL ENGINEERING AT CARLETON UNIVERSITY.

ENVIRONMENTAL ENGINEERING

THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Environmental Engineering
Master of Engineering (MEng) in Environmental Engineering
Doctor of Philosophy (PhD) in Environmental Engineering

The objective of these programs is to prepare candidates for careers in teaching or in research in a private or public setting. Graduates will acquire independence in conducting research and in preparing scholarly publications.

Research interests
Water and waste processing or treatment
Management of solid and hazardous waste
Air pollution
Water resources and groundwater management

To learn more about the research done at our Department of Civil Engineering, visit:
www.engineering.uOttawa.ca/research

To learn more about the research done with the OCIEE, visit:
www.ociene.ca/research

Professors at the Department
Consult the full list of professors of the Department of Civil Engineering at
www.engineering.uOttawa.ca/departments/people_cvg

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold an honours bachelor's degree with specialization or major in environmental engineering or a related engineering discipline (civil, chemical, mechanical, etc.) OR an honours bachelor's degree with specialization or major in an environmental science discipline, with a minimum average of 70% (B).

   For the PhD: Hold a master's degree in chemical engineering or in an engineering discipline with an environmental specialization.
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who are familiar with the applicant's work.
4. Provide a statement of purpose indicating career goals and interests in the proposed research area.
5. For admission to the MASc and PhD: Identify at least one professor who is willing and available to act as thesis supervisor.
6. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group.

Note: All students entering the program must have taken courses in mathematics, probability and statistics equivalent to courses required in undergraduate engineering programs. The Department may require students to take additional courses depending on their backgrounds.

Graduate Office
Tel. 613-562-5347
Fax. 613-562-5129
gprecept@uOttawa.ca
www.engineering.uOttawa.ca/graduate

ELECTRICAL AND COMPUTER ENGINEERING

ESTABLISHED IN 1983, THE OTTAWA-CARLETON INSTITUTE FOR ELECTRICAL AND COMPUTER ENGINEERING (OCIECE) COMBINES THE RESEARCH STRENGTHS OF THE SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (EECS) AT THE UNIVERSITY OF OTTAWA AND THE DEPARTMENTS OF ELECTRONICS AND OF SYSTEMS AND COMPUTER ENGINEERING AT CARLETON UNIVERSITY.

THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Electrical and Computer Engineering
Master of Engineering (MEng) in Electrical and Computer Engineering
Doctor of Philosophy (PhD) in Electrical and Computer Engineering

Research interests
Bioinformatics and biomedical engineering
Broadband networks
Distributed computing and systems
Electromagnetism, radio-frequencies and microwaves
Robotics, machine vision and autonomous systems
Photonics
Privacy and security
Speech/audio/image/video processing
Wireless communications
Wireless networks and mobile computing

To learn more about the research done at our School of Electrical Engineering and Computer Science, visit: **www.eecs.uOttawa.ca/research**

To learn more about the research done through the OCIECE, visit: **www.ociece.ca**

Professors at the School
Consult the full list of professors of the School of Electrical Engineering and Computer Science at **www.eecs.uOttawa.ca/professors**

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold a bachelor's degree with a specialization or major in electrical and computer engineering (or equivalent), with a minimum average of 70% (B).

   For the PhD: Hold a master's degree in computer and electrical engineering or in a related discipline, with a minimum average of 80% (A-).
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who are familiar with the applicant's work.
4. Provide a statement of purpose indicating career goals and interests in the proposed research area.
5. **For admission to the MASc and PhD:** Identify at least one professor who is willing and available to act as thesis supervisor.
6. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group.

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www.engineering.uOttawa.ca/graduate

ESTABLISHED IN 1983, THE OTTAWA-CARLETON INSTITUTE FOR MECHANICAL AND AEROSPACE ENGINEERING (OCIMAE) COMBINES THE RESEARCH STRENGTHS OF THE DEPARTMENT OF MECHANICAL ENGINEERING AT THE UNIVERSITY OF OTTAWA AND THE DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING AT CARLETON UNIVERSITY.

MECHANICAL ENGINEERING

THE INSTITUTE OFFERS GRADUATE PROGRAMS LEADING TO THE FOLLOWING DEGREES:

Master of Applied Science (MASc) in Mechanical Engineering
Master of Engineering (MEng) in Mechanical Engineering
Doctor of Philosophy (PhD) in Mechanical Engineering

Research interests
Biomedical engineering
Dynamics, controls, automation and robotics
Thermal and fluids engineering
Materials and manufacturing engineering
Solid mechanics and design engineering
Aeronautical and space engineering

To learn more about the research done in our Department of Mechanical Engineering, visit: **www.engineering.uOttawa.ca/research**

To learn more about the research done with the OCIMAE, visit: **www.ocimae.ca/research**

Professors at the Department
Consult the full list of professors of the Department of Mechanical Engineering at **www.engineering.uOttawa.ca/departments/mechanical_engineering_directory**

Admission conditions
To be considered for admission, applicants must meet the following conditions:

1. **For the Master of Engineering or Master of Applied Science:** Hold a bachelor's degree with a specialization or major in mechanical engineering (or equivalent), with a minimum average of 70% (B).

   For the PhD: Hold a master's degree in mechanical or aerospace engineering or a related discipline.
2. Demonstrate strong academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.
3. Provide at least two confidential letters of recommendation from professors who are familiar with the applicant's work.
4. Provide a statement of purpose indicating career goals and interests in the proposed research area.
5. **For admission to the MASc and PhD:** Identify at least one professor who is willing and available to act as thesis supervisor.
6. Be proficient (understand, speak and write) in English. Most of the courses in these programs are offered in English. Research activities can be conducted in English, French or both, depending on the language used by the professor and the members of his or her research group.

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DIPLOMAS THAT SUIT YOUR INTERESTS!

IF YOU WISH TO PURSUE YOUR STUDIES OR TO ACQUIRE KNOWLEDGE THAT WILL INCREASE YOUR PROFESSIONAL SKILLS, OUR GRADUATE DIPLOMAS MIGHT BE OF INTEREST TO YOU.

OUR FACULTY, IN PARTNERSHIP WITH OTHER FACULTIES OF THE UNIVERSITY OF OTTAWA, OFFERS A VARIETY OF GRADUATE DIPLOMAS:

Modelling and Animation for Computer Games Technology – NEW
The objective of the Graduate Diploma in Modelling and Animation for Computer Games Technology is to educate high-technology professionals on the growing collaborative multimedia and VR technology standards, methods, techniques and applications markets. It includes courses in both the basic theories and applications of collaborative multimedia technology and large-scale modeling, as well as courses in the intricate world of computer animations (with applications in soft-images, simulation, multimedia teaching, e-training, computer games and many others).

Mobile Device Applications — NEW
The Graduate Diploma in Mobile Device Applications is offered by the School of Electrical Engineering and Computer Science in conjunction with the Faculty of Graduate and Postdoctoral Studies (FGPS).

Internet Technologies – NEW
The objective of the Graduate Certificate in Internet Technologies is to educate high-technology professionals with full undergraduate training on the growing Internet standards, methods, techniques and applications markets. It includes courses in both the main theories and applications of Internet engineering, as well as basic training in the intricate world of Internet law and electronic commerce.

Technology Project Management
The Graduate Diploma in Technology Project Management is awarded upon successful completion of 15 credits. It is offered mainly in English. Students who meet the admission requirements for the Master of Engineering Management and who later decide to pursue that degree will have to complete an additional 15 credits.

Systems Science
The Graduate Certificate in Systems Science is specially designed for those who are interested in the analysis and modelling (mathematical and computer) of natural and man-made systems. It provides the professional with the skills and knowledge required to understand, control, predict and optimize behaviour in a variety of fields from engineering and computer science to management and applied economics. An interdisciplinary program of the Faculty of Graduate and Postdoctoral Studies, it is supervised by a committee of representatives from the Department of Economics, the School of Electrical Engineering and Computer Science, the Telfer School of Management, and the Department of Mathematics and Statistics.

E-Business
There is an acute, global shortage of skilled personnel trained to develop electronic business solutions in a principled, systematic way. Developers and educators agree that expertise in electronic business must combine advanced knowledge of electronic commerce, business administration, information technology and law. The University of Ottawa is particularly strong at the graduate level in all of these areas. The Graduate Certificate in Electronic Business is based primarily on the expertise and resources within the graduate programs in business administration, computer science and law. The certificate is multidisciplinary and modular: It consists of common core courses, as well as optional courses.

E-Commerce
The Graduate Certificate in Electronic Commerce provides advanced expertise specifically in e-commerce. The certificate is based primarily on the expertise and resources within the master's programs in computer science and business administration, while drawing on the expertise and specialized courses offered in a number of other disciplines. The certificate is multidisciplinary and modular: It consists of common core courses, as well as optional courses. The optional courses will focus either on technology, business administration, law or mathematics.

Consult the admission conditions and full curriculum of the graduate diplomas at: **www.grad.uOttawa.ca**

INTERDISCIPLINARY PROGRAMS — MASTER'S AND PhD

OUR FACULTY, IN COLLABORATION WITH OTHER FACULTIES OF THE UNIVERSITY OF OTTAWA, OFFERS THE FOLLOWING INTERDISCIPLINARY MASTER'S AND PhD DEGREES:


Engineering Management (MEng)
The objective of the Master of Engineering in Engineering Management is to develop the knowledge and skills of engineers and scientists in the management of people, projects, resources and organizations in technical environments. The program is supervised by a committee of representatives from the Telfer School of Management and the Faculty of Engineering. Members of the program are engaged in research in many areas related to engineering management: production and operations management; robotics and manufacturing management; reliability and maintainability engineering; human resource management; industrial and technology marketing; technical project management and control; research, development and innovation management; operation research; and forecasting.

E-Business Technologies (MEBT/MSc)
The Faculty of Graduate and Postdoctoral Studies, in partnership with the School of Electrical Engineering and Computer Science, the Telfer School of Management and the Faculty of Law, offers two interdisciplinary master's programs in Electronic Business Technologies. One is a course-based program leading to the Master in Electronic Business Technologies (MEBT); the other includes a thesis and leads to the Master of Science (MSc) in Electronic Business Technologies.

Electronic Business Technologies focuses on the integration of information technologies with business processes and strategies within a dynamic legal and business environment. At the heart of Electronic Business Technologies is the fact that the application of Internet and information technology to business processes leads to remarkable new ways of conceiving and organizing businesses. This in turn leads to a myriad of innovative modes of management, new organizational structures and information architectures, as well as new laws and legal and corporate strategies.

Systems Science (MSc/MSysSc)
The Systems Science program provides qualified students with the opportunity to complete master's-level studies in a broad range of areas that emphasize transdisciplinary work in the context of general systems analysis. The emphasis in Systems Science is on the development of analytical and integration skills for use in the resolution of complex applied problems that require a broad-based perspective. Many professors in information technology and engineering, mathematics and statistics, administration, economics, and other disciplines are active in the Systems Science program as instructors, student advisors and thesis directors. Others are interested in ongoing Systems Science activities, including the seminar series and Systems Science applications days. Their areas of research, both theoretical and applied, span a wide variety of fields in operations research, deterministic and probabilistic modelling, optimization, computer science, information systems, control and economic modelling.

Consult the admission conditions and full curriculum of graduate programs at:
www.engineering.uOttawa.ca/graduate

HOW TO APPLY

APPLY NOW TO A DIPLOMA, MASTER'S OR PHD PROGRAM AT THE FACULTY OF ENGINEERING.

FIRST OFF, YOU SHOULD VERIFY THAT YOU MEET THE ADMISSION REQUIREMENTS. TO DO SO, CONSULT THE PROGRAM-SPECIFIC REQUIREMENTS AT THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES WEBSITE: WWW.GRAD.UOTTAWA.CA.

STEP 1: INSTRUCTIONS

- Complete online application.
- Send your application package to the Graduate Office at the Faculty of Engineering.

STEP 2: DEADLINES AND REQUIREMENTS

- Check the program-specific requirements tool to find out the application deadline and requirements for each program.

STEP 3: DOCUMENTS

- Once your online application form is submitted, you must ensure the following documents are included in your application package:
  - A printed copy of your completed Application for Admission to Graduate Studies
  - All transcripts (in separate, sealed envelopes)
  - Two or three Letters of Recommendation for Admission to Graduate Studies (if required)
  - Additional required materials, such as a statement of interest, written work or a resumé
  - If applicable, proof of English-language competency, including a photocopy of your test score

STEP 4: PERMANENT RESIDENTS AND INTERNATIONAL STUDENTS

- For permanent residents: If you are a permanent resident of Canada, you must enclose evidence of your valid permanent resident status.
- For international students: Please consult our admission equivalencies to find out which diploma is required to apply to a master's degree or a PhD at www.grad.uOttawa.ca. You might also need a study permit or a temporary resident visa; to verify this, please visit the University's International Office website: www.international.uOttawa.ca

Please note that the information included in this document may change at any time. Refer to www.grad.uOttawa.ca for all the latest information.

GET YOUR PERSONALIZED CAMPUS VISIT!

The Faculty of Graduate and Postdoctoral Studies can arrange a personalized visit of the campus for you and answer your questions one-on-one. Your visit could include meetings with representatives or professors from the Faculty of Engineering. To book a visit, go to: **www.discoveruOttawa.ca.**

Come meet us in person
Wine and Cheese
Graduate Studies and Research Day
Graduate Studies Open House

Check out all our events at
www.engineering.uOttawa.ca/graduate

LET'S KEEP IN TOUCH!

You can keep in touch with us on our website (**www.engineering.uOttawa.ca/graduate**) and here:

Facebook
www.facebook.com/uOttawa.engineering

Twitter — www.twitter.com/uOttawaGenie

YouTube
www.youtube.com/FacultyofEngineering

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