



**WBOOTH** SCHOOL OF ENGINEERING  
PRACTICE AND TECHNOLOGY

*Graduate  
Handbook  
2019/20*

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# Sessional Dates 2019-2020

| DEADLINE DATES FOR GRADUATE PROGRAMS        | FALL TERM                                                                          | WINTER TERM                                                                         | SUMMER TERM                                                |
|---------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|
|                                             | Sept.- Dec., 2019<br>Sept. - Oct., 2019 (1HF)<br>Nov. - Dec., 2019 (2HF)           | Jan. - April, 2020<br>Jan. - Feb., 2020 (1HF)<br>March - April, 2020 (2HF)          | May - August, 2020                                         |
| On-Time Registration                        | Tuesday, July 23 to<br>Tuesday, August 27                                          | Thursday, November 28 to<br>Thursday, December 12                                   | Thursday, April 2 to<br>Thursday, April 16                 |
| Class Start Dates *                         | Classes begin on or after<br>September 3, 2019 - check<br>with program for details | Classes begin on or<br>after January 2, 2020 -<br>check with program for<br>details | Class start dates vary - check<br>with program for details |
| Late Registration                           | Wednesday August 28 to<br>Monday, September 9                                      | Friday, December 13 to<br>Thursday, January 2                                       | Friday, April 17to<br>Tuesday, April 28                    |
| Final Dates to Add Courses:                 |                                                                                    |                                                                                     |                                                            |
| 6 Unit Courses                              | Friday, September 27                                                               |                                                                                     |                                                            |
| 3 Unit Courses or 1.5 Unit Courses<br>(1HF) | Friday, September 27                                                               | Friday, January 24                                                                  | Friday, May 15                                             |
| 1.5 Unit Courses (2HF)                      | Friday, October 25                                                                 | Friday, February 28 <sup>th</sup>                                                   | Friday, June 26                                            |
| Final Dates to Drop Courses: **             |                                                                                    |                                                                                     |                                                            |
| 6 Unit Courses                              | Friday, January 3                                                                  | Friday, May 1                                                                       |                                                            |
| 3 Unit Courses                              | Friday, October 4                                                                  | Friday, February 7                                                                  | Friday, June 5                                             |
| 1.5 Unit Courses (1HF)                      | Friday, September 27                                                               | Friday, January 24                                                                  | Friday, June 5                                             |
| 1.5 Unit Courses (2HF)                      | Friday, November 1                                                                 | Friday, March 6                                                                     | Friday, July 10                                            |
| Final Dates to Submit Grades:               |                                                                                    |                                                                                     |                                                            |
| 6 Unit Courses                              |                                                                                    | Friday, May 1                                                                       | Friday, August 21                                          |
| 3 Unit Courses                              | Thursday, January 2                                                                | Friday, May 1                                                                       | Friday, August 21                                          |
| 1.5 Unit Courses (1HF)                      | Friday, October 25                                                                 | Friday, February 28 <sup>th</sup>                                                   | Friday, August 21                                          |
| 1.5 Unit Courses (2HF)                      | Thursday, January 2                                                                | Friday, May 1                                                                       | Friday, August 21                                          |

|                                                                      |                 |                 |                    |
|----------------------------------------------------------------------|-----------------|-----------------|--------------------|
| Final Date to Submit Results of Incomplete (INC) Grades for Previous | Friday, March 6 | Friday, July 10 | Friday, November 6 |
|----------------------------------------------------------------------|-----------------|-----------------|--------------------|

|                                        |  |  |  |
|----------------------------------------|--|--|--|
| Term with Permission of Associate Dean |  |  |  |
|----------------------------------------|--|--|--|

## Thesis

|                                                                                      | FALL 2019              | SPRING 2020                                                                       | FALL 2020              |
|--------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------|------------------------|
| Final Date to Initiate Thesis Defence in Mosaic***                                   | Friday, June 28th      | Wednesday January 22nd<br>(Health Sci.)<br>Wednesday February 5th<br>(All others) | Friday, June 26th      |
| Final Date to Submit Master's Theses to Departments (Prior to Defense)               | Friday, August 9       | Friday, March 6                                                                   | Friday, August 7       |
| Final Date to File Theses with Graduate Studies and Complete Degree Requirements**** |                        |                                                                                   |                        |
| - Faculty of Health Sciences                                                         | Friday, September 27th | Friday, April 3rd                                                                 | Monday, September 28th |
| - All Other Faculties                                                                | Friday, September 27th | Friday, April 24                                                                  | Monday, September 28th |

The University welcomes and includes students, staff, and faculty from a wide range of cultural, traditional, and spiritual beliefs. As per the Policy on Academic Accommodation for Religious, Indigenous and Spiritual Observances, the University will arrange reasonable accommodation of the needs of students who observe religious holy days other than those already accommodated by ordinary scheduling and statutory holidays. For more information, please refer to <https://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-Observances.pdf>

Graduate students may only enroll in undergraduate courses with the approval of their supervisor or graduate program. Students are responsible for meeting the deadlines and requirements of the undergraduate course as presented in class and in the undergraduate calendar. Graduate students will be graded under the graduate grading scale.

Programs may establish earlier deadlines to add/drop courses but these dates must clearly be communicated to students. Please note that the last date to cancel a course or registration with no academic penalty is not the same as the last date to be eligible for a refund.

\*The precise dates of commencement of courses are determined by the program; students are urged to contact their program for details. SGS maintains the 13-week graduate instruction period; however, if a course does not fall into the traditional 13-week period, the graduate program will inform students of important dates and deadlines in the course syllabus. There is no official fall break or reading week for graduate students (except MBA). Students should check with their program and their course instructor(s) as to whether classes will be held during these periods. Please see sections 1.3 (Responsibilities of Graduate Students to the University) and 2.5.6 (Vacations) of the calendar for more information.

\*\*All courses on a student's record after these dates will require a grade. Exceptions require submission of a Petition for Special Consideration. Graduate programs may establish earlier deadlines for completion of course work and may prescribe penalties for late completion of work and for failure to complete work, provided that these penalties are announced at the time the instructor makes known to the class the methods by which student performance shall be evaluated.

## INTRODUCTION

This Graduate Student Guide has been prepared to bring together in one place instructions and information, which should be helpful for new and continuing graduate students in the W Booth School of Engineering Practice and Technology at McMaster University.

The information in this Guide is specific to the W Booth School of Engineering Practice and Technology.

**Graduate students are responsible for reading the Calendar of the School of Graduate Studies <https://academiccalendars.romcmaster.ca/index.php?catoid=39> and taking the necessary action regarding registration, submission of projects and so on that are specified therein.**

As changes in the School of Graduate Studies or School/Program-specific regulations occur, the W Booth School of Engineering Practice and Technology will attempt to keep the graduate students informed. Questions arising from a study of the calendar should be directed to the attention of the faculty member of the appropriate program or to the Associate Director, (Graduate) of the W Booth School of Engineering Practice and Technology.

Graduate students finding errors or ambiguities in this Guide, or have any suggestions for additional material, are urged to make their comments known, in writing, to Dr. Vladimir Mahalec, Associate Director, (Graduate) W Booth School of Engineering Practice and Technology, ext. 26386, [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca)

## 2019-2020

Listed below are the names, positions, and locations, of the faculty and staff of the W Booth School of Engineering Practice and Technology for the 2019-2020 session.

| <b>FACULTY</b>                 | <b>Position</b>                                                                                                                                                                                                                        | <b>Room</b> | <b>Extension</b> | <b>(@mcmaster.ca)</b> |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-----------------------|
| Belkhir, Lotfi                 | Associate Professor and<br>Class of 1962 Mechanical<br>Engineering Endowed Chair<br>in Eco-Entrepreneurship                                                                                                                            | ETB 504     | 26078            | belkhir               |
| <sup>1</sup> Elbestawi, Mo     | Director, W Booth School of<br>Engineering Practice & Technology<br><a href="https://www.eng.mcmaster.ca/sept/people/faculty/mo-elbestawi">https://www.eng.mcmaster.ca/sept/people/faculty/mo-elbestawi</a>                            | ETB 506     | 26558            | elbestaw              |
| Fleisig, Robert                | Associate Professor                                                                                                                                                                                                                    | ETB 503     | 27408            | robert                |
| <sup>2</sup> Krantzberg, Gail  | Professor<br><a href="https://www.eng.mcmaster.ca/sept/people/faculty/gail-krantzberg">https://www.eng.mcmaster.ca/sept/people/faculty/gail-krantzberg</a>                                                                             | ETB 510     | 22153            | krantz                |
| <sup>3</sup> Mahalec, Vladimir | Associate Director (Graduate)<br><a href="https://www.eng.mcmaster.ca/sept/people/faculty/vladimir-mahalec">https://www.eng.mcmaster.ca/sept/people/faculty/vladimir-mahalec</a>                                                       | ETB 505     | 26386            | mahalec               |
| <sup>4</sup> Mordue, Greig     | Associate Professor and<br>Arcelor Mittal Dofasco Chair<br>in Advanced Manufacturing Policy<br><a href="https://www.eng.mcmaster.ca/sept/people/faculty/greig-mordue">https://www.eng.mcmaster.ca/sept/people/faculty/greig-mordue</a> | ETB 515     | 26616            | mordueg               |

### ADJUNCT PROFESSORS

|                |                     |  |  |                         |
|----------------|---------------------|--|--|-------------------------|
| Grover, Velma  | Associate Professor |  |  | velmaigrover@yahoo.com  |
| Hanna, Mikhail | Assistant Professor |  |  | mikhail.hanna@gmail.com |

### ASSOCIATE MEMBERS

|             |                     |         |       |        |
|-------------|---------------------|---------|-------|--------|
| Qiyin Fang  | Engineering Physics | ETB 405 | 24227 | qfang  |
| Aadil Juma. | Business            | DSB 318 | 23897 | merali |

### INDUSTRY PROFESSORS

|                  |                                     |  |  |                                                                          |
|------------------|-------------------------------------|--|--|--------------------------------------------------------------------------|
| Booth, Catherine | Industry Professor                  |  |  | <a href="mailto:cabooth222@yahoo.com">cabooth222@yahoo.com</a>           |
| Mahler, Harry    | Industry Professor, Professor, OCAD |  |  | <a href="mailto:mahlerh@mcmaster.ca">mahlerh@mcmaster.ca</a>             |
| Vinodrai, Vino   | Industry Professor                  |  |  | <a href="mailto:vinovinodrai@sympatico.ca">vinovinodrai@sympatico.ca</a> |

<sup>1</sup> Professor, Mechanical Engineering

<sup>2</sup> Associate Member, School of Geography & Earth Sciences

<sup>3</sup> Professor, Chemical Engineering

<sup>4</sup> Associate Professor, Economics

### STAFF

|                |                                  |         |       |         |
|----------------|----------------------------------|---------|-------|---------|
| Allen, Richard | Community Engagement Consultant  | ETB 511 |       | allrich |
| Amaral, Dulcie | Admin. Assistant                 | ETB 509 | 26401 | amarald |
| Bawa, Salman   | Community Engagement Coordinator | ETB 511 | 20385 | bawask  |
| Blaney, Anita  | Graduate Admin. Assistant        | ETB 509 | 20477 | blaneya |

# GRADUATE STUDIES AT MCMASTER

## Registration September 2019

### Stage I Registration with the School of Graduate Studies (already completed)

All students (returning and new) are expected to register with the School of Graduate Studies using the MOSAIC online Registration system between July 23 – August 27, 2019. To access this system, please visit the School of Graduate Studies website at <https://gs.mcmaster.ca/academic-services/how-enroll>

**PLEASE NOTE: All students will face a late fee of \$50 if they do not register online by August 27, 2019. The only exemptions will be for students who have official permission to be full-time off-campus during this time.**

Visa students must register on-line, but will receive the message “Study Permit Required”. A copy of your study permit must be submitted to the School of Graduate Studies located in GH 212 and to our Graduate Administrative Assistant, Christine Rich, as soon as possible upon your arrival at McMaster University. *Please note that your registration is not complete until this has been done.*

**On-time Registration:** July 23 – August 27  
**Late Registration:** August 28 – September 9

On-line Registration Using MOSAIC  
On-line Registration Using MOSAIC

### E-MAIL

The School of Graduate Studies and the W Booth School of Engineering Practice and Technology will use electronic mail to communicate directly with graduate students at various times during the year. University Technology Services (UTS) provides each student with an e-mail address. You are required to “enable” this service for your e-mail address via MOSAIC. <https://epprd.mcmaster.ca/psp/preprd/?cmd=login> . Log into [Mosaic](#) with your MAC ID. Select the “Navigator” in the top right corner of the screen. Click “Macid and Email Management” and select the Activate Button, then save. Please note that your account may not be fully functional for 24 hours.

Your e-mail account will expire the **January after your convocation.**

**This is how we keep you informed. We will use your McMaster email account only. Students are expected to read their e-mail on a regular basis.**

### ADDRESS CHANGES

Students are responsible for keeping their personal contacts, such as addresses and phone numbers up to date. You can update these details on MOSAIC <https://epprd.mcmaster.ca/psp/preprd/?cmd=login>

### BUS PASSES

The HSR Bus Pass gives you unlimited access to HSR transit from September 1 to August 31. You cannot opt out of the bus pass fee. For full details, please click here: <https://www.msumcmaster.ca/info/hamilton-street-railway-hsr-bus-pass>

### Stage II Registration with the W Booth School of Engineering Practice and Technology

Registration with the W Booth will commence on Wednesday, September 4, 2019. At that time the Graduate Administrative Assistant will distribute to new graduate students a registration package, if you have not already received one, which will include:

- a) A Personal Information Form for completion - return to Graduate Administrative Assistant
- b) W Booth School of Engineering Practice and Technology 2019 – 2020 timetable
- c) Course registration worksheet
- d) Key registration deadlines
- e) Campus map
- f) NDA form
- g) Altitude team development & Leadership program participant consent form
- h) 2 Co-op forms, excluding MEEI/MTEI packages (Graduate supervisor co-op permission form & Graduate Students in Engineering and Computer Science co-op registration agreement)

## Stage III Selecting Courses on-line registration for 2019-2020

### W Booth School of Engineering Practice and Technology GRADUATE COURSE OFFERINGS 2019/2020 ACADEMIC YEAR

Graduate courses will commence as early as September 9, 2019.

600 level graduate courses could commence as early as September 5, 2019.

Maximum of two 600 level course can be taken for credit towards Masters Degree

| Course No.              | Course Name                                                                       | Instructor                                        |
|-------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------|
| <b>Term I</b>           | <b>Monday, September 9, 2019</b>                                                  |                                                   |
| Manuf 6RM3*             | Robot Mechanics and Mechatronics                                                  | TBA                                               |
| Mech Eng 729*           | Manufacturing Systems                                                             | F. Lefevre-Schlick                                |
| Mech Eng 761*           | Industrial Components, Networks, and Interoperability                             | G. Fu/T. Wanyama                                  |
| SEP 6AS3*               | Advanced System Components and Integration                                        | Wanyama,Gao,Soliman                               |
| SEP 6AT3*               | Conceptual Design of Electric and Hybrid Electric Vehicles                        | TBA                                               |
| SEP 6BC3*               | Building Science                                                                  | TBA                                               |
| SEP 6BI3*               | Bioinformatics                                                                    | TBA                                               |
| SEP 6BS3*               | Biotechnology Regulations                                                         | R. Abu-Ghazalah                                   |
| SEP 6DA3*               | Data Analytics and Big Data                                                       | TBA                                               |
| SEP 6E03*               | Entrepreneurial Opportunity Identification                                        | L. Belkhir                                        |
| SEP/Matls<br>6I03*      | Sustainable Manufacturing Processes                                               | N. Dogan                                          |
| SEP 6PD3                | Power System Analysis and Control                                                 | TBA                                               |
| SEP 6PM3*               | Project Management                                                                | TBA                                               |
| SEP 6PQ3*               | Power Quality                                                                     | TBA                                               |
| SEP 6SS3                | System Specification and Design                                                   | T. Wanyama                                        |
| SEP 6TB3*               | Advanced Biotechnology                                                            | F. Alani                                          |
| SEP 700*                | M. Eng. Project in Engineering Design Part I                                      | V. Mahalec                                        |
| SEP 701*                | Theory and Practice of Policy Analysis: Framework and Models                      | G. Mordue                                         |
| SEP 705*                | Green Engineering, Sustainability & Public Policy                                 | V. Grover                                         |
| SEP 708*                | Special Topics in Engineering and Public Policy                                   | G. Krantzberg                                     |
| SEP 709*                | Emerging Issues, Technology and Public Policy                                     | G. Krantzberg                                     |
| SEP 725*                | Practical Project Management for Today's Business Environment                     | M. Hanna                                          |
| SEP 755*                | Business Launch and Development                                                   | TBA                                               |
| SEP 757*                | Prototyping tools and methods (hardware)                                          | P. Hale                                           |
| SEP 758*                | Prototyping Tools (Mobile applications)                                           | P. Basl                                           |
| SEP 760*                | Design Thinking                                                                   | R. Fleisig                                        |
| SEP767/Chem<br>Eng 765* | Multivariate Statistical Methods for Big Data Analysis and Process Improvement    | B. Corbett                                        |
| SEP 771                 | W Booth School of Engineering Practice and Technology Practitioner's Forum Part 1 | G. Mordue                                         |
| SEP 772                 | Innovation Studio                                                                 | Belkhir, Fleisig<br>Krantzberg,Mahalec,<br>Mordue |
| SEP 773*                | Leadership for Innovation                                                         | TBA                                               |
| SEP/Chem<br>Eng 786#    | Artificial Intelligence and Machine Learning Fundamentals                         | J. Fortuna                                        |
| SEP/Chem<br>Eng 787#    | Machine Learning : Classification Models                                          | J. Fortuna                                        |
| Chem Eng<br>/SEP 788#   | Neural Networks and Development Tools                                             | TBA                                               |

**Graduate courses will commence as early as January 6, 2020**  
**600 level graduate courses will also commence January 6, 2020.**

|                       |                                                                                     |                          |
|-----------------------|-------------------------------------------------------------------------------------|--------------------------|
| <b>Term II</b>        | <b>Monday, January 6, 2020</b>                                                      |                          |
| Chem Eng /SEP 788#    | Neural Networks and Development Tools                                               | TBA                      |
| Chem Eng /SEP 789#    | Deep Learning and Its Applications                                                  | TBA                      |
| Mech Eng 729*         | Manufacturing Systems                                                               | F. Lefevre-Schlick       |
| Mech Eng 760*         | Electric drive vehicles                                                             | D. Centea                |
| Mech Eng 761*         | Industrial Components, Networks, and Interoperability                               | TBA                      |
| SEP 6BL3              | Biomaterials and Biocompatibility                                                   | A. Rajabzadeh            |
| SEP 6BM3              | Biopharmaceuticals                                                                  | R. Abu-Ghazalah          |
| SEP 6DM3*             | Data Mining                                                                         | TBA                      |
| SEP 6ES3              | Real-time systems                                                                   | M. Alavi                 |
| SEP 6IC3              | Industrial Networks and Controllers                                                 | T. Wanyama               |
|                       |                                                                                     | G. Krantzberg/ V. Grover |
| SEP 6X03*             | Livable Cities, the Built and Natural Environment                                   |                          |
| SEP 702*              | Systems Engineering and Public Policy                                               | TBA                      |
| SEP 707*              | Communication Technology and Public Policy                                          | V. Vinodrai              |
| SEP 708*              | Special Topics in Engineering and Public Policy                                     | G. Krantzberg            |
| SEP 710*              | International Governance and Environmental Sustainability                           | V. Grover                |
| SEP 720#              | Cloud computing                                                                     | TBA                      |
| SEP 721#              | Data Analytics, Machine Learning and AI on Cloud Platforms                          | TBA                      |
| SEP 725*              | Practical Project Management for Today's Business Environment                       | M. Hanna                 |
| SEP 735*              | Additive Manufacturing                                                              | M. Elbestawi             |
| SEP 748*              | Development of Sustainable Communities                                              | TBA                      |
| SEP 752/Chem Eng 753* | Process Modeling and Optimization                                                   | V. Mahalec               |
| SEP 753*              | Enterprise Opportunity Development                                                  | L. Belkhir               |
| SEP 757/Mech Eng 759* | Hardware Prototyping Tools and Methods                                              | P. Hale                  |
| SEP 759               | Prototyping Web & Mobile applications                                               | P. Basl                  |
| SEP 761*              | Human Centred Design                                                                | H. Mahler/A.Hemmerich    |
| SEP 767/Chem Eng 765* | Multivariate Statistical Methods for Big Data Analysis and Process Improvement      | B. Corbett               |
| SEP 770*              | Total Sustainability Management                                                     | L. Belkhir               |
| SEP 771               | W Booth School of Engineering Practice and Technology Practitioner's Forum, Part I  | G. Mordue                |
|                       | W Booth School of Engineering Practice and Technology Practitioner's Forum, Part II | G. Mordue                |
| SEP 771               |                                                                                     |                          |
| SEP 773*              | Leadership for Innovation                                                           | TBA                      |
| <b>Summer</b>         | <b>Monday, May 6, 2019</b>                                                          |                          |
| SEP 700*              | M. Eng. Project in Engineering Design Part II                                       | V. Mahalec               |
| SEP 706*              | Energy and Public Policy                                                            | TBA                      |
| SEP 708*              | Special Topics in Engineering and Public Policy                                     | G. Krantzberg            |
| SEP 725*              | Practical Project Management for Today's Business Environment                       | M. Hanna                 |
| SEP 735*              | Additive Manufacturing                                                              | TBA                      |
| SEP 780*              | Advanced Robotics & Automation                                                      | G. Zhao                  |
| SEP 790               | Proof of Concept Studio                                                             | L. Belkhir               |

\* half course #quarter course U/G Timetable = Undergraduate Timetable at: <https://registrar.mcmaster.ca/enrol/class-search/>

Due to the interdisciplinary nature of our programs, students in the Master of Engineering and Public Policy program, the Master of Engineering Entrepreneurship and Innovation program, Master of Technology Entrepreneurship and Innovation program, Master of Engineering Design program and Master of Engineering in Manufacturing Engineering program may be required to take courses outside of the W Booth course offerings. Students need to check the course offerings at the applicable department website to determine the date, time and location of those courses. Students taking graduate classes outside the W Booth (e.g. in Chemical Engineering) should ensure that their enrolment intentions are made known to the appropriate Department. The most effective liaison is by personal contact with the course instructor or department graduate administrative assistant.

***Remember: Course registration is your responsibility!***

Students should note that certain courses available for graduate credit are offered concurrently with undergraduate courses. These are designated as 600-level courses (e.g. CE 6D04/Geometric Highway Design) in the Graduate Calendar <https://academiccalendars.romcmaster.ca/index.php?catoid=39> and 400-level courses (e.g. CE 4D04/Geometric Highway Design) in the Undergraduate Calendar <https://academiccalendars.romcmaster.ca/index.php?catoid=38>. Since all undergraduate classes commence on September 5, 2019, graduate students contemplating registration in such a course(s) should try to attend the first lectures in that week.

## **WHAT COURSES DO I SELECT?**

### **Mandatory zero credit courses**

#### **Required Courses for all Graduate Students**

All graduate students, including part-time students, must complete the courses:

**SGS 101# – Academic Research Integrity and Ethics and**  
**SGS 201# – Accessibility for Ontarians with Disabilities Act (AODA)**  
**SEP 772 - Innovation Studio (MEME students exempted)**

All **full-time** graduate students must complete the course:

**SEP 771 – W Booth School of Engineering Practice and Technology Practitioner's Forum. Part I & II**

#### **SGS#101 - Academic Research Integrity and Ethics**

All graduate students, including part-time students, must complete the course **SGS#101 - Academic Research Integrity and Ethics** within the first term month after their admission to graduate studies at McMaster. The purpose of this course will introduce incoming graduate students to the standards of academic integrity expected at McMaster. It will provide examples of acceptable and unacceptable practices and will clarify the responsibility and expectations of graduate students with respect to academic integrity. Students will be exposed to the Academic Integrity Policy of McMaster and best practices will be described that will minimize the likelihood of incorrectly attributed work from appearing in their assignments and research records. Students may not graduate or register for subsequent years in a graduate program at McMaster unless they have received a passing grade in SGS #101. This course can be completed on Avenue to Learn.

#### **SGS #201 - Accessibility for Ontarians with Disabilities Act (AODA)**

All graduate students, including part-time students are also required to complete and pass SGS #201 - Accessibility for Ontarians with Disabilities Act (AODA). Having an understanding of how we can identify and reduce attitudinal, structural, information, technological, and systemic barriers to persons with disabilities is core to McMaster University's commitment to supporting an inclusive community in which all persons are treated with dignity and equality, and completion of AODA training is critical as McMaster's graduates move forward in their varied, chosen professions. Students may not graduate or register for subsequent years in their program until they have completed their required training.

You may choose which format to complete the training in when you login. For more information about the AODA Training Module please visit, <https://accessibility.mcmaster.ca/topic/aoda-human-rights/>.

**Before registering in your courses**, you will need to discuss your course selection with the Faculty member of your program.

- **Master of Engineering and Public Policy** students will consult with Dr. Gail Krantzberg.
- **Master of Engineering Entrepreneurship and Innovation** and
- **Master of Technology Entrepreneurship and Innovation** students will consult with Dr. Lotfi Belkhir
- **Master of Engineering Design** students will consult with Dr Robert Fleisig or Dr. Vladimir Mahalec
- **Master of Engineering in Manufacturing Engineering** students will consult with Dr. Eu-Gene Ng.

In order to record your course selections in mosaic, students must complete the appropriate "Graduate Student Course Selection 2019-2020" form found in Appendix A and have it signed by a faculty member from the appropriate program. The form must be returned to the W Booth School of Engineering Practice and Technology Graduate Administrative Assistant by Monday, September 16, 2019. After it has been reviewed administratively, you will receive a copy of the form for your records in order to finalize your course registration.

All full time and part time graduate students in the W Booth School of Engineering Practice and Technology will be required to register on-line using MOSAIC. *Returning students will need to register for the current academic year even if they have finished all their course requirements by adding the placeholder, SGS 700.*

### **Career planning session**

Graduate students entering in a Masters or Doctoral programs within the Faculty of Engineering are required to complete a career planning exercise within their first academic term. After completion of either SEP 6EL3, Leading Innovation or SEP 773, Leadership for Innovation, all students in the MEEI, MTEI, MED, and MEPP programs must complete the "Career Planning" template at the end of each term (December 13, 2019 or April 10, 2020) and submit it to Anita Blaney located in ETB 509. Students in the MEME program will receive an email from the Engineering Co-op and Career Services office and will book a planning session with a career specialist within the faculty and subsequently submit the Career Planning form by December 13, 2019 or April 10, 2020. **This is mandatory for all full time and part time students.**

### **COURSE CATEGORIES**

The enrollment process will automatically assign a course towards the primary academic program that a student is enrolled in for a particular term. This process does not determine whether the course will exceed the requirements outlined the curriculum. Where a student wishes to designate a particular course towards a program other than their primary academic program a special request is required during the normal add period outlined in the sessional dates. The requirement designation form is available on the School of Graduate Studies website.

#### **Courses can be designated as being in one of the five categories:**

##### **Master's** (Count towards the primary academic program requirements of a Master's degree)

This category identifies the courses that are to count towards the Master's degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Department Chair). The passing grades for a Master's course are A+, A, A-, B+, B, and B-.

##### **Extra Courses** (Extra Course)

This category identifies courses that the student is taking with the approval of the supervisor but that are not necessary to the student's current degree program. In order to designate a course as extra, a student will have to submit a course designation request during the normal add period of enrollment in a particular term. The form is submitted to the program office and once approved will have the designation added to the enrollment record for that course only. If a failing grade (i.e. less than B-) is received in a course taken as Extra, the courses (and grade) will not appear on the student's transcript unless because of academic dishonesty. Students may petition to change the designation of an Extra Course to a Master's or Doctoral course prior to the deadline to drop a course provided that this change is supported by the supervisor and program. Changes of designation after the drop date will not be approved. Courses designated as Extra Course may subsequently be counted towards graduate degree requirements and the course designation changed to Master's or Doctoral, if approved by the Faculty Admissions and Study Committee or the Associate Dean acting on its behalf. The passing grades for an Extra Course are A+, A, A-, B+, B, and B-.

Courses that are required by the supervisory committee or the Department Chair as additional requirements in excess of the stated minimum for the program must be designated as Master's or Doctoral.

McMaster Students enrolled in a SEPT program wishing to take a course at another institution must receive approval from the Associate Director for Graduate Studies then need to apply online in the Student Centre (see section 6.10 - [Inter-University Cooperation - Ontario Visiting Graduate Student](#))

## Procedures for MOSAIC System

The Online Course Selection of MOSAIC will be accessible from July 23, 2019 onwards.

Before going on MOSAIC

1. Check the graduate calendar for your program's requirements
2. Choose the remaining of your courses and complete the W Booth, Graduate Student Course Selection form **with a faculty member from your program.**
3. If a course requires academic permission, obtain permission from the department that is offering the course.

**Finished all your course requirements?** You are still required to register on MOSAIC for the upcoming academic year if you are working on your project. Please select SGS 700 for all academic terms even if you plan to complete your degree requirements in the first term.

**Register for courses:**

**Please register for your courses in mosaic. The link below are instructions on how to enroll:**

<http://graduate.mcmaster.ca/academic-services/how-enroll>

### Graduate Studies policies regarding registration and withdrawal dates

There is a deadline date for both registration and changes (drop and add) for courses.

**Refer to the SESSIONAL DATES 2019-2020 listing at the beginning of this handbook. It is the student's responsibility to "Drop and Add" courses from their academic record.**

**Graduate students are responsible for their student account and you should check this regularly to ensure you are aware of any charges incurred. You must log into MOSAIC to access your account.**

## Critical School of Graduate Studies (SGS) Deadline Dates:

### LAST DAY TO **ADD** COURSES:

#### Fall Term (1)

Full course (Sept. – April.) Friday, September 27, 2019

Half course (Sept. – Dec.) Friday, September 27, 2019

#### Winter Term (2)

Half course (Jan. – April) Friday, January 24, 2020

#### Summer Term

Half course (May – Aug.) Friday, May 15, 2020

### LAST DAY TO **DROP** COURSES:

#### Fall Term (1)

Full course (Sept. – April.) Friday, January 3, 2020

Half course (Sept. – Dec.) Friday, October 4, 2019

#### Winter Term (2)

Half course (Jan. – April) Friday, February 7, 2020

#### Summer Term

Half course (May – Aug.) Friday, June 5, 2020

## STUDENTS WISHING TO CHANGE COURSES AFTER DEADLINES

In certain circumstances, it is possible to change course selection; however this will need special approval from:

- the program faculty member,
- the W Booth School of Engineering Practice and Technology Associate Director and
- the Associate Dean, School of Graduate Studies.

To request this change, you would need to complete a Petition for Special Consideration form in the following link:

[https://gs.mcmaster.ca/sites/default/files/resources/petition\\_-\\_october\\_2018\\_revised.pdf](https://gs.mcmaster.ca/sites/default/files/resources/petition_-_october_2018_revised.pdf) Once complete, please submit to W Booth School of Engineering Practice and Technology graduate assistant for appropriate processing.

## STUDENTS WHO HAVE BEEN AWARDED A FAILING GRADE

All instances of failures are reviewed by the appropriate Faculty Committee on Graduate Admissions and Study or the Associate Dean acting on its behalf. The Faculty Committee on Graduate Admissions and Study or the Associate Dean acting on its behalf requests a departmental recommendation regarding the student, and this recommendation is given considerable weight. In the absence of a departmental recommendation to allow the student to continue, the student will be required to withdraw. Those allowed to remain in the program must either repeat or replace the failed course. A failing grade in a Certificate, Diploma, Masters or Doctoral course remains on the transcript. Students who fail a second course will not normally be allowed to continue in the program.

Under exceptional circumstances a course instructor may approve an extension for the student for the completion of work in a course and assign an Incomplete grade (INC). At the same time the instructor submits an incomplete grade they have to also submit a lapse to grade - which is the grade that will default to at the date to clear incompletes. Normally this extension is in the range of a few weeks. A student who receives this permission must complete the work as soon as possible, and in any case early enough to allow the instructor to report the grade to the School of Graduate Studies by the date specified in the Sessional Dates near the beginning of this Calendar. If the INC grade is not cleared by the deadline, a lapsed grade will automatically be recorded.

## PROJECT SELECTION AND PROPOSALS

On arrival, the new graduate student should meet with the program faculty member to discuss his/her project, including estimated target dates for completion of various parts of the work.

## PROGRAM-SPECIFIC REQUIREMENTS FOR GRADUATE STUDENTS

### Master of Engineering Entrepreneurship and Innovation program

#### Courses

A candidate is required to complete successfully two one-term advanced engineering courses and the six compulsory Engineering Entrepreneurship and Innovation module courses. Additionally, full-time students must successfully complete SEP 771 part I and II and SEP 772.

#### Engineering Enterprise Project

The Engineering Enterprise Project will run throughout the entire study period and will result in both a business and a viable Proof-of-Concept defined as the combination of (i) a technical plan for an engineering prototype product (ideally with an actual prototype device or software produced) plus (ii) an identified customer base and a plan outlining the way to commercialization. The project will bring together the two complementary streams of activities, one technical and the other commercial, to bring an idea to the proof of concept phase. The Entrepreneurial course stream, which will run coincidentally with the advanced engineering studies, will guide the technological work performed in the research laboratory so that the concept becomes, by the end of the degree, the nucleus of a business proposition. The Engineering Enterprise Project will have three phases, which will end with project gate assessments to determine the project's readiness to proceed to the next phase:

**Phase 1 - Project Preparation:** Market research to arrive at a proposed product or service with clear value proposition; define the market for the intended product or service revealing competitive threat, opportunities, and margins and volumes projections; draw up development plans for the product or service indicating the required resources and estimated investment cost; seek the resources within the university and without; build a team of support that might include a partner.

**Phase 2 - Technical Research and the Development of the Engineering Prototype:** Develop an engineering research plan, identifying key issues and opportunities (with the assistance of academic technical and business supervisors); conduct technical research and development; implement the engineering research plan within the research group in the host-engineering department; build a development network within the engineering research community; ready the technology for transfer to market; conduct initial market engagement to get customer feedback and reactions.

**Phase 3 - Technology Transfer to Market:** Apply for IP protection if applicable; develop a path-to-market strategy; develop a business case; seek out financing and explore business arrangements; plan for business start-up. Each phase has two equally important components, one technical and the other business:

The Phase 3 evaluation will be a defense of your project in an oral examination to your board (technical mentor, enterprise advisor, business advisor and your business mentor). Candidates are required to complete and pass through each phase in order to graduate.

# Master of Technology Entrepreneurship and Innovation program

## Courses

A candidate is required to complete successfully two one-term advanced graduate courses and the six compulsory Entrepreneurship and Innovation module courses. Additionally, full-time students must successfully complete SEP 771 part I and II and SEP 772.

## Enterprise Project

The Enterprise Project will run throughout the entire study period and will result in both a business and a viable Proof-of-Concept defined as the combination of (i) a technical plan for an engineering prototype product (ideally with an actual prototype device or software produced) plus (ii) an identified customer base and a plan outlining the way to commercialization. The project will bring together complementary streams of activities, one technical and the other commercial to bring an idea to the proof of concept phase. The Entrepreneurial course stream, which will run concurrently with the advanced engineering studies will guide the technological work performed in the research laboratory so that the concept becomes, by the end of the degree, the nucleus of a business proposition.

The Enterprise Project will have three phases, which will end with project gate assessments to determine the project's readiness to proceed to the next phase:

**Phase 1 - Project Preparation:** Market research to arrive at a proposed product or service with clear value proposition; define the market for the intended product or service revealing competitive threat, opportunities, and margins and volumes projections; draw up development plans for the product or service indicating the required resources and estimated investment cost; seek the resources within the university and without; build a team of support that might include a partner.

**Phase 2 - Technical Research and the Development of the Technology Prototype:** Develop a research plan, identifying key issues and opportunities (with the assistance of academic technical and business supervisors); conduct technical research and development; implement the engineering research plan within the research group in the host-engineering department; build a development network within the engineering research community; ready the technology for transfer to market; conduct initial market engagement to get customer feedback and reactions.

**Phase 3 - Technology Transfer to Market** Apply for IP protection if applicable; develop a path-to-market strategy; develop a business case; seek out financing and explore business arrangements; plan for business start-up. Each phase has two equally important components, one technical and the other business:

|                   |                                                                                                 |
|-------------------|-------------------------------------------------------------------------------------------------|
| <b>Phase I:</b>   | Concept initiation proposal; Technology development plan presentation and documentation         |
| <b>Phase II:</b>  | Technical Proof-of-concept; Draft financial plan presentation and documentation                 |
| <b>Phase III:</b> | Business Strategy and Go-to-market plan or a Venture feasibility presentation and documentation |

The Phase III evaluation will be a defence of your project in an oral examination to your board (technical mentor, enterprise advisor, business advisor and your business mentor). Candidates are required to complete and pass through each phase in order to graduate.

# Master of Engineering and Public Policy program

## Curriculum

The curriculum has the following components:

1. Core courses that provide the content and methodological skills necessary for understanding and analyzing societal issues for which engineering and science can contribute to public policy solutions;
2. Focus elective courses that allow students to deepen their knowledge of a range of engineering, science and social science applications;
3. The completion of a substantive research paper on a problem at the interface of engineering, science and public policy

## Research Project - Inquiry/Thesis in Engineering and Public Policy

Students select a research topic at the interface of engineering, science and public policy which is of interest to them and carries out inquiry-driven research; completes a formal research paper and prepares to publish their results for broad dissemination.

# Master of Engineering Design program

## Curriculum

**Candidates will be required to complete eight half courses, plus full-time students must successfully complete SEP 771 Part I and II and SEP 772. Part time students are also required to complete SEP 772.**

The curriculum has three main components:

- 1. Professional Development** courses that will enable M.Eng. Design graduates to deal with complex situations in the work environment, to lead teams, and to manage projects.
- 2. Courses Relevant to the selected stream:** some courses are mandatory for a given stream while others are elective.
- 3. An M.Eng. project** that requires synthesis of knowledge from various disciplines.

## PROCESS & PRODUCTION SYSTEMS STREAM

Process and Production Systems Stream provides advanced competencies for engineers and supervisors typically working in:

Process Design  
Advanced Process Control  
Plant Operations  
Process Industry Oriented R&D  
Control Systems and Software

## PRODUCT DESIGN STREAM

Innovative and creative systems, solutions, and product designs are emphasized through design in a collaborative design studio environment. The interdisciplinary nature of the program enables its participants to work on a variety of design work, such as industrial machinery, consumer products, automotive, etc

## Course Selection for Master of Engineering Design 2019/2020

Candidates will be required to complete 8 half courses, plus full-time students must successfully complete SEP 771 Part I and II (zero credits courses) and SEP 772 (zero credits). Part time students are also required to complete SEP 772 (zero credits).

Part time students can only enroll in 3 courses per academic year (September 2019 – August 2020). Since SEP 772 is a zero credit course, students can enroll in this course in addition to 3 other credit courses.

Students need to register in each term in order for the correct tuition fees to be calculated at the time of registration, hence why you need to add **SGS 700 in term 3 if you are not enrolled in a course for that term. This is just a placeholder, not a course.** It also indicates that you are an active student at the university and your registration is complete.

Students can take **a maximum of two grade level courses** offered by any engineering department with the approval of a faculty member of the MED program. Also, students **cannot enroll in more than two 600 level courses** while enrolled in the MED program.

NOTE: Courses with # designation are only ½ term courses (6 weeks). At McMaster, they are called quarter courses. Two of such courses count as one term course.

Below are the **mandatory** courses for all both streams (Product Design and Process and Production systems) for students should register:

| Course code                                  | Name                                                     | Fall 2019 | Winter 2020 | Spring/summer 2020 |
|----------------------------------------------|----------------------------------------------------------|-----------|-------------|--------------------|
| SGS 101# (0 credit)                          | Academic Research Integrity and Ethics                   | Yes       |             |                    |
| SGS 201# (0 credit)                          | Accessibility for Ontarians with Disabilities Act (AODA) | Yes       |             |                    |
| SEP 760 (3 credits)                          | Design Thinking                                          | Yes       |             |                    |
| SEP 771 (0 credit) (full time students only) | W Booth SEPT Practitioner's Forum <b>Part I</b>          | Yes       |             |                    |
| SEP 771 (0 credit) (full time students only) | W Booth SEPT Practitioner's Forum <b>Part II</b>         |           | Yes         |                    |
| SEP 772 (0 credit)                           | Innovation Studio                                        | Yes       |             |                    |
| SEP 773 (3 credits)                          | Leadership for Innovation                                |           | Yes         |                    |
| SEP 700 (3 credits)                          | M.Eng. Project in Engineering Design <b>Part I</b>       |           | Yes         |                    |
| SEP 700 (3 credits)                          | M.Eng. Project in Engineering Design <b>Part II</b>      |           |             | Yes                |

## Course Selection for Master of Engineering in Manufacturing Engineering 2019/2020

All MEME student are by default on a “course only” track which requires 8 courses to be completed in order to receive the M. Eng. degree. Students who secure a project with the company can switch to “6 courses + project” option. Students who will work on a project with a company, will register for MANUF 701 Project, Part I & Part II, instead of taking 2 elective courses.

**At most, 2 courses can be from the 600 series and you cannot take more than 2 SEP courses.** All other courses must be from Chemical Engineering, Mechanical Engineering and Materials Science and Engineering departments.

**Part time students can only enroll in 3 courses per academic year (September 2019 – August 2020).**

Because there are no courses offered by Chemical, Materials, and Mechanical Engineering departments in the summer, MEME students need to take courses in these departments during the Fall term (3 courses) and the Winter term (3 courses). Students who take “6 courses + project” option may take a total of 2 SEP courses in the Fall and Winter terms combined. The students who take 8 courses option will take 2 SEP courses during the summer.

NOTE: Courses with # designation are only ½ term courses (6 weeks). At McMaster, they are called quarter courses. Two of such courses count as one term course.  
The list of courses listed below do not carry any academic credit, however, they are **mandatory**:

| Course code                          | Name                                                     | Fall 2019 | Winter 2020 |
|--------------------------------------|----------------------------------------------------------|-----------|-------------|
| SGS 101#                             | Academic Research Integrity and Ethics                   | Yes       |             |
| SGS 201#                             | Accessibility for Ontarians with Disabilities Act (AODA) | Yes       |             |
| SEP 771<br>(full time students only) | W Booth SEPT Practitioner's Forum, <b>Part I</b>         | Yes       |             |
| SEP 771<br>(full time students only) | W Booth SEPT Practitioner's Forum, <b>Part II</b>        |           | Yes         |

# GENERAL INFORMATION FOR NEW GRADUATE STUDENTS

## 2019/2020 Academic Year

### UNIVERSITY SPECIFIC ADMINISTRATIVE INFORMATION

#### PRESENCE OF FULL-TIME GRADUATE STUDENTS

The following is an excerpt from the 2019/2020 School of Graduate Studies Calendar and applies to **all** graduate students. Full-time students are obliged to be on campus, except for vacation periods or authorized off-campus status, for all three terms of the university year. Vacation entitlement is discussed in 2.5.8. Any student who is away from campus for longer than one week, which is not part of the student's vacation entitlement, requires their supervisor's approval in writing. If this period of time exceeds two weeks, the approval of the department chair is also required. In accordance with government regulations (see Section 2.5.2) students who will be away from campus for more than four weeks in require not only permission from the Department but also that of the appropriate Associate Dean of Graduate Studies and must submit a Request to be Full Time Off Campus. Note that this permission is needed even for field work or study elsewhere in the world, in order to allow the University to comply with the regulation requiring that a written explanation for such absences be lodged in the Graduate School office. Students may arrange, through the Department and the Associate Dean of Graduate Studies, to be "full-time off-campus" for periods of up to a year. Students will also be required to complete the Risk Management Manual (RMM) 801 forms and gain approval through EOHSS. In cases of unauthorized absence the student will be deemed to have withdrawn voluntarily from graduate study and will have to petition for readmission. No guarantee of readmission or of renewal of financial arrangements can be made. An exception to this policy would be programs that deliver their curriculum either partially or fully in on-line formats. Please refer to details in individual program descriptions.

The appropriate forms may be obtained at <http://graduate.mcmaster.ca/resources>

#### LEAVES OF ABSENCE

Students are not eligible for a leave until after their 12-months in the program. Leaves of absence are normally granted on a term-by-term basis. Whenever possible the leave should start and end at the beginning of a term (i.e., January 1, May 1, or September 1). During the period of a Leave the student cannot expect to be given supervision or be entitled to use the University's academic facilities. During a Leave of Absence, no tuition will be charged, nor will the student be eligible for any scholarship support. Students on a leave of absence have to pay applicable supplemental fees and will be able to use the services associated with those fees. The length of time for completing the degree, and for scholarship support eligibility (see qualifier below), will be extended by the duration of the Leave on the resumption of studies. If a leave begins or ends in the middle of a term, term count will be determined upon return in consultation with the Associate Dean.

Leaves of absence affecting Teaching Assistantship duties are covered by the Collective Agreement with Local 3906 (Unit 1) of the Canadian Union of Public Employees.

Students should be aware that in the event of Leaves of Absence, continuation of the same research project and/or supervisor cannot be guaranteed. Students applying for a leave of absence for personal reasons must normally have completed at least one year of full time graduate studies. Students who have not completed a minimum of 16 weeks of graduate studies at McMaster will not be eligible for parenting leave scholarship funding as noted below. For additional information related to parental and maternity leaves, please refer to the next section.

Students returning earlier than planned from a leave of absence must provide 4 week's notice to the School of Graduate Studies. For further information, please visit section 2.5.7. of the School of Graduate Studies calendar.

### GENERAL INFORMATION

#### Counselling Services

Equity and Inclusion Office (EIO) - <http://www.hres.mcmaster.ca/>

Student Affairs/International Student Services – Tel. 905-525-9140 ext. 24748; [iss@mcmaster.ca](mailto:iss@mcmaster.ca)

Ombuds Office – <http://www.mcmaster.ca/ombuds/>

Financial Aid and Scholarships – <https://registrar.mcmaster.ca/financial-aid/>

Student Success Centre – <https://studentsuccess.mcmaster.ca/>

Environmental and Occupational Health Support Services – Tel. 905-525-9140 Ext. 24352

## Health Services

Ontario Health Insurance Card – Tel. 1-866-532-3161 (Service Ontario)

GSA Health and Dental Plan - [http://www.studentcare.ca/View.aspx?locale=en&uid=McMasterUniversity\\_Home&](http://www.studentcare.ca/View.aspx?locale=en&uid=McMasterUniversity_Home&) or 1-866-358-4434

Workplace Safety and Insurance Board Coverage for Graduate Students (Working at McMaster) - <http://www.workingatmcmaster.ca/ehs/wsib/>

Conference and Event Services – <http://conference.mcmaster.ca>

## Housing and Conference Services and Hospital Services

Hospitality Services – <http://hospitality.mcmaster.ca>

Off-Campus Housing – <http://macoffcampus.ca> (Off-Campus Resource Centre)

On-Campus Housing – <http://housing.mcmaster.ca> (Housing and Conference Services)

Graduate Students Association (GSA) – <https://gsamcmaster.org/>

## Student Associations

McMaster University Alumni Association – <http://www.mcmaster.ca/ua/alumni>

Athletics and Recreation – <http://www.marauders.ca/>

## Other University Services/Facilities

Bookstore – <https://campusstore.mcmaster.ca/> (Titles Bookstore)

Day Care Facilities at McMaster

- McMaster Children's Centre – <https://mcmasterchildrenscentre.wordpress.com/>

- McMaster Students' Union Child Care Centre – Tel. 905-526-1544; E-mail: [dthomson@msu.mcmaster.ca](mailto:dthomson@msu.mcmaster.ca)

Parking Services – <http://parking.mcmaster.ca>

Security Services – <http://security.mcmaster.ca>

University Chaplain Centre – <http://www.mcmaster.ca/chaplain>

## Special Resource Services/Facilities

Centre for Continuing Education – <https://www.mcmastercce.ca/>

Paul R. MacPherson Institute for Leadership, Innovation & Excellence in Teaching (MI) - <http://mi.mcmaster.ca/>

McMaster Media Production Services – <http://media.mcmaster.ca>

McMaster Museum of Art – <https://museum.mcmaster.ca/>

Office of International Affairs – <https://oia.mcmaster.ca/>

Office of Sustainability - <http://www.mcmaster.ca/sustainability/index.html>

University Library – <http://library.mcmaster.ca/>

University Technology Services (UTS) – <http://www.mcmaster.ca/uts/>

## CAMPUS HEALTH CENTRE

Student Wellness Centre is located in the McMaster University Student Centre B101/B118, ext. 27700, <https://wellness.mcmaster.ca/>

## STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services (SAS) provides academic accommodation assistance and related supports to students with disabilities at McMaster. SAS is available to assist students transitioning from high school, other post secondary institutions, undergraduate, continuing and graduate students. Please visit <http://sas.mcmaster.ca/>

Reminder: Approved accommodations of previous undergraduates at McMaster do not automatically apply during graduate studies. Students needing accommodations should return to SAS soon after commencement of their graduate program to implement or update your student status and to activate accommodations.

## GSA HEALTH & DENTAL PLAN

Most Graduate Students at McMaster University are covered by ONE of two dental plans in addition to a health plan:

1. The dental plan administered by CUPE 3906
2. The health & dental plan administered by the Graduate Student Association (GSA)

For help determining which plan you will be enrolled in and/or for general dental inquiries, please do not hesitate to contact either the GSA or CUPE 3906.

GSA plan information and contact: [http://www.studentcare.ca/View.aspx?locale=en&uid=McMasterUniversity\\_Home&](http://www.studentcare.ca/View.aspx?locale=en&uid=McMasterUniversity_Home&) or 1-866-358-4434. If further assistance is still required, please then contact [macgsa@mcmaster.ca](mailto:macgsa@mcmaster.ca)

## **UHIP (UNIVERSITY HEALTH INSURANCE PLAN)**

The Ontario Ministry of Health does not extend health coverage to Visa students. The University has developed a plan called the University Health Insurance Plan (UHIP). Insurance coverage is mandatory and all fully registered Visa students must arrange payment for a full-year's premium at registration in September. The premium assessed depends upon the number of dependents requiring insurance coverage. For more information, please call visit the McMaster UHIP website: <https://iss.mcmaster.ca/studentlife/healthcare/> or call ext. 24254. You can also apply in person at Gilmour Hall 110 or via e-mail at [iss@mcmaster.ca](mailto:iss@mcmaster.ca)

## **HEALTH AND SAFETY TRAINING REQUIRED FOR W BOOTH STUDENTS**

### **Workwell:**

All graduate students in the masters' programs in the W Booth School of Engineering Practice and Technology are required to complete the following health and safety training:

- Asbestos Awareness
- Ergonomics
- Fire Safety
- Health & Safety Orientation Training
- Slips, Trips and Falls
- Chemical Handling & Spills On-Line (for MED students only)
- Violence and Harassment Prevention in the Workplace
- WHMIS 2015

## **W.H.M.I.S. - WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM**

Provincial legislation requires that all people employed in a workplace where hazardous materials are used, attend training sessions on the W.H.M.I.S.

The training is **mandatory**, not optional.

You can register and complete the training for all these Health and Safety modules on-line in Mosaic. You are required to provide the Graduate Administrative Assistant with a hardcopy of the screen shot indicating the completion of the above modules. It is expected that the student will complete this requirement by **September 13<sup>th</sup>, 2019**.

## **REPORTING OF A SAFETY INCIDENT**

Any incident, which could have resulted in injury, must be reported to the School immediately. The School contacts are:

- Dr. Vladimir Mahalec, Associate Director, (Graduate) W Booth School of Engineering Practice and Technology, ext. 26386, [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca)
- Business Manager (TBA) The university is required by law to report such incidents to the Workplace Safety and Insurance Board (WSIB).

## **FIRE SAFETY PROCEDURE**

In the case of fire, or the sounding of an alarm "**Get Out and Stay Out**" You should be at least 50 feet away from the building and not return until the "All Clear" is given.

## **SECURITY**

McMaster's location can sometimes make you forget that the world is not always a nice place. Theft, particularly of bicycles and computers can be a problem. You are encouraged to ID your bicycle, computers and other valuables. Be aware of your surroundings. There have been thefts of personal belongings and research equipment from laboratories and offices. If you are leaving your desk area, even for 5 minutes, ensure your belongings are locked in a secured area. If you are using the library or other common areas, do not ever leave valuables (wallets, purses, etc.) where they can be taken.

McMaster Security Officers act under the authority of the Ontario Police Act to enforce federal and provincial regulations. They are here to protect, not to harass you. Students who violate these statutes and bylaws are subject to arrest, prosecution and/or disciplinary action under McMaster's Student Code of Conduct.

## EMERGENCY

The Emergency call number is 88; the office is located in E. T. Clarke 201 and they are responsible for overall security on campus and can be contacted at ext. 24281. In addition they operate a Lost and Found service (ext. 23366). Any materials will be held by them for 60 days.

## INTERNATIONAL STUDENT SERVICES – MACABROAD

The International Student Services in Gilmour Hall, Room 104 is also available to assist you. The extension to contact is 24254. Their email is [iss@mcmaster.ca](mailto:iss@mcmaster.ca). Their internet address is <https://iss.mcmaster.ca/>

## GRADUATE FORMS (students)

<https://gs.mcmaster.ca/resources>

## GRADUATE STUDENT HOLIDAYS

Graduate students should discuss any vacation request with their supervisor(s). Vacation must be approved in advance by the student's supervisor(s). Vacation should not be taken during the academic terms when you are registered for courses and especially if you are assisting with TA duties. Students are asked to inform the W Booth School of Engineering Practice and Technology office when they are going to be away.

The University will be closed for Holidays on the following days for 2019/2020.

|                                   |                     |
|-----------------------------------|---------------------|
| Monday, September 2               | Labour Day Holiday  |
| Monday, October 14                | Thanksgiving Day    |
| Tuesday, December 24              | Floater             |
| Wednesday, December 25            | Christmas Day       |
| Thursday, December 26             | Boxing Day          |
| Friday, December 27               | Floater             |
| Monday, December 30               | Floater             |
| Tuesday, December 31              | Floater             |
| Wednesday January 1 <sup>st</sup> | New Year's Day 2020 |
| Monday, February 17               | Family Day          |
| Friday, April 10                  | Good Friday         |
| Monday, May 18                    | Victoria Day        |
| Wednesday, July 1                 | Canada Day          |
| Monday, August 3                  | Civic Holiday       |

## OTHER ADMINISTRATIVE INFORMATION

### Graduate Studies

If you have administrative questions, and the W Booth School of Engineering Practice and Technology administration cannot help you, the following Graduate Studies Staff can help you in the following areas by email:

- **Scholarship Competitions:**

(905) 525-9140, ext. 28067, Antonella (Toni) Masciantonio, [masciana@mcmaster.ca](mailto:masciana@mcmaster.ca)

- **Payroll and Employment Regulations:**

Dina Lopresti, (905) 525-9140, ext. 23686, [loprest@mcmaster.ca](mailto:loprest@mcmaster.ca)

Lorna Thomas (905) 525 9140 ext. 24258, [lthomas@mcmaster.ca](mailto:lthomas@mcmaster.ca)

- **General Inquiries**, ext. 23679 [askgrad@mcmaster.ca](mailto:askgrad@mcmaster.ca)

## PARKING AND TRANSIT SERVICES

There are a limited number of parking facilities on campus. Travel to and from the University on foot, by bicycle, by public transportation or in car pools are encouraged. To find out more about our on-campus car pool program please visit the ACT Office (All-modes Commuting Transportation office) website at:

[http://www.mcmaster.ca/sustainability/alternative\\_transportation.html](http://www.mcmaster.ca/sustainability/alternative_transportation.html)

If you do require parking for an extended period, please contact the Parking Office in the E. T. Clarke Centre, Room 201, where you will have to present a current University Identification Card, vehicle registration and payment of the parking fee. Special arrangements can be made for disabled parking privileges.

### **STUDENT SAFETY SERVICE - SWHAT (27500)**

During the months of September through April, students operate a safety service, "Student Walk Home Attendant Team" (SWHAT). After dark, if you telephone ext. 27500, you can arrange to be escorted to your car or residence by a male and a female student. This service is provided for your protection and should therefore be utilized.

During the months, May to August, the Campus Security will look after escorting you to your car or residence. The extension is the same - 27500.

### **HOUSING**

In order to help students get started in their search for housing, the University operates an Off-Campus Resource Centre. A current list of prospective housing accommodation in the Hamilton and surrounding areas is available as well as brochures, area maps, transit maps, and telephones for local calls. Staff are available on a year-round basis to assist students in locating suitable housing. This information can be accessed at: <http://macoffcampus.mcmaster.ca/>.

The office is located in the McMaster University Student Centre B112. Enquiries should be directed to the Co-ordinator, (905) 525-9140 Ext. 24086 (email - [ocho@mcmaster.ca](mailto:ocho@mcmaster.ca))

### **APPEAL PROCEDURES**

The University has a responsibility to provide fair and equitable procedures for the lodging and hearing of student complaints arising out of University regulations, policies and actions that affect students directly. The procedures described in the Student Appeal Procedures are intended to provide a mechanism to fairly address alleged injustices.

Students who wish to raise questions or who have a concern are strongly encouraged to communicate informally with their instructors, or the Associate Director, Graduate, or the Associate Dean of Graduate Studies, the University Ombuds, or the appropriate administrative officer before seeking a review under the formal procedures. Experience has shown that many complaints can be resolved satisfactorily through informal communication. Students are requested to speak with the University Secretary regarding a complaint before submitting an application.

Students should seek remedies for their grievances as promptly as possible and must do so within the time limitations set out in the Student Appeal Procedures.

A Master's or Ph.D. thesis, and a Ph.D. comprehensive exam are specifically excluded from the re-read procedures identified in the Student Appeal Procedures. If a student does poorly in any of these examinations, the original examining committee is required to allow the student a second opportunity at the examination after at least a week. If the student fails on that second attempt, no additional examinations are permitted.

The Student Appeal Procedures may be found at:  
<https://www.mcmaster.ca/policy/Students-AcademicStudies/>

## **SCHOOL SPECIFIC - ADMINISTRATIVE INFORMATION**

### **SEMINARS IN THE SCHOOL/PROGRAMS**

All full-time students are required to successfully complete SEP 771 W Booth School of Engineering Practice and Technology Practitioners Forum, Part I & II.

In addition, each program arranges several seminars each year at which outstanding scientists/engineers/entrepreneurial speakers address the faculty and students. Full time graduate students are **REQUIRED** to attend and participate in their program-related seminars.

Seminars are normally advertised 7-10 days in advance by e-mail, as well as posted on the bulletin board in the corridor beside the W Booth School of Engineering Practice and Technology main office and the W Booth School of Engineering website.

### **ETB GRADUATE ROOM ACCESS**

Student lab access will be provided once the student submits the required documents to the Graduate Administrative Assistant). Upon an email to the Hub, cards may be obtained from JHE, room 216A. Please note there is a \$10 deposit fee per card issued. The deposit will be refunded to you when the card is returned to JHE, room 216A.

### **BUILDING HOURS**

The Engineering Technology Building (ETB) will be open for the following hours.

|               |                    |
|---------------|--------------------|
| Mon – Thurs.: | 7:00 am - 11:00 pm |
| Fri/Sat       | 7:00 am - 8:00 pm  |
| Sunday        | 8:00 am - 5:00 pm  |

You will not be able to enter the building outside of these hours without a proximity card.

### **STUDY SPACE**

Students are not assigned to any particular study carrel. Study carrels are available for use on a first come/first served basis. There are lockers for use by our students. We expect the lockers to be available for use September 9, 2018.

Available for your use on the 5<sup>th</sup> floor of ETB:

- Collaborative study areas
- SEPT kitchen area
- Lounge area for our students

### **MAILBOXES**

The mailboxes for graduate students are located in ETB 520, for **MEEI**, **MTEI**, **MEPP**, **MED** and **MEME** students. Please check your mailbox on a regular basis. Presently, our mail is delivered at approximately 2:00 pm.

### **PHOTOCOPYING (located in ETB 524)**

The W Booth has a photocopier. In order to use this copier, you must first obtain a copying account code. Personal copying can be done on this machine at a rate of \$0.06 for black and white copies and \$0.20 for colour copies per page. A code can be obtained from the 2019-20 WBooth School of Engineering Practice and Technology – Avenue to Learn site. Copying is billed at the end of the semester. Please remember to keep the copying account codes private, as you may be held responsible for any copying that occurs on a code you are provided.

### **CHECK-OUT FORM**

In Appendix A you will find a copy of the W Booth School of Engineering Practice and Technology check-out form. This form must be completed by all graduate students when you complete all requirements of the program. This form must be signed by the appropriate individuals in the school before submitting it to the Graduate Administrative Assistant.

### **FINAL SUBMISSION OF PROJECT**

Please follow your programs procedures on how to submit your final project.

# APPENDIX A

## Graduate Forms

### Graduate Student Course Selection Form 2019 – 2020

- *Master of Engineering Entrepreneurship and Innovation Program*  
(with program requirements)
- *Master of Technology Entrepreneurship and Innovation Program*  
(with program requirements)
- *Master of Engineering Design Program* (with program requirements)
- *Master of Engineering and Public Policy Program* (with program requirements)
- *Master of Engineering Manufacturing Engineering Program* (with program requirements)

### Personal Information Form

### Check-out Form

### Photograph Permission Form

**McMaster University**  
**W Booth School of Engineering Practice and Technology**  
**MASTER OF ENGINEERING ENTREPRENEURSHIP & INNOVATION**

Graduate Student Course Selection  
2019 - 2020

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_

Program: \_\_\_\_\_

Student ID: \_\_\_\_\_

Supervisor: \_\_\_\_\_

| Course Name                                              | Course Number | Term | Add (A) or Drop (D)? |
|----------------------------------------------------------|---------------|------|----------------------|
| Academic Research Integrity and Ethics                   | SGS 101       | 1    | A                    |
| Accessibility for Ontarians with Disabilities Act (AODA) | SGS 201       | 1    | A                    |
| Entrepreneurial Opportunity Identification               | SEP 6E03      | 1    | A                    |
| Leadership for Innovation                                | SEP 773       | 1    | A                    |
| Enterprise Opportunity Development                       | SEP 753       | 2    | A                    |
| W Booth SEPT Practitioner's Forum Part I                 | SEP 771       | 1    | A                    |
| W Booth SEPT Practitioner's Forum Part II                | SEP 771       | 2    | A                    |
| Innovation Studio                                        | SEP 772       | 1    | A                    |
| Total Sustainability Management                          | SEP 770       | 2    | A                    |
| Proof of Concept Studio                                  | SEP 790       | 3    | A                    |
|                                                          |               |      |                      |
|                                                          |               |      |                      |
|                                                          |               |      |                      |

\*SGS 700 must be added when the student is not enrolled in any courses for the term.

Graduate students must register for courses online via Mosaic. **Students must consult with their supervisor regarding course selection.** It is the responsibility of the student to ensure that the courses meet the program requirements, and that their course selections are recorded correctly on Mosaic. Any addition or deletion of courses should be approved by the faculty member.

I approve these course selections

\_\_\_\_\_  
Supervisor

\_\_\_\_\_  
Date



## MASTER OF ENGINEERING ENTREPRENEURSHIP AND INNOVATION

The Master of Engineering Entrepreneurship and Innovation program is a fast paced program aimed at highly motivated students. The program will accept full-time students. The full program is expected to take up to 20 months.

A candidate is required to complete successfully two one-term advanced courses and the six compulsory Engineering Entrepreneurship and Innovation module courses. Additionally, full-time students must successfully complete SEP 771 Part I and II and SEP 772. A faculty advisor will assist the student in selecting relevant engineering courses. Students will normally be required to complete two graduate level engineering courses. The objective is to acquire leading-edge engineering skills and apply them to the enterprise project.

McMaster students may receive advanced standing for only one additional courses with the approval of the Associate Dean of Graduate Studies (note that a maximum of two 600-level courses, including mandatory 600 level courses can count towards a SEPT graduate program).

### Innovation and Entrepreneurial Skills Development

Six compulsory enterprise modules will focus on providing the Master's degree candidate basic skills to select an idea with good potential, manage the innovation process, then create and manage the business outcome. The skills will broadly cover all the business life cycle from start, growth and sustainability. The modules will develop an understanding of both the innovation and the entrepreneurial processes through lectures, workshops and hands-on work as well as embed sustainability into their enterprise project as a source of competitive advantage.

Each module is considered the equivalent of a half-course as defined by the School of Graduate Studies, but will contain elements of lecture, group work, presentation and other activities as defined in the course outline. The module courses will be delivered in an intensive format. The module courses are:

**\*6E03 / Entrepreneurial Opportunity Identification (Module 1)**

**\*753/ Enterprise Opportunity Development (Module 2)**

**\*755/ Business Launch and Development (Module 3)**

**\*770/ Total Sustainability Management**

**\*790/ Proof-of-Concept Studio**

**\*773 / Leadership for Innovation**

**771/ W Booth School of Engineering Practice and Technology Practitioner's Forum Part I**

**771/ W Booth School of Engineering Practice and Technology Practitioner's Forum Part II**

**772/ Innovation Studio**

### Enterprise Project

The Engineering Enterprise Project will run throughout the entire study period and will result in both a business and a viable Proof-of-Concept defined as the combination of (i) a technical plan for an engineering prototype product (ideally with an actual prototype device or software produced) plus (ii) an identified customer base and a plan outlining the way to commercialization. The project will bring together the two complementary streams of activities, one technical and the other commercial, to bring an idea to the proof of concept phase. The Entrepreneurial course stream, which will run coincidentally with the advanced engineering studies, will guide the technological work performed in the research laboratory so that the concept becomes, by the end of the degree, the nucleus of a business proposition. The Engineering Enterprise Project will have three phases, which will end with project gate assessments to determine the project's readiness to proceed to the next phase:

**Phase 1 - Project Preparation:** Market research to arrive at a proposed product or service with clear value proposition; define the market for the intended product or service revealing competitive threat, opportunities, and margins and volumes projections; draw up development plans for the product or service indicating the required resources and estimated investment cost; seek the resources within the university and without; build a team of support that might include a partner.

**Phase 2 - Technical Research and the Development of the Engineering Prototype:** Develop an engineering research plan, identifying key issues and opportunities (with the assistance of academic technical and business supervisors); conduct technical research and development; implement the engineering research plan within the research group in the host-engineering department; build a development network within the engineering research community; ready the technology for transfer to market; conduct initial market engagement to get customer feedback and reactions.

**Phase 3 - Technology Transfer to Market:** Apply for IP protection if applicable; develop a path-to-market strategy; develop a business case; seek out financing and explore business arrangements; plan for business start-up. Each phase has two equally important components, one technical and the other business:

**Phase I:** Concept initiation proposal; Technology development plan presentation and documentation

**Phase II:** Technical Proof-of-concept; Draft financial plan presentation and documentation

**Phase III:** Business Strategy and Go-to-market plan or a Venture feasibility presentation and documentation

The Phase III evaluation will be a defence of your project in an oral examination to your board (technical advisor, enterprise advisor, business advisor, second faculty member and the community engagement coordinator). Candidates are required to complete and pass through each phase in order to graduate.

#### 2.6.5 Required Course for All Graduate Students

All graduate students must complete the course *SGS #101- Academic Research Integrity and Ethics* and *SGS 201#*, *AODA* within the first month after their admission to graduate studies at McMaster. A graduate student may not obtain a graduate degree at McMaster without having passed these courses. In the event that a student fails these courses, they must retake it at the earliest opportunity. The course description for *SGS 101#* and *SGS 201#* may be found in the School of Graduate Studies Calendar.

**McMaster University**  
**W Booth School of Engineering Practice and Technology**  
**MASTER OF TECHNOLOGY ENTREPRENEURSHIP & INNOVATION**

Graduate Student Course Selection  
2019 - 2020

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_ Program: \_\_\_\_\_

Student ID: \_\_\_\_\_ Supervisor: \_\_\_\_\_

| Course Name                                              | Course Number | Term | Add (A) or Drop (D)? |
|----------------------------------------------------------|---------------|------|----------------------|
| Academic Research Integrity and Ethics                   | SGS 101       | 1    | A                    |
| Accessibility for Ontarians with Disabilities Act (AODA) | SGS 201       | 1    | A                    |
| Entrepreneurial Opportunity Identification               | SEP 6E03      | 1    | A                    |
| Leadership for Innovation                                | SEP 773       | 1    | A                    |
| Enterprise Opportunity Development                       | SEP 753       | 2    | A                    |
| W Booth SEPT Practitioner's Forum Part I                 | SEP 771       | 1    | A                    |
| W Booth SEPT Practitioner's Forum Part II                | SEP 771       | 2    | A                    |
| Innovation Studio                                        | SEP 772       | 1    | A                    |
| Total Sustainability Management                          | SEP 770       | 2    | A                    |
| Proof of Concept Studio                                  | SEP 790       | 3    | A                    |
|                                                          |               |      |                      |
|                                                          |               |      |                      |
|                                                          |               |      |                      |

\*SGS 700 must be added when the student is not enrolled in any courses for the term.

Graduate students must register for courses online via Mosaic. **Students must consult with their supervisor regarding course selection.** It is the responsibility of the student to ensure that the courses meet the program requirements, and that their course selections are recorded correctly on Mosaic. Any addition or deletion of courses should be approved by the faculty member.

I approve these course selections

\_\_\_\_\_  
Supervisor

\_\_\_\_\_  
Date



## MASTER OF TECHNOLOGY ENTREPRENEURSHIP AND INNOVATION

The Master of Technology Entrepreneurship and Innovation program is a fast paced program aimed at highly motivated students. The program will accept full time students. The full program is expected to take up to 20 months full-time.

A candidate is required to complete successfully two one-term advanced graduate courses and the six compulsory Entrepreneurship and Innovation module courses. Additionally, full-time students must successfully complete SEP 771 part I and II and SEP 772. A faculty advisor will assist the student in selecting relevant graduate courses. Students will normally be required to complete two graduate level courses. The objective is to acquire leading-edge skills and apply them to the enterprise project.

In addition, McMaster students may receive advanced standing for only one additional course (note that a maximum of two 600-level courses can count towards a SEPT graduate program including mandatory 600-level courses) with approval of the Associate Dean of Graduate Studies.

### Innovation and Entrepreneurial Skills Development

Six compulsory enterprise modules will focus on providing the Master's degree candidate with basic skills to select an idea with good potential, manage the innovation process, then create and manage the business outcome. The skills will broadly cover all the business cycle from start, growth and sustainability. The modules will develop an understanding of both the innovation and the entrepreneurial processes through lectures, workshops and hands-on work, as well as embed sustainability into their enterprise project as a source of competitive advantage.

Each module is considered the equivalent of a half-course as defined by the School of Graduate Studies, but will contain elements of lecture, group work, presentation and other activities as defined in the course outline. The module courses will be delivered in an intensive format. The module courses are:

**\*6E03 / Entrepreneurial Opportunity Identification (Module 1)**

**\*753/ Enterprise Opportunity Development (Module 2)**

**\*755/ Business Launch and Development (Module 3)**

**\*770/ Total Sustainability Management**

**\*790/ Proof-of-Concept Studio**

**\*773 / Leadership for Innovation**

**771/ W Booth School of Engineering Practice and Technology Practitioner's Forum Part I**

**771/ W Booth School of Engineering Practice and Technology Practitioner's Forum Part II**

**772/ Innovation Studio**

### Enterprise Project

The Enterprise Project will run throughout the entire study period and will result in both a business and a viable Proof-of-Concept defined as the combination of (i) a technical plan for an engineering prototype product (ideally with an actual prototype device or software produced) plus (ii) an identified customer base and a plan outlining the way to commercialization. The project will bring together complementary streams of activities, one technical and the other commercial to bring an idea to the proof of concept phase. The Entrepreneurial course stream, which will run concurrently with the advanced engineering studies will guide the technological work performed in the research laboratory so that the concept becomes, by the end of the degree, the nucleus of a business proposition.

The Enterprise Project will have three phases, which will end with project gate assessments to determine the project's readiness to proceed to the next phase:

**Phase 1 - Project Preparation:** Market research to arrive at a proposed product or service with clear value proposition; define the market for the intended product or service revealing competitive threat, opportunities, and margins and volumes projections; draw up development plans for the product or service indicating the required resources and estimated investment cost; seek the resources within the university and without; build a team of support that might include a partner.

**Phase 2 - Technical Research and the Development of the Prototype:** Develop a research plan, identifying key issues and opportunities ( with the assistance of academic technical and business supervisors); conduct technical research and development; implement the engineering research plan within the research group in the host-engineering department; build a development network within the engineering research community; ready the technology for transfer to market; conduct initial market engagement to get customer feedback and reactions.

**Phase 3 - Technology Transfer to Market:** Apply for IP protection if applicable; develop a path-to-market strategy; develop a business case; seek out financing and explore business arrangements; plan for business start-up. Each phase has two equally important components, one technical and the other business:

**Phase I:** Concept initiation proposal; Technology development plan presentation and documentation

**Phase II:** Technical Proof-of-concept; Draft financial plan presentation and documentation

**Phase III:** Business Strategy and Go-to-market plan or a Venture feasibility presentation and documentation

The Phase III evaluation will be a defence of your project in an oral examination to your board (technical advisor, enterprise advisor, business advisor, second faculty member and the community engagement coordinator). Candidates are required to complete and pass through each phase in order to graduate.

### 2.6.5 Required Course for All Graduate Students

All graduate students must complete the course *SGS #101- Academic Research Integrity and Ethics* and *SGS 201#*, *AODA* within the first month after their admission to graduate studies at McMaster. A graduate student may not obtain a graduate degree at McMaster without having passed these courses. In the event that a student fails these courses, they must retake it at the earliest opportunity. The course description for *SGS 101#* and *SGS 201#* may be found in the School of Graduate Studies Calendar.

**McMaster University**  
**W Booth School of Engineering Practice and Technology**  
**MASTER OF ENGINEERING DESIGN**

Graduate Student Course Selection  
2019 – 2020

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_

Program: \_\_\_\_\_

Student ID: \_\_\_\_\_

Supervisor: \_\_\_\_\_

| Course Name                                                     | Course Number | Term | Add (A) or Drop (D)? |
|-----------------------------------------------------------------|---------------|------|----------------------|
| Academic Research Integrity and Ethics                          | SGS 101       | 1    | A                    |
| Accessibility for Ontarians with Disabilities Act (AODA)        | SGS 201       | 1    | A                    |
| M.Eng. Project in Engineering Design, Part I                    | SEP 700       | 2    | A                    |
| M.Eng. Project in Engineering Design, Part II                   | SEP 700       | 3    | A                    |
| Design Thinking                                                 | SEP 760       | 1    | A                    |
| W Booth SEPT practitioner's Forum, Part I (full time students)  | SEP 771       | 1    | A                    |
| W Booth SEPT practitioner's Forum, Part II (full time students) | SEP 771       | 2    | A                    |
| Innovation Studio                                               | SEP 772       | 1    | A                    |
| Leadership for Innovation                                       | SEP 773       | 2    | A                    |
| Human-Centred Design                                            | SEP 761**     | 2    | A                    |
|                                                                 |               |      |                      |
|                                                                 |               |      |                      |
|                                                                 |               |      |                      |
|                                                                 |               |      |                      |

\*\* This course is **strongly recommended** for Product Design students

Graduate students must register for courses online via Mosaic. **Students must consult with the program lead regarding course selection.** It is the responsibility of the student to ensure that the courses meet the program requirements, and that their course selections are recorded correctly on mosaic. Any addition or deletion of courses should be approved by the program lead.

I approve these course selections

\_\_\_\_\_  
Faculty member

\_\_\_\_\_  
Date

## MASTER OF ENGINEERING DESIGN

### Curriculum

#### The curriculum has three main components:

- 1. Professional Development** courses that will enable M.Eng. Design graduates to deal with complex situations in the work environment, to lead teams, and to manage projects.
- 2. Courses Relevant to the selected stream:** some courses are mandatory for a given stream while others are elective.
- 3. An M.Eng. project** that requires synthesis of knowledge from various disciplines.

#### Process and Production Systems

Candidates are required to take the following:

SEP 700/ M.Eng. Project in Engineering Design Part I  
SEP 700/ M.Eng. Project in Engineering Design Part II  
SEP 760/ Design Thinking  
SEP 771/ W Booth School of Engineering Practice and Technology: Practitioner's Forum Part I (Full-time students only)  
SEP 771/ W Booth School of Engineering Practice and Technology: Practitioner's Forum Part II (Full-time students only)  
SEP 772 / Innovation Studio  
SEP 773 / Leadership for Innovation

Elective Technical Courses: Participants are required to select four half courses which should be selected from graduate courses offered by departments within the Faculty of Engineering. Students are required to have their elective course selection approved by the program lead.

Recommended courses for students focusing on Process Design, Process Control, or Plant Operations include:

\*751 / Process Design and Control for Operability  
\*752/ Systems modeling and Optimization  
\*754 / Process Design and Integration for Minimal Environmental Impact  
Chem Eng \*752/ Optimization of Chemical Processes  
SEP 767/ Chem Eng \*765/ Multivariate Statistical Methods for Big data Analysis and Process Improvement

#### Statistical Methods for Big Data Analysis and Process Improvement

Comp Sci 6F03 / Distributed Computer Systems  
CAS\*704 / Embedded, Real-Time Software Systems  
CAS\*703 / Software Design  
Chem Eng 6E03/ Digital Computer Process Control  
ECE 732/ Non-Linear Control Systems  
ECE 771/ Algorithms for Parameter and State Estimation  
ECE 772/ Neural Networks and Learning Machines

#### Product Design

Candidates are required to take the following:

SEP 700/ M.Eng. Project in Engineering Design Part I  
SEP 700/ M.Eng. Project in Engineering Design Part II  
SEP 760/ Design Thinking  
SEP 771/ W Booth School of Engineering Practice and Technology: Practitioner's Forum Part I (Full-time students only)  
SEP 771/ W Booth School of Engineering Practice and Technology: Practitioner's Forum Part II (Full-time students only)  
SEP 772 / Innovation Studio  
SEP 773 / Leadership for Innovation **OR** SEP 6EL3 / Leading Innovation

#### Strongly recommended:

SEP 757/ Hardware Prototyping Tools and Methods **OR** SEP 758/ Prototyping Tools (Mobile Applications)  
SEP 761/ Human-Centred Design

Other recommended electives include:

SEP 6CG3 / Fundamentals of computer graphics and animation development  
SEP 6VE3 / Visual effects and animation production technology  
SEP 714 / Workflow Management for Animated Prototypes  
SEP 715 / Rendering techniques  
SEP 791 / Augmented Reality, Virtual Reality and Mixed Reality  
SEP 792 / GPU Intensive applications for real-time projects

**Electives:** Candidates are required to take four half courses which should be selected from graduate courses offered by departments within the Faculty of Engineering. Candidates are required to have their elective course selection approved by the program lead.

All graduate students, including part-time students, must complete the course SGS #101- Academic Research Integrity and Ethics and SGS 201#, AODA within the first month after their admission to graduate studies at McMaster. A graduate student may not obtain a graduate degree at McMaster without having passed these courses. In the event that a student fails these courses, they must retake it at the earliest opportunity. The course description for SGS 101# and SGS 201# may be found in th

**McMaster University**  
**W Booth School of Engineering Practice and Technology**  
**MASTER OF ENGINEERING & PUBLIC POLICY**

Graduate Student Course Selection  
2019 - 2020

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_ Program: \_\_\_\_\_

Student ID: \_\_\_\_\_ Supervisor: \_\_\_\_\_

| Course Name      | Course Number | Term | Add (A) or Drop (D)? |
|------------------|---------------|------|----------------------|
| Research/Writing | SGS 700*      |      | A                    |
|                  |               |      |                      |
|                  |               |      |                      |
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|                  |               |      |                      |

**\*SGS 700 must be added when the student is not enrolled in any courses for the term.**

Graduate students must register for courses online via Mosaic. **Students must consult with a faculty member regarding course selection.** It is the responsibility of the student to ensure that the courses meet the program requirements, and that their course selections are recorded correctly on Mosaic. Any addition or deletion of courses should be approved by the faculty member.

I approve these course selections

\_\_\_\_\_  
Faculty member

\_\_\_\_\_  
Date



## MASTER OF ENGINEERING AND PUBLIC POLICY

### Curriculum

The curriculum has the following main components:

1. Core courses that provide the content and methodological skills necessary for understanding and analyzing societal issues for which engineering and science can contribute to public policy solutions;
2. Focus elective courses that allow students to deepen their knowledge of a range of engineering, science and social science applications;
3. The completion of a substantive research paper on a problem at the interface of engineering, science and public policy

### Research Project - Inquiry/Thesis in Engineering and Public Policy

Students select a research topic at the interface of engineering, science and public policy which is of interest to them and carries out inquiry-driven research; completes a formal research paper and prepares to publish their results for broad dissemination.

Candidates for the MEPP degree will follow a program consisting of the following:

#### 1. Required Courses

Four half-courses:

- \*701 / Theory and Practice of Policy Analysis: Frameworks and Models
- \*702 / Systems Engineering and Public Policy
- \*709 / Emerging Issues, Technology and Public Policy
- \*773/ Leadership for Innovation **OR** SEP 6EL3 / Leading Innovation
- \*704/ Public Policy Research Project

**In addition students are required to take:**

- SEP 771 / W Booth School of Engineering Practice and Technologx Practitioner's Forum Part I (full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technologx Practitioner's Forum Part II (full-time students only)
- SEP 772 / Innovation Studio

#### 2. Focus Elective Courses

Three half-courses are required for electives. Students may select from the following options:

- \*6I03 / Sustainable Manufacturing Processes
- \*6X03/ Livable Cities, The Built and Natural Environment
- \*705 / Green Engineering, Sustainability and Public Policy
- \*706 / Energy and Public Policy
- \*707 / Communication Technology and Public Policy
- \*708 / Special Topics in Engineering and Public Policy
- \*710 / International Governance and Environmental Sustainability
- Pol Sci \*784 / Quantitative Political and Policy Analysis
- Pol Sci \*785 / Public Sector Management
- Pol Sci\* 790 / The Politics of Economic Policy in Market Economics

- Up to two graduate engineering half courses from departments within the Faculty of Engineering
- Other courses in other departments and Faculties with approval of the Associate Director of the Graduate Studies in SEPT.

#### 2.6.5 Required Course for All Graduate Students

All graduate students, including part-time students, must complete the course SGS #101- Academic Research Integrity and Ethics and SGS 201#, AODA within the first month after their admission to graduate studies at McMaster. A graduate student may not obtain a graduate degree at McMaster without having passed these courses. In the event that a student fails these courses, they must retake it at the earliest opportunity. The course description for SGS 101# and SGS 201# may be found in the School of Graduate Studies Calendar.

**McMaster University**  
**W Booth School of Engineering Practice and Technology**  
**MASTER OF ENGINEERING MANUFACTURING ENGINEERING**

Graduate Student Course Selection  
2019 – 2020

Date: \_\_\_\_\_

Student Name: \_\_\_\_\_ Program: \_\_\_\_\_

Student ID: \_\_\_\_\_ Supervisor: \_\_\_\_\_

| Course Name                                                        | Course Number  | Term | Add (A) or Drop (D)? |
|--------------------------------------------------------------------|----------------|------|----------------------|
| Research/Writing                                                   | SGS 700*       |      | A                    |
| Project, Part I                                                    | Manufact 701** |      | A                    |
| Project, Part II                                                   | Manufact 701** |      | A                    |
| W Booth SEPT Practitioner's forum,<br>Part I (full time students)  | SEP 771        | 1    | A                    |
| W Booth SEPT Practitioner's forum,<br>part II (full time students) | SEP 771        | 2    | A                    |
|                                                                    |                |      |                      |
|                                                                    |                |      |                      |
|                                                                    |                |      |                      |
|                                                                    |                |      |                      |
|                                                                    |                |      |                      |
|                                                                    |                |      |                      |

\*SGS 700 must be added when the student is not enrolled in any courses for the term.

\*\*Manufact 701, part I & II must be added for the project based stream the last term you are completing your project

Graduate students must register for courses online via Mosaic. **Students must consult with the program lead regarding course selection.** It is the responsibility of the student to ensure that the courses meet the program requirements, and that their course selections are recorded correctly on mosaic. Any addition or deletion of courses should be approved by the program lead.

I approve these course selections

\_\_\_\_\_  
Faculty member

\_\_\_\_\_  
Date

\_\_\_\_\_  
Faculty member

\_\_\_\_\_  
Date



## Master of Engineering Manufacturing Engineering

Students are required to successfully complete a compulsory full year project course and six graduate half courses (or equivalent), of which at least four must be 700 level and up to two 600 level courses approved by the program director. Two of these 600 level courses can be taken in the final undergraduate year at McMaster for graduate credit provided they are listed as option courses.

Half courses are marked with an asterisk (\*) and quarter courses are marked with a pound sign (#). Students should note that not all option courses are offered every year.

### Courses

#### Compulsory Courses:

- MANUF 701 / Project, Part I (Please note that this course is only required for students in the project option of the program)
- MANUF 701 / Project, Part II (Please note that this course is only required for students in the project option of the program)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (full-time students only)

#### Optional Courses

Students will select any combination from the list below totaling six half courses for the project based or eight for the course-based option, of which a maximum of two half courses can be taken at the 600 level. Two of these 600 level courses can be taken in the final undergraduate year for graduate credit. Other manufacturing-related courses may be substituted with permission of the Program lead. Note that not all courses are offered every year.

#### Manufacturing Engineering Courses

- MANUF 6RM3 / Robot Mechanics and Mechatronics
- MANUF 710 / SYSTEM ANALYSIS SIMULATION

#### Chemical Engineering

- CHEM ENG 6B03 / Polymer Reaction Engineering
- CHEM ENG 6E03 / Digital Computer Process Control
- CHEM ENG 6X03 / Polymer Processing
- CHEM ENG 6Z03 / Interfacial Engineering
- CHEM ENG 742 / Membrane Based Bioseparations
- CHEM ENG 752 / Optimization of Chemical Processes
- CHEM ENG 753 / Systems Modeling and Optimization
- CHEM ENG 761 / Multivariable, Stochastic and Adaptive Control of Chemical Processes
- CHEM ENG 764 / Process Control Design
- CHEM ENG 765 / Multivariate Statistical Methods for Process Analysis and Monitoring
- CHEM ENG 770 / Selected Topics in Polymer Science and Engineering
- CHEM ENG 772 / Polymer Rheology
- CHEM ENG 773 / Advanced Concepts of Polymer Extrusion
- CHEM ENG 774 / Advances in Polymeric Materials
- CHEM ENG 782 / Biopharmaceuticals
- CHEM ENG 786# / Artificial Intelligence and Machine Learning Fundamentals
- CHEM ENG 787# / Machine Learning : Classification Models
- CHEM ENG 788# / Neural Networks and Development Tools
- CHEM ENG 789# / Deep Learning and Its Applications
- CHEM ENG 791 / Nanotechnology in Chemical Engineering

#### Materials Science and Engineering

- MATLS 6C03 / Modern Iron and Steelmaking
- MATLS 6D03 / Corrosion
- MATLS 6H03 / Thin Film Science and Engineering
- MATLS 6I03 / Sustainable Manufacturing Processes
- MATLS 6P03 / Properties of Polymeric Materials
- MATLS 6T03 / Properties and Processing of Composites
- ENGINEER 6T04 / Materials Selection in Design and Manufacturing
- MATLS 754 / Fracture Mechanics
- MATLS 755 / Deformation of Crystalline Solids
- MATLS 760 / Electronic Materials
- MATLS 771 / Principles of Heterogeneous Kinetics
- MATLS 780 / Metallic and Non-metallic Coatings

### **Mechanical Engineering**

- MECH ENG 6B03 / Topics in Product Development
- MECH ENG 6K03 / Robotics
- MECH ENG 6L03 / Industrial Design
- MECH ENG 6Q03 / Mechanical Vibrations
- MECH ENG 6T03 / Finite Element Applications
- MECH ENG 6Z03 / CAD/CAM/CAE
- MECH ENG 702 / Advanced Dynamics of Machines
- MECH ENG 705 / Advanced Finite Element Analysis
- MECH ENG 710 / Machine Tool Analysis
- MECH ENG 714 / Solidification Processing
- MECH ENG 724 / Solid and Surface Modeling Techniques
- MECH ENG 728 / Manufacturing Processes I
- MECH ENG 729 / Manufacturing Systems
- MECH ENG 734 / Theory of Plasticity
- MECH ENG 738 / Manufacturing Processes II
- MECH ENG 743 / Advanced Mechatronics
- MECH ENG 751 / Advanced Mechanical Engineering Control Systems
- MECH ENG 752 / Advanced MEMS Fabrication and Microfluidics
- MECH ENG 759 / Hardware Prototyping Tools and Methods
- MECH ENG 760 / Electric Drive Vehicles

**A Maximum of two courses can be selected from the following list:**

### **Electrical Engineering**

- ECE 710 / Engineering Optimization
- ECE 732 / Non-linear Control Systems
- ECE 736 / 3D Image Processing and Computer Vision
- ECE 744 / System-on-a-Chip (SOC) Design and Test: Part I - Methods
- ECE 772 / Neural Networks and Learning Machines
- ECE 778 / Introduction to Nanotechnology

### **Software Engineering**

- SFWR ENG 6HC3 / The Human Computer Interface

### **Computer Science**

- COMP SCI 6F03 / Distributed Computer Systems
- COMP SCI 6TE3 / Continuous Optimization

### **Computing and Software**

- CAS 767 / Information Privacy and Security
- CAS 771 / Introduction to Big Data Systems and Applications

### **School of Engineering Practice and Technology**

- SEP 6AS3 / Advanced System Components and Integration
- SEP 6AT3 / Conceptual Design of Electric and Hybrid Electric Vehicles
- SEP 6DM3 / Data Mining
- SEP 735 / ADDITIVE MANUFACTURING
- SEP 748 / Development of Sustainable Communities
- SEP 751 / Process Design and Control for Operability
- SEP 752 / Systems Modeling and Optimization
- SEP 754 / Process Design and Integration for Minimal Environmental Impact
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (full-time students only)
- SEP 780 / Advanced Robotics and Automation

### **Manufacturing Engineering**

- MANUF 6RM3 / Robot Mechanics and Mechatronics
- MANUF 710 / SYSTEM ANALYSIS SIMULATION

**W Booth School of Engineering Practice and Technology  
2019 – 2020  
Personal Information Form**

STUDENT NO: \_\_\_\_\_

NAME: \_\_\_\_\_  
Last First Initial

LOCAL ADDRESS: \_\_\_\_\_  
Street Apt.

\_\_\_\_\_ Town/City Province Postal Code

TELEPHONE \_\_\_\_\_  
Home Work Cell

EMAIL ADDRESS: \_\_\_\_\_@mcmaster.ca

ALTERNATE EMAIL ADDRESS: \_\_\_\_\_

ENROLLMENT DATA: MED ☐ MEEI ☐ MTEI ☐ MEPP ☐ MEME ☐

Undergraduate degree DISCIPLINE: \_\_\_\_\_

CURRENT STATUS IN CANADA: \_\_\_\_\_ Canadian Citizen  
\_\_\_\_\_ Permanent Resident (Landed Immigrant)  
\_\_\_\_\_ Student Authorization (Visa)  
\_\_\_\_\_ Other

BIRTH DATE Month\_\_\_\_Day\_\_\_\_Year \_\_\_\_\_

**\*\*\* IF YOU CHANGE YOUR ADDRESS OR STATUS IN CANADA, PLEASE INFORM W BOOTH AND  
UPDATE YOUR INFORMATION IN MOSAIC\*\*\***

## W Booth School of Engineering Practice & Technology Check-Out Form

This form must be completed by all School staff, faculty and all graduate/undergraduate students (as pertaining to individual areas) before leaving W Booth School of Engineering Practice. Please return the completed form to the Graduate Administrative Assistant.

**NAME:** \_\_\_\_\_

**PHOTOCOPY CHARGES:** All photocopy charges have been paid by the student

**KEYS:** All keys have been returned.

**OFFICE SPACE:** Left tidy and free of personal belongings.

**MAILBOX:** All mail has been picked up from your mailbox

**LOCKER:** Cleared out, lock left on locker.

**EXPENSES:** All travel/advance requests cleared. All project funding reconciled

**PRINCIPAL INVESTIGATOR REPORT:** If you received funding from an external agency has the final report been completed and submitted?

**FORWARDING ADDRESSES:**

Home Address

Work Address

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |

Phone No.: \_\_\_\_\_

**E-mail** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SIGNATURES:**

\_\_\_\_\_  
Applicant

\_\_\_\_\_  
(Keys) JHE-216A

The hub

\_\_\_\_\_  
Business Manager, W Booth SEPT (Funding, External Agency Report)

\_\_\_\_\_  
Graduate Administrative Assistant (Photocopy charges, Office Space)

## Photograph/Image Consent Form

I, \_\_\_\_\_, hereby grant permission to W Booth School of Engineering Practice and Technology/McMaster University and its representatives to photograph and video me, and otherwise capture my image, and to make recordings of my voice. I further grant to McMaster University and its representatives the right to reproduce, use, exhibit, display, broadcast and distribute these images and recordings in any media now known or later developed for promoting, publicizing or explaining W Booth School of Engineering Practice and Technology, at McMaster University and its activities and for administrative, educational or research purposes.

I agree and acknowledge that any photographs, video images and voice recordings taken of me will become the property of McMaster University and may be used by W Booth School of Engineering Practice and Technology at McMaster University for a maximum period of five (5) years I irrevocably and expressly waive all moral rights that I have in any photographs, video images and voice recordings; and I waive any right to approve how any photographs, video images and/or voice recordings will be used by McMaster University. I hereby release McMaster University from any liabilities, obligation for financial payment or recognition.

In addition, should I wish to have my name, portrait, picture or photograph removed I am to contact the Program Administrator at [wbooth@mcmaster.ca](mailto:wbooth@mcmaster.ca).

I confirm that I am over 19 years of age and that I have not given anyone the exclusive right to use my name, portrait, picture or photograph.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### Notice of collection of personal information

By taking my photograph, whether by still photograph, film or video and/or taping my voice, I acknowledge that W Booth School of Engineering Practice and Technology is collecting my personal information as defined by the Freedom of Information and Protection of Privacy Act of Ontario (RSO 1990). The personal information is collected under the authority of The McMaster University Act, (1976). The information is used for public relations purposes of W Booth School of Engineering Practice and Technology including, but not limited to, publications, websites and materials promoting W Booth School of Engineering Practice and Technology. Personal information will not be used for any unrelated purpose without prior consent. This information is protected and is being collected pursuant to section 39(2) and section 42 of the Freedom of Information and Protection of Privacy Act of Ontario (RSO 1990). Questions regarding the collection or use of this personal information should be directed to the Administrator, W Booth School of Engineering Practice and Technology.