



School of Graduate Studies

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To : Members of Graduate Council

From : Christina Bryce
Assistant Graduate Secretary

The next meeting of Graduate Council will be held on **Tuesday February 18th at 9:30 am in Council Chambers (GH-111)**

Listed below are the agenda items for discussion.

Please email cbryce@mcmaster.ca if you are unable to attend the meeting.

A G E N D A

- I. Minutes of the meeting of January 21st, 2019**
- II. Business arising**
- III. Report from the Vice-Provost and Dean of Graduate Studies**
- IV. Report from the Graduate Associate Deans**
- V. Report from the Associate Registrar and Graduate Secretary**
- VI. Faculty of Engineering Graduate Curriculum and Policy Committee Report**
- VII. Faculty of Health Sciences Graduate Policy and Curriculum Committee Report**
- VIII. Faculty of Social Sciences Graduate Curriculum and Policy Committee Report**
- IX. New Scholarship**
- X. Discussion of Thesis Submission Grace Period**

Tuesday January 21st at 9:30 am in Council Chambers (GH-111)

Present: Dr. D. Welch (Chair), Dr. K. Hassanein, Dr. S. Hanna, Dr. M. Horn, Dr. J. Gillett, Dr. M. Thompson, Dr. B. Gupta, Dr. C. Kwan, Dr. L. Chan, Dr. D. Mountain, Dr. J. Kish, Dr. I. Bruce, Dr. S. Dickson, Dr. L. Thabane, Dr. S. Pope, Dr. S. Bannerman, Dr. M. Stroinska, Dr. J. Shedden, Dr. N. Tan, Dr. N. McLaughlin, Dr. M.A. Letendre, Mr. M. Lightsone, Ms. J. de Lange, Ms. L. Greville, Ms. S. Zakaria, Ms. C. Lopez, Ms. C. Bryce (Assistant Graduate Secretary),

Regrets: Ms. V. Lewis, Dr. S. Raha, Dr. J. West-Mays, Dr. J. Xu

Attendees: Ms. N. Taylor, Dr. C. van der Linden

I. Minutes of the meeting of November 19th, 2019

It was duly moved and seconded, **‘that Graduate Council approve the minutes of the meeting of November 19th, 2019.’**

The motion was **carried**.

II. Business arising

There was no business arising.

III. Report from the Vice-Provost and Dean of Graduate Studies

Dr. Welch reported on the following items:

- McMaster has submitted the proposed third Strategic Mandate Agreement to the MTCU who will review and request adjustments, the expectation is that the agreement will be finalized sometime in March;
- The inaugural international graduate student coordinator has been hired away to a different position in the student success centre;
- The graduate admissions project underway and they are very close to picking a vendor to dramatically improve the current system and process;
- The Iranian students lost in a plane crash, noting that they were working on impactful research in Automotive Research Centre. He mentioned the powerful memorial service that had already been held and noted that McMaster will be celebrating the students’ lives and contributions in various ways going forward.

IV. Report from the Graduate Associate Deans

Dr. Hanna (Faculty of Health Sciences) reported on the following items:

- The research plenary, noting that they were planning to increase the prestige of the awards;
- The plan to strike a working group to discuss rubrics and grading for group work.

Dr. Gupta (Faculty of Science) reported on the following items:

- An open house for undergraduate students interested in pursuing graduate studies in science;
- An alumni social event, noting that senior students tend to benefit the most and can ask questions of alumni.

Dr. Thompson (Faculty of Engineering) reported on the following items:

- Engineering also has an undergraduate coffee house, intending to get students to think about graduate studies which they've found is a good opportunity for undergraduate students to meet faculty members that are beginning to think and look for research partners;
- Further work on the discussion of microcredentials, noting that the Secretariat is working to pull committee together and that McMaster needs a definition before they can utilize them.

Drs. Gillet, Horn and Hassanein had no report.

V. Report from the Associate Registrar and Graduate Secretary

There was no report.

VI. New Program Proposal

Dr. Gillet presented the proposal, introducing Dr. van der Linden, and noting that the proposed program is a one-year professional masters to be offered out of the Faculty of Social Sciences, in collaboration with Business and Humanities. He explained that while most programs are run out of a department or an institute this program will be run out of the Faculty office, in collaboration with departments within the Faculty of Social Sciences as well as Business and Humanities.

Council members discussed the potential for perceived overlap between this and the Master of Engineering and Public Policy within the Faculty of Engineering. Dr. Thompson noted that he saw a distinct difference between the two, despite a recent proposal to change the admission requirements for the program from Engineering and noted that there should be additional discussion to ensure differentiation could be clearly articulated.

Council members discussed the timing for admission and whether competence would be required as part of their admission requirements. Dr. van der Linden said that they're expecting students to be building technical skills within the program, developing graduates with the ability to be public policy leaders who can speak to teams that have expertise in certain areas and that all students to be would have completed their undergraduate requirements before starting the program in May.

In response to a question Dr. Gillet confirmed the program would not be funded by the ministry.

In response to a question about the sustainability of a skills development lab, which would require industry experts, Dr. van der Linden noted that the relationships would require consistent maintenance but that they had had many discussion with different levels of government and private companies and there was a lot of interest and recognized need for students with the skills the program would provide. Council members discussed the approval process for a new program.

In response to a question Dr. van der Linden explained that the zero-unit course was required and not a microcredential.

It was duly moved and seconded, **‘that Graduate Council approve the proposed new program as described in the document.’**

The motion was **carried**.

VII. Faculty of Engineering Graduate Curriculum and Policy Committee Report

Dr. Thompson noted that there are bringing forward for information and number of new courses and cancellations. The first item for approval was a reduction in course requirements for the Ph.D. in Electrical Engineering. The second item for approval was a change from Materials Science and Engineering – after an IQAP review noting that their M.Sc. and M.A.Sc. were essentially identical, the program proposed discontinuing (being fully closed once students enrolled have completed) the M.Sc. and renaming the M.A.Sc. to Materials Science and Engineering.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Engineering as described in the documents.’**

The motion was **carried**.

VIII. Faculty of Business Graduate Curriculum and Policy Committee Report

Dr. Hassanein presented items from three areas for approval. The first was a change to calendar copy from Health Management, providing clarity between the full-time and part-time options in terms of courses required. The second item was related to the Blended Learning Part-Time MBA and included a change in course requirements and calendar copy. The program proposed moving three units from term 8 to term 9, cleaning up some of the discrepancies in the title of the integration project, and the addition of blended learning electives. The final item was changes from professional accountancy. They proposed a change to admission requirements and their grading scale both changes were intended to bring the program in line with SGS requirements.

Council member discussed how the blended learning courses were offered.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Business as described in the documents.’**

The motion was **carried**.

IX. Faculty of Social Sciences Graduate Curriculum and Policy Committee Report

Dr. Gillet introduced the changes. The first were from Anthropology and involved the addition of a mandatory professional development course. The department of Economics proposed changes to their available comprehensive fields, to align with faculty expertise and the introduction of a research paper in collaboration with a faculty member. He noted that this fit with the discipline and is a standard practice in comparator programs. The third change from Economics was the addition of an active researcher milestone which would require students to demonstrate on an ongoing basis active engagement in the department. In response to questions, the program has provided a clear plan for students, advisors and the graduate chair to ensure flexibility and consistency. Labour Studies proposed calendar copy changes to clarify the MRP versus the thesis and to provide a clear description in light of their relatively new Ph.D.

program. The final change was a calendar copy change from Social Work, including an adjustment around practicum planning and adding information about their second graduate diploma also being available for advanced credit.

Council members discussed the evaluation of the professional development workshop.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Social Science as described in the documents.’**

The motion was **carried**.

X. Research Plagiarism Checking Policy

Dr. Thompson presented the item, noting that it had been presented to graduate council twice before for consultation and changes had been made accordingly. The policy would also be sent to Undergraduate Council as it does interact with undergraduate students engaged in research.

In response to a question from a council member about submissions to conferences, Dr. Thompson noted that the policy is a recommendation not a requirement and is meant to guide users in best practices. Dr. Welch noted that theses were required to be submitted before submission to an external.

Council members discussed the potential for training and communication about appropriate use of the tool, including a website and the need to clearly indicate to supervisors how this interacts with the academic integrity office.

A council noted a typo – a word was singular when it should have been plural.

Council members discussed the language around the requirement that theses be submitted and whether the language was clear enough. Dr. Welch noted that there will need to be language in the Graduate Calendar about it and Dr. Thompson noted that the language is as recommended by the Secretariat’s office.

In response to a question about past theses, Dr. Thompson said that this would only apply going forward. Council members discussed the role of the supervisor in determining the threshold of similarity

In response to a question Dr. Thompson confirmed that his understanding is that the tool can handle material in French.

It was duly moved and seconded, ‘that Graduate Council approve the policy as set out in the document.’

The motion was **carried**.

XI. Scholarship Committee Membership

It was duly moved and seconded, **‘that Graduate Council approve the Scholarship Committee membership as set out in the document.’**

The motion was **carried**.

XII. New Scholarship

It was duly moved and seconded, **‘that Graduate Council approve the new scholarship as set out in the document.’**

The motion was **carried**.

XIII. 3 Minute Thesis Update

Ms. Taylor provided an update, noting that the competition is taking place on March 18th and 19th. Registration is open until March 2nd at noon. In the competition graduate students in a thesis or MRP program explain the breadth and significance of their research to a non-specialist audience in three minutes. The winner goes on to the provincial competition and an information session was held in advance of the competition.

XIV. Additional Business – Discussion of Thesis Submission Grace Period

Mr. Lightstone opened the discussion, noting that currently if a student doesn’t submit their final thesis they are still considered to be enrolled in the university and every month past expected completion date they pay tuition. There is a grace period in the month of September, but this is not granted at the end of January or May. The Engineering Graduate Society is interested in having a grace period at the end of those semesters. There is a lot happening against those students in the month of December, which makes it difficult to submit their thesis on time, including a black-out period during which you can’t book a thesis defence and TA duties in this time. He noted there are a lot of reasons to give students extra time, including mental health and financial issues.

Dr. Welch provided noted that the issues involved are fairly complex and provided some context about the impetus for the grace period in September, noting that it used to be a single person coordinating all thesis defences and that there was difficult scheduling a defence in the summer time. The downstream effect of being unable to scheduled defences in August was the additional consideration in September. He noted that the landscape is different now and there are different possibilities about how it might be managed going forward and this was a good time for discussion.

Council members discussed the issue, including stress and financial challenges as well as the volume of defences in September, noting that it is by far the busiest month for defences.

Dr. Welch discussed changes to process and timelines around supervisory deadlines, which used to happen around the same time as defence deadlines and noted the importance of considering why this had been done in the past, what form it should take going forward and continued discussion.

XV. Other Business

Dr. Hanna asked if there is periodically an initiative to review small scholarships with an eye to amalgamating where appropriate and possible to leverage larger scholarships. Dr. Welch responded that there is now a threshold among for what needs approval to be a scholarship, otherwise it is considered a donation. He was happy to put together a discussion with advancement and the associate deans to discuss.

There being no other business, the meeting was concluded.



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To : Graduate Council

From : Christina Bryce
Assistant Graduate Secretary

At its meeting on December 15th and January 16th the Faculty of Engineering Graduate Curriculum and Policy Committee approved the following graduate curriculum recommendations.

Please note that these recommendations were approved at the January 28th meeting of the Faculty of Engineering.

FOR APPROVAL OF GRADUATE COUNCIL:

- **School of Engineering Practice and Technology**
 - **New Program Calendar Copy (M.Eng.)**
 - **Change to Program Requirements (M.E.M.E.)**
 - **Change to Program Requirements (M.Eng.D)**
 - **Change to Admission Requirements (M.E.P.P.)**
- **Engineering Physics**
 - **Change to Calendar Copy (M.Sc. and Ph.D.)**

FOR INFORMATION OF GRADUATE COUNCIL:

- **Chemical Engineering**
 - **Change in Course Title and Description**
 - 764 Process Control Design
- **School of Engineering Practice and Technology**
 - **Change in Course Description**
 - 750 Model Predictive Control Design and Implementation
 - 751 Process Design and Control for Operability
 - 754 Process Design and Integration for Minimal Environmental Impact
 - **Change in Course Title and Description**
 - 757 Hardware Prototyping Tools and Methods
 - 769 Systems Engineering & Cyber Physical Systems
 - 783 Electromagnetics Sensors and Actuators
 - **New Courses 600-level**
 - 6AE3 Internal Combustion Engines

- o 6FM3 Computer Integrated Manufacturing (CIM) and Flexible Manufacturing
- o 6TC3 Technical Communications
- o 6MA3 Numerical Linear Algebra and Numerical Optimization
- **New Courses 700-level**
 - o 737 Scenario Analysis, a Public Policy Analytical Method
 - o 711 Electric Powertrain Components Design
 - o 716 Automotive Safety Design
 - o 717 Biomanufacturing
 - o 718 Industrial Automation
 - o 724 Intelligent Transport Systems
 - o 726 Discrete Manufacturing Processes 1
 - o 727 Discrete Manufacturing Processes 2
 - o 728 Internet of Things (IoT) and industrial Internet of Things (IoT) Systems
 - o 734 Issues in Vehicle Productions
 - o 799 M.Eng. Project in Systems and Technology Parts 1 and 2
- **New Cross-listed Courses**
 - o 6T03 Properties and Processing of Composites
 - o 732 Lean Six Sigma for Engineers
 - o 729 Manufacturing Systems
- **Changes to Requisites**
 - o 700 M.Eng. Project in Engineering Design Part I and II
 - o 701 Theory and Practice of Policy Analysis: Frameworks and Models
 - o 704 Public Policy Research Project
 - o 760 Design Thinking
 - o 773 Leadership for Innovation

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:			
1. This form must be completed for ALL changes involving degree program requirements/procedures. All sections of this form must be completed. 2. An electronic version of this form (must be in MS WORD not PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca). 3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
DEPARTMENT		WBooth School of Engineering Practice and Technology	
NAME OF PROGRAM and PLAN		Master of Engineering in Systems and Technology	
DEGREE	Master of Engineering in Systems and Technology		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS		CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	CHANGE IN COURSE REQUIREMENTS
			x
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR		EXPLAIN: This is a new program. Calendar description needs to be created.	
OTHER CHANGES			
DESCRIBE THE <u>EXISTING</u> REQUIREMENT/PROCEDURE:			
1. Stream that was approved was "Advanced Manufacturing"			

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.) 1. Change stream to "Digital Manufacturing"
RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?): 1. The new name describes much better the content of the stream. In addition, it eliminates any possible confusion with Manufacturing Engineering.
PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year) September 1, 2020
ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN. No
PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.) <i>Program description:</i> The Master of Engineering in Systems and Technology is a 16 months program for full time and 32 months for part students aimed at highly motivated students seeking advanced training in area of cyber-physical systems. Motivated students enrolled as full-time may complete course-based route through the program in 12 months. Students design their own program of studies by selecting (with approval of their academic advisor) courses of interest to them in one of the following streams: (i) Automation and Smart Systems, (ii) Automotive, and (iii) Advanced Manufacturing-Digital Manufacturing<u>Digital Manufacturing</u>. Application for admission to the program are made through the W Booth School of Engineering Practice and Technology. The program accepts full-time and part-time students. In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering, Technology, Sciences, or Software with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years. Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project during the coursework portion of the program. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. Applicants will be required to complete an online interview. Students completing the Program on a course-only basis will be required to complete 9 courses from the approved list of courses. Course selection must be done in consultation with the program lead. Students completing the Program through course and project work will be required to complete six courses from the approved list of courses, plus successful completion of the project. Course and project selection must be done in consultation with the program lead. McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

Project

Students wishing to pursue the project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to course based stream. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials etc. Students will also have an academic supervisor who will normally have some expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

M. Eng. in Systems and Technology Courses Curriculum

Students enrolling in the program choose their courses in one of the following streams:

- Automation and Smart Systems,
- Automotive, and
- Advanced Manufacturing Digital Manufacturing

Each stream has a set of core courses and a set of recommended elective courses. Students can take maximum of 2 half courses (one term courses) at 600 level.

Students wishing to take an elective course outside of the recommended electives need to obtain a written permission from their graduate advisor.

Students have to complete the minimum required number of core courses in order to complete the program

There are 2 pathways towards the degree:

- 6 courses + project
 - o 1 required course
 - o 1 professional development course
 - o 3 to 4 core courses
 - o 0 to 1 elective course

Students pursuing this option, in addition to taking 6 courses specified above, must register for the project courses:

- o SEP 7xx / M. Eng. Project in Systems and Technology, part I
- o SEP 7xx / M. Eng. Project in Systems and Technology, part II

- 9 courses
 - o 1 required course
 - o 1 to 3 professional development courses
 - o 4 to 7 core courses
 - o 0 to 3 elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series, full-time students only)
- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series, full-time students only)

SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M. Eng. programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course, the student must attend a minimum of 80% of the seminars.

Students should note that not all courses are offered every year.

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Professional Development Courses

Professional Development courses, common to all streams in MEng S&T, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

Technical Courses – Automotive stream

The following are core courses:

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses:

- SEP 6DV3 Vehicle dynamics
- SEP 7xx Intelligent transportation systems
- SEP 7xx Active safety design
- SEP 6AE3 Internal Combustion engines
- SEP 722/ MECH ENG 760 Electric drive vehicles
- SEP 7xx Electric powertrain components design
- SEP 7xx Issues in vehicle production

Recommended electives are:

- Mech Eng 6Z03 CAD/CAM/CAE
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 780 Advanced robotics and automation

Technical Courses – Automation and Smart Systems

The following are core courses:

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses:

- SEP 7xx Internet of Things (IoT) and industrial Internet of Things (IoT) systems
- SEP 6CS3 Computer security
- SEP 780 Advanced robotics and automation
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning : Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CAS 771 Introduction to Big Data Systems and Applications
- SEP 6DA3 Data Analytics and Big Data
- SEP 6DM3 Data Mining

Recommended electives are:

- SEP 723 / MECH ENG 761 Industrial components, networks and interoperability
- SEP 720 Cloud Computing
- SEP 721 Data Analytics, Machine Learning and AI on Cloud Platforms
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 7xx Industrial Automation

Technical Courses – Digital Manufacturing

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses

- SEP / MECH ENG 735 Additive Manufacturing
- SEP 7xx Internet of Things (IoT) and industrial Internet of Things (IoT) systems
- SEP 783 Sensors and actuators
- SEP 7XX / MECH EGN 761 Industrial components, networks and interoperability
- SEP 780 Advanced robotics and automation
- SEP 7xx Industrial Automation

Recommended elective courses are:

- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning: Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 6FM4 Computer Integrated Manufacturing (CIM) and Flexible Manufacturing

Moreover, 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
CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Vladimir Mahalec Email: mahalec@mcmaster.ca Extension: 26386 Date submitted: October 22, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES

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DEPARTMENT	WBooth School of Engineering Practice and Technology		
NAME OF PROGRAM and PLAN	Master of Engineering Design		
DEGREE	Master of Engineering Design		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS	☒	CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	CHANGE IN COURSE REQUIREMENTS
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR		EXPLAIN: Removal of streams and calendar changes	
OTHER CHANGES	EXPLAIN:		

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DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

1. The following streams exist in the MED program:
Product Design: Design Thinking approach to development of products and services.
Digital Reality: Design of augmented-, virtual-, and mixed-reality immersive experiences.
Smart Systems: Design and integration of AI, robotics, automation, and physical systems
Process and Production Systems: Engineering design and operations improvement
2. Professional work experience will be highly desirable is currently in the calendar

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

1. Remove the following streams:
Smart Systems: Design and integration of AI, robotics, automation, and physical systems
Process and Production Systems: Engineering design and operations improvement
2. Change to "Professional work experience will be desirable, but not essential.

RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):

1. Process and Production Systems stream has been moved to the Master of Engineering and Manufacturing Engineering program under a new stream called "Process Engineering" and aligns more with the MEME degree. Also, since the Systems and technology master degree has been approved, Smart systems stream is under this new program called "Automation and smart systems"
MED has two streams: Product Design stream and Digital Reality stream.

Product Design focuses on early stages of design, particular human centered design and its applications across a wide cross-section of issues in the society. Such design problems can very effectively solved by students from both STEM and non-STEM backgrounds.

Digital Reality deals with techniques and theory of virtual reality, augmented reality, and mixed reality. Successful students need to have ability to visualize virtual spaces and apply VR/AR/MR techniques to create successful applications.

SEPT admission process will ensure that students with appropriate aptitude and qualifications are admitted to the program.

2. To provide clarification that work experience is preferred, however, not mandatory.

PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)

September 1, 2020

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

No.

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):

Innovative new designs and the ability to improve performance of existing systems have become a basis for a competitive advantage in the marketplace. Innovativeness, performance, environmental sustainability, safety, usability, desirability, viability and efficiency are integral parts of the requirements in the design of industrial products, healthcare products, large-scale systems, or software solutions. Within this complex set of constraints, successful engineers and engineering managers must be able to lead transformation of an idea to a complete design by working in interdisciplinary teams and with stakeholders. The Master of Engineering Design program provides its participants with technical expertise and leadership capabilities required to innovate and to lead technically-oriented organizations. The M.Eng. Design program emphasizes development of competencies in Design Thinking and innovations methodologies, as well as leadership, collaboration, and management skills to lead diverse teams. These competencies are combined with advanced technologies to enable design and implementation of solutions which integrate digital reality with the physical world to deliver solutions for daily living or for complex IT or industrial systems.

The following streams are currently offered in the Program:

Product Design: Design Thinking approach to development of products and services.

Digital Reality: Design of augmented-, virtual-, and mixed-reality immersive experiences.

~~Smart Systems: Design and integration of AI, robotics, automation, and physical systems~~

~~Process and Production Systems: Engineering design and operations improvement~~

Admission

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a four-year engineering undergraduate degree or equivalent, with at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Students with a degree in Science, Technology or Mathematics will also be considered.

Strong letters of recommendation are also required. Applicants will be required to complete an online interview.

Professional work experience will be ~~highly~~ desirable, but not essential.

Prospective applicants who did not attain the required standing in their undergraduate degree, but who have at least four (4) years of relevant work experience, should discuss

their situation with the Program Lead. If the experience is deemed sufficient, the Program Lead may then recommend a live interview. Evidence of ability to do graduate work will still be required. (See Sections 2.1.1 Admission Requirements for Master's Degree and 2.1.5 Admission of Students with Related Work Experience or Course Work beyond the Bachelor's Degree in the Graduate Calendar.)

McMaster Students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

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 Stream

Master of Engineering Design program in the field of Process and Production Systems 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
-

Required Courses

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 (seminar series full-time students only)

~~SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series full-time students only)~~

~~SEP 772 / Innovation Studio~~

~~SEP 773 / Leadership for Innovation~~

~~OR~~

~~SEP 6EL3 / Leading Innovation~~

Electives

Candidates are required to select 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 Associate Director of Graduate Studies in SEPT.

-

Recommended courses include, however are not limited to the following:

~~SEP 751 / Process Design and Control for Operability~~

~~SEP 752 / Systems Modeling and Optimization~~

~~SEP 754 / Process Design and Integration for Minimal Environmental Impact~~

~~CHEM-ENG 752 / Optimization of Chemical Processes~~

~~CHEM-ENG 765 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement / SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement~~

~~COMP SCI 6F03 / Distributed Computer Systems~~

~~GAS 704 / Embedded, Real-Time Software Systems~~

~~GAS 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 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.

The following course requirements need to be fulfilled by the candidates:

Mandatory Courses

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](#) (seminar series: full-time students only)
[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series: full-time students only)
[SEP 772 / Innovation Studio](#)
[SEP 773 / Leadership for Innovation](#)
 OR
[SEP 6EL3 / Leading Innovation](#)

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 Associate Director of Graduate Studies in SEPT.

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](#)

Digital Reality Stream

Graduates from Digital Reality stream develop competencies required to work on MR/AR/VR applications in e.g. autonomous vehicles, games design, entertainment, architecture, medicine, etc.,. All candidates will complete a project and an optional co-op with an organization which develops products in the digital reality space.

Mandatory Courses

The following courses are required to be completed by the candidates

[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](#) (seminar series; full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series; full-time students only)

[SEP 772 / Innovation Studio](#)

Electives

Five courses from the following list must be completed by the candidates:

[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](#)

Smart Systems Stream

Graduates from Smart Systems stream develop competencies required to develop and integrate machine learning and AI applications (e.g. image recognition, fault detection, natural language processing, time varying pattern forecasting, etc.) with software and hardware components comprising intelligent devices and systems.

Mandatory Courses

The following courses are required to be completed by the candidates:

[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](#) (seminar series; full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series; full-time students only)

Electives

At least three half courses from the following list must be completed by the candidates:

SEP 786 / Artificial Intelligence and Machine Learning Fundamentals

SEP 787 / Machine Learning : Classification Models

SEP 788 / Neural Networks and Development Tools

SEP 789 / Deep Learning and Its Applications

SEP 720 / Cloud Computing

SEP 721 / Data Analytics, Machine Learning and AI on Cloud Platforms

SEP 780 / Advanced Robotics and Automation

SEP 767 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement

MECH ENG 761 / Industrial Components, Networks, and Interoperability

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Vladimir Mahalec Email: mahalec@mcmaster.ca Extension: 26386 Date submitted: Nov. 27, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,
cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:			
1. This form must be completed for ALL changes involving degree program requirements/procedures. All sections of this form must be completed. 2. An electronic version of this form (must be in MS WORD not PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca). 3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
DEPARTMENT	W Booth School of Engineering Practice and Technology		
NAME OF PROGRAM and PLAN	Master of Engineering and Public Policy		
DEGREE	Master of Engineering and Public Policy		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS	☒	CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	CHANGE IN COURSE REQUIREMENTS
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR		EXPLAIN:	
OTHER CHANGES	EXPLAIN:		

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

Students must hold a 4-year engineering, science, technology or mathematics undergraduate degree, with at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

Students must hold a 4-year undergraduate degree in STEM or a 4-year non-STEM degree in a public policy-related field including, for example, political science, public policy, public administration or global studies. Applicants must have at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):

MEPP deals with policy issues ranging from environmental to social to industrial topics. More diverse student backgrounds is expected to improve the quality of the work in the program. SEPT admission process will ensure that students with appropriate aptitude and qualifications are admitted to the program.

PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)

September 1, 2020

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

No.

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (*please include a tracked changes version of the calendar section affected if applicable*):

Students must hold a 4-year undergraduate degree in STEM or a 4-year non-STEM degree in a public policy-related field including, for example, political science, public policy, public administration or global studies. ~~undergraduate degree.~~ Applicants must have ~~with~~ at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work.

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Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Vladimir Mahalec Email: mahalec@mcmaster.ca Extension: 26386 Date submitted: Nov. 27, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:			
1. This form must be completed for ALL changes involving degree program requirements/procedures. All sections of this form must be completed. 2. An electronic version of this form (must be in MS WORD not PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca). 3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
DEPARTMENT	W Booth School of Engineering Practice and Technology		
NAME OF PROGRAM and PLAN	Master of Engineering Manufacturing Engineering		
DEGREE	Master of Engineering Manufacturing Engineering		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS	☐	CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	☐
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	☒	EXPLAIN: Program description is changed to focus it more on physical / electromechanical aspects of manufacturing to eliminate duplication with M.Eng. in Systems and Technology	
OTHER CHANGES	☒	Allow MEME students to take as many courses from SEPT as needed, in addition to courses from Chemical Engineering, Materials Science Engineering, and Mechanical Engineering.	

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

1. Current streams are as follows: (i) Automotive or (ii) Digital Manufacturing.
2. MEME students are allowed to take courses from Chemical Engineering, Mechanical Engineering, and Materials Science Engineering. In addition, the students are allowed to take up to 2 courses outside of these departments including SEPT.
3. The following information exists in the calendar "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 lead. Two of these 600 level courses can be taken in the final undergraduate year at McMaster for graduate credit with the approval of the Associate Dean of Graduate Studies.

Students who opt to complete the program on a course basis must complete eight courses in consultation with the program lead.

Students should note that not all option courses are offered every year."

4. The following exists in the calendar:

Compulsory Courses:

MANUF 701 / Project, Part 1 (Please note that this course is only required for students in the project option of the program.)

MANUF 701 / Project, Part 2 (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 (seminar series, full-time students only)

SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)

5. The following exists in the calendar under optional courses "Students will select any combination from the list below totaling six half courses for the project-based or eight half courses 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. Stream specific requirements are listed above. Other manufacturing-related courses may be substituted with permission of the Program lead. Note that not all courses are offered every year"

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

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1. Remove ~~current~~current streams (i) Automotive or (ii) Digital Manufacturing
2. MEME students are allowed to take courses from Chemical Engineering, Mechanical Engineering, Materials Science Engineering, and from W Booth School of Engineering Practice and Technology. In addition, the students are allowed to take up to 2 courses outside of these departments.
3. Remove this text
4. Move this text under pathways
5. Remove this from the calendar
6. Introduce Discrete Manufacturing
7. Adding professional development courses as a requirement, add core courses, and recommended Electives to discrete manufacturing

RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):

1. Automotive stream and Digital Manufacturing streams were introduced for 2019/2020 as an addition to the general manufacturing program of studies which the students could tailor as desired. These two streams were introduced in response to the student demands and also due to the fact that it was not clear when the new M.Eng. in Systems and Technology was going to be approved by the Ministry. Since M.Eng. S&T has been approved, Automotive and Digital Manufacturing streams need to be removed from MEME in order to eliminate duplication between MEME and MEng S&T.
2. MEME currently restrict its students to take maximum 2 courses offered by WBooth SEPT (maximum 2 SEP xxx courses). This has led to a situation where WBooth SEPT Faculty members offer courses under the labels of CHEM ENG, MATLS, and MECH ENG in order to deliver the desired learning [program outcomes](#). Such mechanism for offering courses causes additional work for other departments and creates confusion for the students (where to go if there is an issue with registering for a course?). Moreover, since CHEM ENG, MATLS, and MECH ENG do not offer graduate courses in the summer term, SEPT students can not take in the summer the courses which are taught by SEPT faculty members under the label of other departments. We are requesting to allow MEME students to take as many courses from SEPT as needed, in addition to courses from Chemical Engineering, Materials Science Engineering and Mechanical Engineering.
3. This text has moved after discrete manufacturing and some language clean up. Notation of courses not being offered every year is indicated under optional courses.
4. Manuf 701, part I and II is appropriate under the first option of the pathway in the tracking changes below providing clarification. In addition to the project or course based requirements, we are moving the seminar series course, SEP 771, part I and II to this section as well to clarify this is also mandatory for all full time students.
5. This seems redundant since we already have this information in either the program description or in the new text outlining the course requirements below discrete manufacturing.
6. ~~Introduction Clarifying that the focus of MEME is of discrete manufacturing in MEME will make it easier for the students to select the courses in their area of interest. It distinct from M.Eng. in Systems and Technology. This area corresponds to the two major types of manufacturing industries: discrete manufacturing, and continuous manufacturing (process industries).~~
7. MEME students don't currently enroll in any mandatory technical or professional courses. Introduction of a minimum required set of professional development and of core technical courses facilitates [the](#) definition of discrete manufacturing in MEME.

PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)

September 1, 2020

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

No

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):

Program Description

The Master of Engineering in Manufacturing Engineering is a one and a half year program for full time ~~and~~ [or](#) 28 months [program](#) for part students; ~~the program attracts~~ [aimed at](#) highly motivated students seeking advanced training in the ~~broad area of discrete Mm~~ [broad area of discrete manufacturing](#). Motivated students enrolled full time may complete the program in 12 months. Students design their own program of studies by selecting (with

approval of their academic advisor) courses of interest to them. ~~or can enroll in one of the following streams: (i) Automotive or (ii) Digital Discrete Manufacturing-~~ Applications for admission to the program ~~may be~~ made through the W Booth School of Engineering Practice and Technology. Applicants will be required to complete an online interview.

The program accepts full-time and part-time students.

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering or Technology with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years.

Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project and through projects during the coursework portion of the program defined within courses. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. ~~Applicants will be required to complete an online interview.~~

Students completing the Program on a course-only basis will be required to complete 8 courses from the approved list of courses. Course selection must be done in consultation with the program lead.

Students completing the Program ~~through via~~ course and project work will be required to complete six courses from the approved list of courses; ~~plus and also~~ successfully ~~completion of complete~~ the M.Eng. project. Course and project selection must be done in consultation with the program lead.

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

Project

Students wishing to pursue the course plus project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to the course based ~~stream~~option. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials, etc. Students will also have an academic supervisor who will normally have ~~some~~ expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

~~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 lead. Two of these 600 level courses can be taken in the final undergraduate year at McMaster for graduate credit with the approval of the Associate Dean of Graduate Studies.~~

~~Students who opt to complete the program on a course basis must complete eight courses in consultation with the program lead.~~

~~Students should note that not all option courses are offered every year.~~

Courses

Compulsory Courses:

~~MANUF 701 / Project, Part 1 (Please note that this course is only required for students in the project option of the program.)~~

~~MANUF 701 / Project, Part 2 (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 (seminar series, full-time students only)~~

~~SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)~~

Automotive stream students must complete at least three of the following courses:

~~MECH ENG 760 / Electric Drive Vehicles~~

~~SEP 6AT3 / Conceptual Design of Electric and Hybrid Electric Vehicles~~

~~MECH ENG 754 / Management and Control of Electric Vehicle Batteries~~

~~MECH ENG 755 / Advanced Control on Internal Combustion Engines~~

~~MECH ENG 761 / Industrial Components, Networks, and Interoperability~~

~~SEP 780 / Advanced Robotics and Automation~~

~~MECH ENG 735 / Additive Manufacturing~~

Digital Manufacturing stream students must complete at least four half courses from the following list:

~~MECH ENG 729 / Manufacturing Systems~~

~~MECH ENG 735 / Additive Manufacturing~~

~~MECH ENG 759 / Hardware Prototyping Tools and Methods~~

~~MECH ENG 761 / Industrial Components, Networks, and Interoperability~~

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

MANUF 710 / SYSTEM ANALYSIS SIMULATION

SEP 780 / Advanced Robotics and Automation

Additional Information for SEP 771

This is a seminar series presented by guest speakers, invited by the School, of relevance to all M.Eng programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course the student must attend a minimum of 80% of the seminars.

Discrete Manufacturing Engineering Courses

Students enrolling in the program can tailor their program of studies according to their career interests. Students select discrete

Manufacturing which has a set of core courses and a set of recommended elective courses. Students can take maximum of 2 half courses

(one term courses) at 600 level. Courses can be selected from WBooth SEPT, Chemical, Materials or Mechanical Engineering departments.

Students wishing to take an elective course outside of the recommended electives need to obtain a permission from

their graduate advisor/program lead.

Students should note that not all courses are offered every year.

There are 2 pathways towards the degree:

- 6 courses **(18 units) + project (6 units)**
 - o 1 professional development course
 - o 3 to 4 core courses
 - o 1 to 2 elective courses

Students pursuing this option, in addition to taking 6 courses specified above, must register for the project-courses:

- MANUF 701 / Project, Part 1
- MANUF 701 / Project, Part 2

- 8 courses **(24 units)**
 - o 1 to 2 professional development courses
 - o 4 to 6 core courses
 - o 1 to 3 elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series, full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)

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SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M.Eng. programs at the School.

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All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course the student must attend a minimum of 80% of the seminars.

Professional Development Courses

Professional Development courses in MEng of Manufacturing Engineering, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

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Technical Courses—Discrete Manufacturing

The following are core courses:

- MECH ENG 729 / SEP 7XX Manufacturing systems
- CHEM ENG 720 / SEP 7XX Six sigma for lean manufacturing
- SEP 726 Discrete Manufacturing Processes I
- SEP 727 Discrete Manufacturing processes II
- SEP 757 / MECH ENG 759 Rapid prototyping
- SEP 780 Advanced robotics and automation
- SEP 6I03 / MATLS 6I03 Sustainable manufacturing processes

Recommended elective courses are:

- MATLS 6T03 / SEP 7XX Properties and processing of composites
- SEP 767 / CHEM ENG 765 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 718 Industrial Automation

Other Elective Courses Available

These courses require a written permission of the student's graduate advisor.

Courses from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.

In addition to the recommended elective courses listed above, students can take up to two 600 and an unrestricted number of 700 level courses as electives from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.

Additional Optional Elective Courses

Students [can select additional elective courses from the following list, provided that the approval has been received a priori from their program lead:](#)
~~requirements are listed above. Other manufacturing-related courses may be substituted with permission of the Program lead.~~ Note that not all courses are offered every year.

Chemical Engineering

[CHEM ENG 6B03 / Polymer Reaction Engineering](#)
[CHEM ENG 6C03 / Statistics for Engineers](#)
[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 Big Data Analysis and Process Improvement](#)
[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 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 735 / Additive Manufacturing](#)

[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 780 / Advanced Robotics and Automation SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II Manufacturing Engineering		
MANUF 6RM3 / Robot Mechanics and Mechatronics MANUF 710 / SYSTEM ANALYSIS SIMULATION CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Vladimir Mahalec Email: mahalec@mcmaster.ca Extension: 26386 Date submitted: December 17, 2019 January 9, 2020		

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:			
1. This form must be completed for ALL changes involving degree program requirements/procedures. All sections of this form must be completed. 2. An electronic version of this form (must be in MS WORD not PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca). 3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
DEPARTMENT	Engineering Physics		
NAME OF PROGRAM and PLAN	N/A		
DEGREE	M. A. Sc.		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS	☐	CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	☐
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	☒	EXPLAIN: Clarify the course requirement	
OTHER CHANGES	EXPLAIN:		

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

Program Structure

A candidate for the M.A.Sc. degree (Thesis) is required to complete a minimum of three half courses (the equivalent of two half courses must be at the 700 level) with an average of at least B and a thesis. The M.A.Sc. students are allowed to take one non-technical course at the 600- or 700-level among the three required half-courses. The thesis topic is normally chosen in consultation with an on-campus supervisor. A minimum period of twelve months in residence will normally be required. It is expected that many students will choose this route towards a Ph.D. degree. In addition to the minimum of three half courses, M.A.Sc. candidates are required to complete the mandatory seminar half course ENG PHYS 700.

An Advanced Credit Option is available to students currently enrolled in their final year of an Engineering Physics undergraduate program at McMaster University.

An Accelerated Option is also available to students currently enrolled at McMaster as undergraduate students in the Engineering Physics Department whereby the M.A.Sc. degree may be completed in 12-16 months of full-time study.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

Program Structure

A candidate for the M.A.Sc. degree (Thesis) is required to complete a minimum of three half courses (~~the equivalent of two~~one of the three half courses ~~must~~can be at the ~~700~~600 level) with an average of at least B and a thesis. The M.A.Sc. students are allowed to take one non-technical course at the 600- or 700-level among the three required half-courses. The thesis topic is normally chosen in consultation with an on-campus supervisor. A minimum period of twelve months in residence will normally be required. It is expected that many students will choose this route towards a Ph.D. degree. In

addition to the minimum of three half courses, M.A.Sc. candidates are required to complete the mandatory seminar half course ENG PHYS 700<u>702</u>. An Advanced Credit Option is available to students currently enrolled in their final year of an Engineering Physics undergraduate program at McMaster University. An Accelerated Option is also available to students currently enrolled at McMaster as undergraduate students in the Engineering Physics Department. <u>The graduate credit and thesis-related research work completed under the Accelerated Option are expected to reduce time to completion of the Master's program, whereby the M.A.Sc. degree may be completed in 12-16 months of full-time study.</u>
RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?): Clarify the description on course requirement and avoid confusion.
PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year) Sept. 1, 2020.
ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.
CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Chang-qing Xu Email: cxqu@mcmaster.ca Extension: 24314 Date submitted: Dec.2, 2019

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If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES****IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:**

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).
3. A representative from the department is **required to attend** the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT	Engineering Physics		
NAME OF PROGRAM and PLAN	N/A		
DEGREE	PhD		
NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)			
Is this change a result of an IQAP review? ☐ Yes ☒ No			
CREATION OF NEW MILESTONE ☐			
CHANGE IN ADMISSION REQUIREMENTS	☐	CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE	☐
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	☒	EXPLAIN: Clarify the course requirement	
OTHER CHANGES	☐	EXPLAIN:	

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

Overview

Students with a Master's degree are required to take two half courses, at least two of which must be at the 700- level. Students entering into the Ph.D. program directly from a Baccalaureate degree, or transferring into the Ph.D. program without being required to complete the Master's degree are required to take a total of two half courses at the 700-level. Among these two half courses, one can be a non-technical course with approval of the Associate Chair (Graduate). For those students transferring to the Ph.D. without completion of the Master's degree, courses completed during the Master's at McMaster's Engineering Physics M.A.Sc. or M.Eng. program may be transferred to McMaster's Engineering Physics Ph.D. program. In addition to the minimum of two half courses, Ph.D. candidates are required to complete the mandatory seminar half course ENG PHYS 701 .

During their course of study, doctoral candidates will be required to pass a Departmental Comprehensive Examination.

Ph.D. students must present a thesis proposal to their Supervisory Committee, normally at the first Supervisory meeting after completion of one term in their program.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

Overview

Students with a Master's degree are required to take two half courses, ~~both must be at the 700 level. at least two of which must be at the 700-level. If a student is transferring from the M. A. Sc. to the PhD without completing the Master's degree, then the courses completed under the M. A. Sc. may be counted towards the PhD.~~ Students entering into the Ph.D. program directly from a Baccalaureate degree, or transferring into the Ph.D. program without being required to complete the Master's degree are required to take a total of two half courses at the 700-level. Among these two half courses, one can be a

non-technical course with approval of the Associate Chair (Graduate). ~~For those students transferring to the Ph.D. without completion of the Master's degree, courses completed during the Master's at McMaster's Engineering Physics M.A.Sc. or M.Eng. program may be transferred to McMaster's Engineering Physics Ph.D. program.~~ In addition to the minimum of two half courses, Ph.D. candidates are required to complete the mandatory seminar half course ENG PHYS ~~701-702~~.

During their course of study, doctoral candidates will be required to pass a Departmental Comprehensive Examination.

Ph.D. students must present a thesis proposal to their Supervisory Committee, normally at the first Supervisory meeting after completion of one term in their program.

RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):

Clarify the description on course requirement and avoid confusion.

PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)

Sept. 1, 2020.

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Chang-qing Xu Email: [cxqu@mcmaster.ca](mailto:cqxu@mcmaster.ca) Extension: 24314 Date submitted: Dec.2, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

To : Graduate Council

From : Christina Bryce
Assistant Graduate Secretary

Via e-ballot on December 11th, 2019 and at it's meeting on January 13th, 2020 the Faculty of Health Sciences Graduate Policy and Curriculum Committee approved the following recommendations.

Please note that these recommendations were approved by the Executive Committee of the Faculty of Health Sciences.

For Approval of Graduate Council

- i. **Global Health**
 - **New Program Calendar Copy**
- i. **Psychotherapy**
 - **New Program Calendar Copy**

For Information of Graduate Council

- ii. **Global Health**
 - i. **Change to Course Title and Description**
 - 1. 715 Independent Study
 - ii. **New Course**
 - 2. 716 Independent Study II
- iii. **Psychotherapy**
 - **New Courses**
 - 1. 701 Introduction to Mental Health and Wellness
 - 2. 702 Principles of Evidence-Based Psychotherapy
 - 3. 703 Assessment and Case Formulation
- iv. **Physiotherapy**
 - **Course Cancellations**

PhD Degree

The program builds upon the ideas, concepts, and topics that are evolving in the field of Global Health. The program encourages independent and original thought, and the application of rigorous methods to the creation of new scholarly research. This program is building on the award-winning Masters' program in Global Health (2016 CBIE Panorama Award for Outstanding International Education Program). Students have the option to complete a cotutelle in which students can elect to complete a Ph.D. jointly awarded by both McMaster University and the University of Maastricht in The Netherlands.

Admissions

This program seeks candidates who show high scholarly promise, and who have **a strong graduate background in global health or a related field**. Applicants to the proposed program are required to have a thesis-based Masters' degree. Applicants with course-based Masters' will be reviewed by the admissions committee on a case-by-case basis, where course-based Masters' graduates with additional research experience may be considered. Successful applicants must also meet all School of Graduate Studies admissions requirements. For further details of admissions requirements for Ph.D. degree and for a cotutelle Ph.D. degree, please refer to [Section 2.1.2](#) and [Section 2.1.5](#) of the Graduate Calendar. Current admission procedures, forms, and deadlines are available on the Global Health program website.

Degree Requirements

The Doctoral Program is a multi-faculty, trans-disciplinary program with the faculty of Health Sciences as the lead faculty. Students are expected to conduct original and innovative research as part of a thesis that expands upon existing knowledge and meets the rigorous criteria for peer reviewed scholarship.

Course requirements

Students are required to complete four courses for a total of 12.0 Units. The following research methods courses, or equivalent advanced research methods course(s) if those bellow have already been completed, are required:

1. GLOBHTH 713 Research Methods: A Global Health Perspective (3.0 Units), or equivalent level advanced research methods course in the event the course was previously completed.
2. BUSINESS C755 Analytics and Decision Making in Healthcare (3.0 Units)

For students who have taken these courses as part of the MSc in Global Health, acceptable alternative courses in advanced research methods are determined by the supervisory committee in consultation with the program.

Students are also expected to design and complete two independent study courses on separate topics based on consultation with their supervisory committee:

3. GLOBHTH 715 Independent Study Course I (3.0 Units)

4. GLOBHTH 716 Independent Study Course II (3.0 Units)

Students may elect, or may be required, to take additional courses beyond the four required based on consultation with their supervisory committee. A list of pre-approved electives is available in the Global Health Program PhD Handbook. In addition to coursework, all students will be required to participate in a research and professional development seminar.

Comprehensive Evaluation

The comprehensive evaluation consists of an oral defense of a comprehensive examination portfolio. The elements of the portfolio include: 1) a literature review comprised of an independent study reviewing a body of published literature and critically summarizing the findings, 2) a review of completed courses describing their contribution to developing the student's interdisciplinary skills and knowledge related to current issues in global health and the thesis research, 3) a description of the student's relevant publications authored by the student during the course and their contribution to the thesis research, and 4) the dissertation proposal. The comprehensive evaluation will require students to integrate the major theoretical writings and pertinent substantive research with their selected research focus. Students will demonstrate an in-depth and broad understanding of the current scholarly literature and methodological approaches in their relevant field of study in global health. The evaluation will be assessed by the supervisory committee on a pass/fail basis.

Doctoral Dissertation

All students will produce an original piece of empirical research, situated in relevant scholarly literature, which will become the reference point for conceptualizing and justifying a central research question and interpreting the significance of the principal findings. The thesis must be defended in a PhD Final Oral Examination as outlined in the School of Graduate Studies regulations for the [Doctoral Degree](#).

Supervision

Prior to the program start date, students should have an idea for a research topic which aligns with existing faculty for supervision. This information should be submitted in the application package as part of the Letter of Intent. The principal supervisor will be a full-time faculty member that has approved privileges for supervising doctoral students in this trans-disciplinary program. The composition of the supervisory committee will be made during the course of the first year of studies.

For further details regarding supervision and supervisory committee, please refer to [Section 2.7](#) and [Section 4.4](#) of the Graduate Calendar.

Additional Regulations

Please refer to the Global Health Program PhD Handbook for additional policies and regulations on Course Selection and Delivery, Course and Program Evaluations, Absences, Academic Integrity and Performance Reviews.

Academic Calendar – Psychotherapy, MSc

Version: V1 (13Jan2020)

Program Description

The Psychotherapy Program is a full-time, course-based professional program. The program spans over 5 terms. Courses cover introduction to advanced topics in mental health and evidence-based psychotherapy, with a specific focus on Cognitive Behavioural Therapy. During the 5-term program, students will complete 9 classroom-based courses and 2 clinical practicum.

Admission Requirements

The admissions criteria include:

- a. Honours Bachelor's degree in Psychology, Social Sciences or Health Sciences from a recognized university with at least a B+ average (equivalent to a McMaster 8.5 GPA out of 12) in the final year of study. This requirement is consistent with the School of Graduate Studies' admissions requirements.
- b. For applicants whose first language is not English and who did not attend an English-speaking University for their undergraduate degree, a test of English language proficiency is required. Minimal scores on the Test of English as a Foreign Language (TOEFL): written score (600) or computer (250), or internet-based test (iBT = 92; reading = 22, speaking = 24, listening = 24 and writing = 22).
- c. Applicants will also be asked to submit the following documents with their application
 - i. A current Curriculum Vitae.
 - ii. A personal statement (maximum 750 words) that identifies reasons for wishing to join the program and relevant work or volunteer experiences that will contribute to their success in the program.
 - iii. Two letters of reference: At least one from academic referee (i.e., professors or research supervisors). One letter may be from a professional referee (i.e., employer who can provide a professional reference).
 - iv. Official transcript(s) of academic work completed to date at all post-secondary institutions attended, sent directly from the issuing institution(s). Non-English transcripts must be translated and notarized. Applicants may apply during the fourth year of their degree. In such cases, the pre-admission GPA for eligibility purposes is calculated using the most recent 10 courses towards their degree. Should an applicant in this category be offered admission to the program, the offer is "conditional" upon successful completion of their four-year degree by June 30 in that year, and maintenance of a B+ average in their final year of study.

Additional Requirements:

Interview. The admissions committee will review every application to the program to ensure that prospective students have the necessary academic background, proficiency in English, and

Academic Calendar – Psychotherapy, MSc

Version: V1 (13Jan2020)

relevant experience to enroll in the Psychotherapy Program. Those students who are short-listed based on this review will be offered an interview. Interviews will be conducted in person or over the telephone.

Admission selections will be based on academic achievement as well as personal qualities and experiences that are evaluated during the Admissions Interview.

The program has a limited number of available spots for students each year, therefore meeting the minimum requirements does not guarantee entry into the program.

Course Requirements

Students are required to complete 11 courses, which include 7 mandatory courses, 2 elective courses and two practicum courses. All courses are half-courses (3 units) with the exception of the Applied Psychotherapy Skills Course (6 units) and the Practicum II Course (6 units), which span over two terms. Students must achieve at least a B- standing in all mandatory and elective courses and pass the 2 clinical practicum to complete the program.

All classroom-based courses are offered in person and will be primarily held at St. Joseph's Healthcare Hamilton, West 5th Campus.

First Year Fall Term Mandatory Courses:

- Principles of Evidence-Based Psychotherapy
- Introduction to Mental Health and Wellness
- Assessment and Case Formulation

First Year Winter Term Mandatory Courses:

- Cognitive Behavioural Therapy
- Ethical Standards and Professional Practice

First Year Summer Term Mandatory Course:

- Practicum I

Second Year Fall Term Mandatory Courses:

- Clinical Research Methods
- Applied Psychotherapy Skills (a)
- Practicum II (a)

Second Year Winter Term Mandatory Courses:

- Applied Psychotherapy Skills (b)

Academic Calendar – Psychotherapy, MSc

Version: V1 (13Jan2020)

- Practicum II (b)

Elective Courses

Students are required to complete 2 elective courses. Elective courses can be completed during any term. The elective courses will be offered on a rotating basis and therefore, not all elective courses will be offered each year. Elective courses will be scheduled 1 year in advance.

Clinical Practicum

Practicum will be conducted in various locations including community hospitals, community-based counselling centres, university wellness centres, family health teams, and private practices. Practicum may occur outside of Hamilton. Students are responsible for their own transportation and all associated costs in order to meet this program requirement. The program may defer a student's clinical practicum under special circumstances (e.g., the student has not met academic requirements).

Students will receive a mid-point and final evaluation from their supervisor that will inform whether all clinical activities associated with the placement were successfully achieved for attainment of a passing grade in the course. Students will also be required to submit an integration paper relevant to their clinical experience while on practicum (e.g., case study, literature review). Unsatisfactory evaluations or poor professional conduct when interacting with patients/clients, staff and supervisors while on practicum may result in the termination of the practicum. If a practicum is terminated, in most situations this will result in the student receiving a failing grade for the practicum and subsequently lead to a dismissal from the program. Additional detail is included in the Program Handbook (Graduate Calendar represents the official policy).

Required Online Modules

Online modules must also be completed by all graduate students in the first month of study.

- SGS 101/Academic Research Integrity and Ethics
- SGS201/Accessibility for Ontarians with Disabilities Act (AODA)



School of Graduate Studies

1280 Main Street West
Hamilton, Ontario, Canada
L8S 4L8

Phone 905.525.9140
Ext. 23679
<http://graduate.mcmaster.ca>

To : Graduate Council

From : Christina Bryce
Assistant Graduate Secretary

At its meeting on January 17th the Faculty of Social Sciences Graduate Curriculum and Policy Committee approved the following recommendations.

Please note that these recommendations were approved by the Faculty of Social Sciences via e-ballot in January 2019.

For Information of Graduate Council:

a. Political Sciences

i. Course Cancellation

1. 779 Major Research Paper

b. Religious Studies

i. Course Cancellations

1. 783 Anthropological Approaches to Catholicism
2. 784 Myth and the Interpretation of Oral Tradition
3. 785 Death: Rituals and Meanings in Cross-Cultural Context

February 2020 Graduate Council-Awards to be approved

NAME OF FUND: The Marybelle and Norm Archer M.Sc. eHealth Scholarship

TERMS OF REFERENCE FOR FUND:

Established in 2019 by Mrs. Marybelle Archer B.Ed. (University of Alberta) and Dr. Norm Archer, Professor Emeritus, Ph.D. (Class of '65). To be awarded by the School of Graduate Studies to full-time students enrolled in the Masters of Science eHealth graduate degree program who have completed Level I and who, on the recommendation of the eHealth executive committee, demonstrate a high degree of academic commitment, excellence and integrity.

NAME OF FUND: The Mary and Harold Waterman Graduate Science Bursary

TERMS OF REFERENCE FOR FUND:

Established in 2019 by Mary (Class of '48) and Dr. Harold Waterman (Class of '48 & '49). To be granted to a graduate student enrolled in the Faculty of Science who demonstrates financial need.

NAME OF FUND: Hédi Bouraoui Essay Prize

TERMS OF REFERENCE FOR FUND: Established in 2019 by Hédi Bouraoui, a poet, novelist and academic. To be awarded to a graduate student in the Department of French who, in the judgment of the Departmental Chair in consultation with the Dean of the Faculty of Humanities, is deemed to have written an essay of academic excellence with high value given toward originality and contributions to Francophone Studies.