Program/Major or Minor/Concentration Revision Form

(2017)

1.0 Degree Title
Specify the two degrees for concurrent degree programs

Master of Engineering (M.Eng.)

2.0 Administering Faculty/Unit

Graduate and Postdoctoral Studies (GPS)

1.1 Major (Legacy = Subject) (30-char. max.)

Electrical Engineering

Offering Faculty/Department

EN - Electrical and Computer Engineering

1.2 Concentration (Legacy = Concentration/Option)
If applicable (30 char. max)

Non-Thesis

3.0 Effective Term of revision or retirement
Please give reasons in 5.0 "Rationale" in the case of retirement

(Ex. Sept. 2004 = 200409) ☐ Retirement

Term: 201909

1.3 Minor (with Concentration, if applicable)
(30 char. max)

4.0 Existing Credit Weight

45

Proposed Credit Weight

1.4 Category

☐ Faculty Program (FP)
☐ Major
☐ Joint Major
☐ Major Concentration (CON)
☐ Minor
☐ Minor Concentration (CON)
☐ Honours (HON)
☐ Joint Honours Component (HC)
☐ Internship/Co-op
☐ Thesis (T)
☒ Non-Thesis (N)
☐ Other

Please specify

1.5 Complete Program Title

M.Eng.; Electrical Engineering (Non-Thesis)

5.0 Rationale for revised program

The Department of Electrical and Computer Engineering proposes to revise their M.Eng (project option) program as a course-based professional master's program in Electrical Engineering. In parallel the existing M.Eng (thesis option) program will be revised into an M.Sc. program in a separate proposal. This is motivated by the relatively low uptake by supervisors of project option applicants. Students will be admitted into the revised program by a selection committee. The revised program would start in September 2019 instead of September 2018 since applications for September 2018 have already been received. Based on the demand experienced for comparable progams in Ontario and Quebec, we anticipate a significant growth in the number of students enrolled. This program includes a minimum of 15 credits of research-focused courses, and thus, the program is eligible for financial support from the Quebec Ministry of Education. When fully operational the program will target the admission of 45 additional master's students per year. This represents a growth of over 40% in the total number of ECE master's students.

6.0 Revised Program Description (Maximum 150 words)

New Program Description:

The Master of Engineering in Electrical Engineering; Non-Thesis program is a professional course-based program of 45 credits. The program is oriented more towards professional development than the M.Sc. thesis program. The program provides professional development skills related to research and very solid background in electrical and computer engineering, both in terms of breadth across the entire field and depth in the area of specialty. Graduates are likely to pursue their career in industry. The program structure allows to complete the program in three semesters. A part-time program is possible.

Existing Program Description:

The Master of Engineering degree (project option) involves an internally examined research project in addition to 27 graduate level course credits. The program is oriented more towards professional development than the thesis option. The project is of significantly less scope than a thesis, and includes options such as a technical review, a design project, or a small-scale research project. Undertaking 27 course credits provides students with a very solid background in electrical and computer engineering, both in terms of breadth across the entire field and depth in the area of specialty. Graduates frequently pursue careers in research and development. A part-time program is possible.

7.0 List of existing program and proposed program

Existing program (list course as follow: Subj Code/Crse Num, Title, Credit weight, under the heading of: Required Courses, Complementary Courses, and Elective Courses).

M.Eng.; Electrical Engineering (Non-Thesis)
(45 credits)

~~**Research Project**~~
~~(18 credits)~~

~~ECSE 651 M. Eng. Project 1 (1)~~
~~ECSE 652 M. Eng. Project 2 (2)~~
~~ECSE 653 M. Eng. Project 3 (3)~~
~~ECSE 654 M. Eng. Project 4 (4)~~
~~ECSE 655 M. Eng. Project 5 (4)~~
~~ECSE 656 M. Eng. Project 6 (4)~~

~~Students who choose the non-thesis option must register for the project courses during the three required terms of residency.~~

Complementary Courses
(~~27~~ credits)

~~27~~ credits of 500-, 600-, or 700-level courses, of which no more than ~~9~~ credits may be outside the Department.*

*Non-departmental courses require Departmental approval. Students may be ~~allowed~~ to take more than ~~9~~ credits of non-Departmental courses; ~~a letter of recommendation from their supervisor outlining the reason for such an action is required~~.

Proposed program (list course as follow: Subj Code/Crse Num, Title, Credit weight, under the heading of: Required Courses, Complementary Courses, and Elective Courses).

M.Eng.; Electrical Engineering (Non-Thesis)
(45 credits)

Full-time students must complete the program in three years. A part-time program is possible. The following requirements must be met:

Required Courses
(11 credits)

ECSE-509 Probability and Random Sig. 2 (3)
ECSE-543 Numerical Methods in Electrical Engineering (3)
ECSE-661 Research Methodology and Ethics (2)
ECSE-662 Professionalism in Research-Driven Workplace (1)
ECSE-663 Presentation and Leadership in Research (1)
ECSE-664 Laboratory Safety and Procedure (1)

Complementary Courses
(34 credits)
10-34 credits from the following list of research-content courses:

ECSE-506 Stochastic Control & Decision Theory (3)
ECSE-508 Multi-Agent Systems (3)
ECSE-510 Filtering and Prediction for Stochastic Systems (3)
ECSE-512 Digital Signal Processing 1 (3)
ECSE-515 Optical Fibre Communications (3)
ECSE-516 Nonlinear and Hybrid Control Systems (3)
ECSE-518 Telecommunication Network Analysis (3)
ECSE-523 Speech Communications (3)
ECSE-526 Artificial Intelligence (3)
ECSE-527 Optical Engineering (4)
ECSE-533 Physical Basis of Semiconductor Devices (3)
ECSE-535 Nanoelectronic Devices (3)
ECSE-536 RF Microelectronics (3)
ECSE-539 Advanced Software Language Engineering (4)
ECSE-541 Design of Multiprocessor Systems-on-Chip (3)
ECSE-542 Human Computer Interaction (4)
ECSE-547 Finite Elements in Electrical Engineering (3)
ECSE-571 Optoelectronic Devices (3)
ECSE-572 Nonlinear Optics (3)
ECSE-593 Antennas and Propagation (3)
ECSE-596 Optical Waveguides (3)
ECSE-597 Circuit Simulation and Modelling (4)
ECSE-608 Machine Learning (4)
ECSE-610 Wireless Communications (4)
ECSE-611 Software Analytics (4)
ECSE-615 Digital Signal Processing 2 (4)
ECSE-620 Information Theory and Coding (4)
ECSE-621 Statistic Detection and Estimation (4)
ECSE-623 Digital Communications 2 (4)
ECSE-626 Statistical Computer Vision (4)
ECSE-677 Experimental Techniques: Solid States (4)
ECSE-678 Special Topics in Solids 1 (4)
ECSE-682 Topics in Computers and Circuits (4)
ECSE-683 Topics in Vision and Robotics (4)
ECSE-688 Recent Advances in Electrical Engineering 1 (4)

and 0-24 credits of any additional 500-, 600-, or 700-level courses, of which no more than 15 credits may be outside the Department. Non-departmental courses require Departmental approval. In exceptional circumstances and with proper justification students may be permitted to take more than 15 credits of non-Departmental courses; approval from the Graduate Program Director or delegate is required.

8.0 Consultation with

Related Units Yes ☒ No Financial Consult Yes ☒ No

Attach list of consultation

9.0 Approvals

Routing Sequence	Name	Signature	Date
Department	Warren Gross, Chair		Dec 12, 2017
Curric/Acad Committee	Laurent Mydlarski, Assoc. Dean Academic Programs	L. Mydlarski	Feb 28, 2018
Faculty 1	Laurent Mydlarski, Assoc. Dean Academic Programs	L. Mydlarski	Mar 13, 2018
Faculty 2			
Faculty 3			
CGPS			
SCTP			
APC			
Senate			

Submitted By

Name	Milica Popovich, Acting GPD	To be completed by ARR:
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Submission Date	Feb; 28 2018	

10. FQRSC (Research) Indicator (for GPS): ☒ Yes No