



MEMORANDUM

To: Executive Committee of Faculty Council (November 4, 2014)
Faculty Council (November 25, 2014)

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: November 5, 2014

Re: Minor Curriculum Changes for the 2015-2016 Academic Year

REPORT CLASSIFICATION

This is a routine or minor policy matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

BACKGROUND

The Undergraduate Curriculum Committee is tasked with managing the curriculum change process for the Faculty. This report summarizes the program course changes for the upcoming academic year

STRUCTURE

Several programs have requested to make curriculum changes for the upcoming academic year.

Civil Engineering

It is proposed to move CME362S Engineering Mathematics 2, to term 2S; this reduces the long gap between CME261F and CME362S. There will be a double class next year, and then CME362S will be removed from the calendar.

The course CIV250S Hydraulics and Hydrology will add the prerequisite of CME270F Fluid Mechanics 1.

Engineering Science

The course BME205 Biomolecules and Cells will move to 2/1.5/1, from 2/1.75/1.

The course ESC203 is being changed to a 2/0/2 delivery from 3/0/1, with a more explicit statement of the societal and ethical values in the course description. The course ESC301 is being changed to a 1/0/0 delivery from a 0/0/1 delivery, and with a more explicit definition of the engineering design and safety content in the course description.

ESC499 Thesis has AU definition changed to 90% ES/10% CS, from 45% ES, 45% ED and 10% CS.

The course description for AER373 has been modified to remove the mention of the textbook.

The course BME489 Biomedical Systems Engineering Design, will move to the fall term.

The course MSE358 Structure and Characterization of Nanostructured Materials will become a technical elective for the Biomedical Systems Engineering Option.

For the Engineering Mathematics, Statistics and Finance Option, the technical electives list is being combined, as there is no distinction between Methodologies & Tools and Domain Courses. The course CSC343 Introduction to Databases is added to the technical electives list.

The “enrolment limits” listed in the description for the course CIV460 Engineering Project Finance and Management are removed.

The course ECE442 Introduction to Micro and Nanofabrication Technologies is added as a technical elective for the Physics Option.

The new course MIE4XX Micro/Nano Robotics will be added as an allowable technical elective to the new Robotics Option.

Requisites for the core Engineering Science courses are presented below

Course	Pre-requisites	Co-Requisites	Recommended Preparation	Exclusions
1F Semester				
CIV102		PHY180		CIV100
CSC180				APS105; APS106; CSC192
ESC101				APS111
ESC103				MAT190
MAT194				MAT186;

Course	Pre-requisites	Co-Requisites	Recommended Preparation	Exclusions
				APS162
PHY180				MIE100
1S Semester				
CSC190	CSC180			APS106; CSC192; ECE244; MIE250
ECE159			MAT194; ESC103	ECE110; ECE212
ESC102	ESC101			APS112
MAT185	ESC103			MAT188
MAT195	MAT194			MAT187; APS163
MSE160			CIV102	MSE101; APS104
2F Semester				
AER210	MAT195	MAT292	PHY180	MAT291; CHE211; CHE221; CME261; CME270; MAT291; MIE312
CHE260			MAT195	CHE210; CHE323; CHE326; CHE113; MSE202; MIE210
ECE253				ECE241
ESC203			ESC102	
MAT292	MAT195			CHE222; CME261; CME362; MAT290; MAT291; MAT294; MAT234
PHY293	MAT292		MAT195	PHY290; PHY291; MIE333
2S Semester				
AER201			ESC102;	

Course	Pre-requisites	Co-Requisites	Recommended Preparation	Exclusions
			CSC190; ECE159	
BME205				CHE353; BME130; BIO130
ECE259	ECE159; AER210		MAT292; MAT185	MAT291; ECE221
PHY294	PHY293		MAT292	MIE333
STA286				CHE223; CME263; MSE238; MIE236; MIE237; STA257
UPPER-YEAR COURSES				
CHE374				CHE249; CME368; MIE258
ESC499			ESC301	BME499; CHE499; MIE498; MSE498

Electrical & Computer Engineering

The pre-requisite for ECE320 Fields and Waves in ECE330 Semiconductor and Device Physics will be removed.

ECE431 Digital Signal Processing will be offered only in the F term.

The title for ECE521 “Inference Algorithms” will change to “Inference Algorithms and Machine Learning”.

The course ECE568 Computer Security will be offered in both terms.

Mechanical and Industrial Engineering

The following courses have AU changes, following the explicit introduction of engineering design into the course:

MIE250F Fundamentals of Object Oriented Programming (50% ES, 50% ED)
MIE335S Algorithms and Numerical Methods (75% MAT; 25%ED)
MIE363S Resource and Production Modelling (75% ES, 25%ED)

The course MIE358F Engineering Economics and Accounting has exclusions added for the other program economics courses.

The course MIE364S Quality Control and Improvement has the Pre-requisite for Statistics removed.

The courses MIE262F Operations Research 1, and MAT234S Differential equations are swapping terms.

The courses MIE504 Computational Fluid Dynamics, MIE5XX Micro/Nano Robotics, BME595 Medical Imaging will be added as Technical Electives in term 4S.

IBBME

The course BME440 Biomedical Engineering Technology and Innovation will move to the F term.

The title for the course BME499Y “Innovations and Applied Research and Design in Biomedical Engineering”, will be adjusted to “Applied Research in Biomedical Engineering”.

Cross-Disciplinary Programs

The following course changes are proposed:

The mutual exclusions between FOR424 Innovation and Manufacturing of Sustainable Materials, and CHE75 Biocomposites: Mechanics and Bioinspiration are removed following a course change in FOR424.

The title of CHE566 “Introduction to Nuclear Engineering” is changed to “Elements of Nuclear Engineering”.

The course code of APS520S “Technology, Engineering and Global Development” is being changed to APS420S

The following adjustments to the minors are proposed:

Engineering Business Minor

Add ECO100Y Introduction to Economics, and ASP502F Financial Engineering

Delete HPS308 Technology and Prosperity and GGR220 Spatial Organization of Economic Activity (no longer offered)

Bioengineering Minor

Add HPS319 History of Medicine II as an Introductory elective (with the restriction that only one of HPS318 or HPS319 can count for the minor)

Add CHE471S Modeling in Biological and Chemical Systems and MSE440F Biomaterial Processing and Properties to the Advanced Elective list

Add MSE352F Biomaterials and Biocompatibility to the Introductory Electives list

Robotics and Mechatronics Minor

Add ECE363 Communications Systems as an Introductory Elective

Replace MAT363 Introduction to Differential Geometry with MAT367 Differential Geometry (due to a course changes in MAT)

Sustainable Energy Minor

Add ECE463 Electric Drives as an Advanced Elective

Global Engineering Certificate

Add POL201Y Politics of Development: Issues and Controversies, POL208Y Introduction to International Relations and UNI268S Canada and Globalization as electives

PROGRAM(S)

All relevant programs are involved in these changes, and the impact on students in the various programs has been considered.

PROCESS AND CONSULTATION

This proposal has been reviewed and approved by the Undergraduate Curriculum Committee, which is comprised of faculty representatives from each undergraduate program; undergraduate students; the Vice-Dean, Undergraduate Studies; the Chair of First Year; the Associate Dean, Cross-Disciplinary Programs; and the Registrar. The Committee meets regularly and reviews changes to the undergraduate curriculum.

RECOMMENDATION AND MOTION FOR FACULTY COUNCIL

For information.