MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
           Chair, Undergraduate Curriculum Committee

Date: April 12, 2011 for April 28, 2011 Faculty Council Meeting

Re: **Proposed Curriculum Changes for the 2011-2012 Academic Year**

REPORT CLASSIFICATION

This is a Routine Matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

BACKGROUND

A number of minor curriculum changes are being proposed for the upcoming academic year.

STRUCTURE

APS501F "Leadership and Leading for Groups and Organization"

This course currently is taken by a mix of graduate and undergraduate students, and has an enrollment cap of ~40. The proposal is to convert APS501F to APS4XXS, making it an undergraduate course only, and having an enrollment cap of 100 undergraduate students. A graduate level course will remain, and will operate in the fall; it will continue to be numbered as APS501F until such time as it is changed by the Graduate program. These changes expand the number of students that can access this course.

CHE462S "Food Engineering"

This course is listed as 3/0.5/1, but has never had a laboratory. The change is to list the course as 3/0/1, which is as it is delivered.

MSE431F "Forensic Engineering"

This new course was proposed for the fall term. All of the students enrolled through COS are from MSE. They have requested that the course be delivered in the winter term as it makes for a better timetable fit.

Mechanical and Industrial Engineering has proposed a series of minor course description changes.

MIE438H1 S
Microprocessors and Embedded Microcontrollers
I - AEMECBASC 2/3/-/0.50
Review (number systems, CPU architecture, instruction sets and subroutines); Interfacing Memory; Interfacing Techniques; Transistors and TTL/CMOS Logic; Mechanical Switches &LED Displays; Interfacing Analog, A/D &D/A Conversions; Stepper Motors &DC Motors; RISC Technology and Embedded Processors; DAS Systems; Embedded Microcontroller System Design; CPU-based Control.
EXCLUSIONS: ECE 243, ECE352

- the exclusions are added consistent with the new Robotics and Mechatronics Minor.

New Description
MIE404H1 F
Control Systems I
I - AEMECBASC 3/3/2/0.50
Analysis of stability, transient and steady state characteristics of dynamic systems. Characteristics of linear feedback systems. Design of control laws using the root locus method, frequency response methods and state space methods. Digital control systems. Application examples.

- description adjusted to better reflect the course content

COVERAGE OF STATISTICS IN THE IE PROGRAM (MIE 236, 237, 242, 360)

Recommended Description (Improved wording + no lab)
MIE236H1 F   3/-/2/0.50
Probability
II - AEINDBASC
Introduction to probability (the role of probability, exploratory data analysis and basic graphical methods).Sample space and events, Venn diagram. Definitions of probability. Axiomatic definition and basic rules. Conditional probability and Bayes' rule. Concept of random variable. Discrete, continuous, and joint distributions. Probability mass function, density function, cumulative distribution function. Expectation, variance, and covariance. Important discrete and continuous distributions. Multivariate normal distribution. Functions of random variables. Moment Generating functions. Central limit theorem, laws of large numbers, Markov and Chebyshev's inequalities, types of convergence. Fundamental sampling distributions, Chi-square, t, and F distributions. One sample estimation and hypothesis testing.

- laboratory removed, and slight edit to course description

MIE237H1 S   3/1/2/0.50
Statistics
II - AEINDBASC
Two sample estimation and hypothesis testing. Least squares estimation. Simple linear
regression and correlation. Multiple linear regression. Linear models. Model building and model
assessment. Design and analysis of single and multi factor experiments. Analysis of variance.
Randomization and blocking. Fixed and random effects models. Multiple comparisons. Sample
size calculations.
Prerequisite: MIE231H1 F/MIE236H1 F or equivalent

- improved wording

MIE242H1 F   3/3/-/0.50
Psychology For Engineers
II - AEINDBASC, I – AEMINBIO
Introduction to neuroanatomy and processes that are core to perception, cognition, language,
decision making, and action. Use of experiments to test hypotheses concerning brain activities
and computations. Conducting and reporting experimental research, including confidence
intervals, P-Values, correlation, and satisfaction of research ethics requirements.

- addition of statistical methods

MIE360H1 F
Systems Modelling and Simulation   3/2/1/0.50
IV –AEESCBASEM, III –AEINDBASC, IV –AEMECBASC, IV–AEESCBASEF
Principles for developing, testing and using discrete event simulation models for system
performance improvement. Simulation languages, generating random variables, verifying and
validating simulation models. Statistical methods for analyzing simulation model outputs, and
comparing alternative system designs. Fitting input distributions, including goodness of fit tests.
Role of optimization in simulation studies.
Prerequisite: MIE231H1 F/MIE236H1 F or equivalent

- addition of a lab, and reduction in tutorial; addition of Eng Sci Finance post code

PROCESS

The Committee is composed of representatives from each program; the Vice-Dean,
Undergraduate Studies; the Chair, First Year; the Associate Dean, Cross-Disciplinary Programs;
and the Registrar's Office. The Committee meets regularly, and reviews changes to the
curriculum.

PROGRAM

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