MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
           Chair, Undergraduate Curriculum Committee

Date: September 6, 2011 for October 6, 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

MIE365H1F Operations Research III

It is proposed to change the delivery of MIE365F (Operations Research III) from 3/0/2 to 3/2/1. This course is an elective and is the 3rd in a sequence (MIE262F, MIE263S, MIE365F). The first 2 courses have 2 hr computer tutorials, but MIE365F does not. The proposal is to add a 2 hr computer tutorial, and to reduce the 2 hr class tutorial to 1 hr. This change will provide the students with class activities in support of the non-linear programming applications.

It was recognized that this is a late change for the 2011-12 academic year. A proposed timetable has been generated, and no students are impacted. MIE Computer rooms can be provided, so room allocation is not a concern.

MAT336H1F Real Analysis

MAT337 is a core course within the Engineering Math, Statistics and Finance Option. This course is offered through the department of Mathematics and both Math and Engineering Science students take this class. When the course was first offered to Engineering Science students in Spring 2011, issues of preparedness arose (basically the instructor was teaching at a level that Engineering Science students were not prepared for). To deal with this, an EngSci only

section of this course was created in late January 2011. Discussions were held with the math department to try and resolve the issue, and a new EngSci only course was proposed to replace MAT337S. The course will be timetables in place of MAT337, and no students will be impacted.

The course content is:

Part 1 Introduction
Introduction to analysis, the natural number system, induction, the integers, the rational numbers, the real numbers, completeness and the least upper bound property, cardinality of sets; countable and uncountable sets, the topology of the real line.

Part 2 Sequences, limits, and topology of Rn
Sequences of real numbers, sup, inf, limsup, liminf, limits, limit points, series, convergence tests, rearrangement of series, subsequences, Bolzano-Weierstrass theorem, limiting values of functions, continuity, left and right limits. Topology of Rn; open sets, interior points, closed sets, accumulation points, boundary points.

Part 3 Functions and Mappings
Limits and continuity, compactness and extreme values, uniform continuity, Intermediate Value Theorem, monotone functions, implicit function theorem. Differentiable mappings; matrix representation.

Part 4 Integration Theory
Review of Riemann integration; properties, Riemann sums; Riemann-Stieltjes integrals. Measure theory and integration; outer measure, measurable sets, Lebesgue measure, measurable functions, Lebesgue integration.

Part 5 Advanced Topics
Metric spaces, convergence of sequences, open and closed sets, relatively open and closed sets, Cauchy sequences, complete metric spaces, compact sets, Heine-Borel Theorem, continuity, connected sets.

PROCESS

The Undergraduate Curriculum Committee is composed of representatives from each undergraduate program, the Vice-Dean Undergraduate, the Chair of 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.

PROPOSAL/MOTION

For information.