



MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: September 30, 2013 for October 18, 2013 Faculty Council Meeting

Re: Undergraduate Curriculum Changes for 2014-15 Academic Year

REPORT CLASSIFICATION

This is a major policy matter that will be considered by the Executive Committee for endorsing and forwarding to Faculty Council for vote as a regular motion (requiring a simple majority of members present and voting to carry).

BACKGROUND

The Undergraduate Curriculum Committee is tasked with managing the curriculum change process for the Faculty. Two programs, and the Engineering Communication Program are proposing minor changes to their program.

STRUCTURE

Materials Science and Engineering

The course MSE250F “Materials Selection in Design 1” be cancelled, (this is a quarter course) and that the course MSE238F “Engineering Statistics” be increased from a quarter course to a half course. The change strengthens the program math content, and reduces overlap between MSE250 and MSE401 “Materials Selection 2”.

Mechanical and Industrial Engineering

The course MIE341S “Mechanical Engineering Design” is currently in term 3S and will be moved to 2F so that the design course is introduced earlier in the curriculum. This will necessitate the movement of the course MIE258F “Engineering Economics and Accounting” to 3F, and the shift of MIE334F “Numerical Methods I” from 3F to 3S. The courses will be renumbered, with minor edits to the course description.

Recommended Preparation courses will be added to the following courses:

MIE342 “Circuits with Applications to Mechanical Engineering” – ECE110 or ECE159

MIE301 “Kinematics and Dynamics of Machines” – MIE100 or PHY180

MIE 407 and MIE 408 “Nuclear Reactor Theory and Design” and “Thermal and Machine Design of Nuclear Power Reactors” – CHE566

The AU distribution will be changed for the courses MIE463 “Integrated System Design”, MIE313 “Heat and Mass Transfer” and MIE315 “Design for the Environment”.

Course MIE418 “Fluid Mechanics II” will be cancelled. A 5XX level CFD course is being considered)

The delivery structure for MIE354 “Business Process Engineering” and MIE253 “Data Modelling” will shift from 3/1/1 to 3/2/0, with the PRA being a computer tutorial.

The delivery structure for MIE443 “Mechatronics Systems: Design and Integration” from 3/3/1 to 2/5/0, to match the greater use of computer work in the course.

A minor edit to the course description for MIE364 “Quality Control and Improvement”:

In manufacturing and service industries alike, quality is viewed as an important strategic tool for increasing competitiveness. Continuous quality improvement is a key factor leading to a company’s success. With more emphasis on quality, the cost and the product cycle time are reduced and the communication between producer and customer is improved. The course focuses on the following topics: introduction to quality engineering, TQM, quality standards, supplier-producer relations and quality certification, costs of quality, statistical process control for long and short production runs, process capability analysis and acceptance sampling, *quality certification, six sigma quality, quality improvement using designed experiments and an overview of the Taguchi methods.*

A minor edit to the course description for MIE334 “Numerical Methods I”:

This introductory course to numerical methods includes the following topics: polynomial interpolation, numerical integration, solution of linear systems of equations, least squares fitting, solution of nonlinear equations, numerical differentiation, solution of ordinary differential equations, and solution of partial differential equations. Tutorial assignments using **MATLAB** ~~the C programming language~~ *will* focus on engineering applications relevant to the background of students taking the course.

A footnote will be added to the technical elective MIE498 “Research Thesis” to limit it to students most likely to handle the large amount of independent work. “Approval to register for the fourth-year thesis must be obtained from the Associate Chair - Undergraduate and is normally restricted to students with an overall average of at least B in their second and third years.”

Engineering Communication Program

The pre-requisites for the courses APS321 “Representing Science and Technology in Popular Media”, and APS322 “Language and Power” will be removed.

PROCESS

The Undergraduate Curriculum 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.

These changes conform with common practice in most programs in the Faculty, and thereby bring the calendar in-line with practice.

PROGRAM

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

RECOMMENDATION AND MOTION FOR FACULTY COUNCIL

THAT the changes to the undergraduate curriculum for the 2014-2015 academic year be approved.