TO: The Faculty of the Schools of Engineering

FROM: The Faculty of the Department of Freshman Engineering and
The Freshman Engineering Curriculum Committee

DATE: March 24, 2004

SUBJECT: Change of Course Requirements for the First-Year Engineering Program

The Faculty of the Department of Freshman Engineering and the Freshman Engineering Curriculum Committee have approved course requirement changes to the curriculum for the First-Year Engineering program. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Current and proposed plans of study are attached. Detailed descriptions of proposed changes are provided along with reasons for these proposed changes and notes on their implementation.

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Kamyar Haghighi, Head
Department of Freshman Engineering

Current Freshman Engineering Program

(Minimum – 32 credit hours)

First Semester

CHM 115	(4)	General Chemistry
ENGL 101	(3)	English Composition I
ENGR 100	(1)	Freshman Engineering Lectures
ENGR 106	(2)	Introduction to Computer Tools for Engineers
MA 165	(4)	Analytic Geometry and Calculus I
Other [TG 155 (2) or Approved Introductory Engineering Course (1 or 2), or General Education Elective (3)]		
	15 to 17	

Second Semester

CHM 116	(4)	General Chemistry
COM 114	(3)	Fundamentals of Speech
MA 166	(4)	Analytic Geometry and Calculus II
PHYS 152	(4)	Mechanics
CS 152 or CS 156	(2)	FORTRAN or C Programming
	17	

Proposed Freshman Engineering Program

First Semester

CHM 115*	(4)	General Chemistry
ENGR 100*	(1)	Freshman Engineering Lectures
ENGR 126*	(3)	Engineering Fundamentals and Problem Solving
MA 165*	(4)	Analytic Geometry and Calculus I
Selective(s)#	(2-6)	
	14-18	

Second Semester

CHM 116*	(4)	General Chemistry
CS 160*	(3)	Introduction to Programming with Applications to Engineering and Physical Science Problems
MA 166*	(4)	Analytic Geometry and Calculus II
PHYS 152*	(4)	Mechanics
Selective#	(0-3)	
	15-18	

* Required Freshman Engineering course

\# Selective courses include CGT 163/164, COM 114, ENGL 106/108, and general education electives. ENGL 106/108 and COM 114 are strongly recommended, because one or both may be required for graduation from some professional programs. CGT 163 is required for graduation in AAE and ME. CGT 164 is required for graduation in CE, LSE and CEM.

- Students are eligible for consideration for admission to the professional schools upon completion of the required Freshman Engineering courses (27 credit hours) plus a 2 or 3 credit hour selective (CGT 163/164, COM 114, ENGL 106/108, or a general education elective). Students expecting to complete their degrees within eight semesters, however, should plan on completing at least 32 credit hours of applicable coursework during the freshman year.

Reasons:

- The course changes will allow the introduction of more engineering content into the first-year program. The proposed curriculum will allow for a two semester sequence between ENGR and CS to provide an "engineering" presence throughout the year.
- The reduction in the common core requirements will allow greater flexibility in the paths chosen by students in navigating the first-year program, while maintaining a common core.
- ENGR 126 represents a change in focus toward Engineering Fundamentals and away from computer logic development, which will now be covered in CS 160, as compared with the existing ENGR 106 course. Excel and MATLAB will be introduced *only* as a means to solve engineering fundamental problems. The engineering fundamental topics will be selected to provide students with a representative view of engineering and to lay a foundation which can be built upon by all engineering schools. The course will be positioned to take advantage of the new facilities that will be coming on-line in the Millennium Building.
- CS 160 is being developed, as a replacement for CS 156/158, to build upon the introduction of computer tools in ENGR 126 and provide a rigorous development of programming logic using the context of engineering problems. Students completing this course will develop an understanding of both C and MATLAB syntax. Integrating MATLAB into the CS course will satisfy the demand for tools proficiency and will also provide a connection to the ENGR 126 course. An additional emphasis of CS 160 will be to build upon the introduction to teaming that students will receive in ENGR 126, while the engineering context will contribute to the feeling of a two semester engineering sequence.

Notes:

- All first-year students will continue to be encouraged to enroll and participate in EPICS, BAND, ROTC, and other for-credit pursuits to the extent that their schedules will permit.
- All first-year students will continue to be encouraged to enroll and participate in the various available seminar classes to the extent that their schedules permit and their interests dictate. These seminar offerings include ENGR 103, 104, 180, and 194, as well as ABE 120, MSE 190, and NUCL 110.