

To: Faculty of the College of Engineering

From: Faculty of the School of Chemical Engineering

Subject: Curriculum Change

The faculty of the School of Chemical Engineering has approved the following change and submits it for your approval.

**New requirements:** The change indicated below changes the math sequence of classes. MA 265 and MA 266 will be replaced by MA 262 and the addition of MA 303. The change will not affect the total credit hours required for graduation (131). To make room for these courses, two free elective credits have been removed. These requirements will affect Chemical Engineering majors entering the Department of Engineering Education in the fall of 2005.

**Reasons:** The proposed changes in the math requirements serve to increase the scope of calculus based concepts to which Chemical Engineering students are exposed and to include more advanced background in ordinary and especially partial differential equations. Important math concepts not taught previously within the old math requirements and which are needed in the junior and senior level CHE core courses will now be covered. Also, the new math requirements, by extending through the fifth semester, will better complement and reinforce the applied math skills required in various Chemical Engineering core courses.

**Present**

**Proposed**

**FRESHMAN YEAR**

First Semester

(4) CHM 123 or 115<sup>a</sup> Gen. Chemistry  
(4) ENGL 106 or 108 (3) English Comp I  
(1) ENGR 100 Freshman Engr Lec  
(2) ENGR 106 Intro to Computer  
(4) MA 165 or 161<sup>b</sup> Geom & Calc I  
(3) Elective<sup>d</sup>  
17 or 18

Second Semester

(4) CHM 124 or 116<sup>a</sup> Gen. Chemistry  
(3) COM 114 Fund. of Commun  
(4) MA 166 or 162 Geom & Calc II  
(4) PHYS 152 Mechanics  
(2) CS 156<sup>c</sup> C Programming  
17

**Present****Proposed****SOPHOMORE YEAR**Third Semester

(0) CHE 200 Chem Engr Seminar  
 (3) CHE 205<sup>e</sup> Chemical Engr Calc  
 (3) CHM 261 Organic Chemistry I  
 (1) CHM 263 Organic Chem Lab I  
 (4) MA 261 Multivariate Calculus  
 (3) MA 265 Linear Algebra  
(3) ELECTIVE  
 17

(0) CHE 200 Chem Engr Seminar  
 (3) CHE 205<sup>e</sup> Chemical Engr Calc  
 (3) CHM 261 Organic Chemistry I  
 (1) CHM 263 Organic Chem Lab I  
 (4) MA 261 Multivariate Calculus  
 (3) PHYS 241 Electricity & Optics  
(3) ELECTIVE  
 17

Fourth Semester

(3) CHE 211 Chem Engr Thermo  
 (3) CHE 320 Statistical Modeling  
 (3) CHM 262 Organic Chemistry II  
 (1) CHM 264 Organic Chm Lab II  
 (3) MA 266 Differential Equations  
  
(3) PHYS 241 Electricity & Optics  
 16

(3) CHE 211 Chem Engr. Thermo  
 (3) CHE 320 Statistical Modeling  
 (3) CHM 262 Organic Chemistry II  
 (1) CHM 264 Organic Chm Lab II  
 (4) MA 262 Linear Algebra and  
 Differential Equations  
  
(3) ELECTIVE  
 17

**JUNIOR YEAR**Fifth Semester

(3) CHE 306 Staged Separations  
 (3) CHE 377 Momentum Transfer  
 (3) CHM 370 Physical Chemistry  
 (2) CHM 376 Physical Chem Lab  
 (3) BIOL 295E (or equivalent)  
(3) ELECTIVE  
 17

(3) CHE 306 Staged Separations  
 (3) CHE 377 Momentum Transfer  
 (3) CHM 370 Physical Chemistry  
 (2) CHM 376 Physical Chem Lab  
 (3) BIOL 295E (or equivalent)  
(3) MA 303 Differential Equations for  
 Engineering and the Sciences  
 17

Sixth Semester

(0) CHE 300 Chem Engr Seminar  
 (3) I E 343 Engr Cost Analysis  
 (3) CHE 330 Prin of Molec Engr  
 (3) CHE 348 Chem Reaction Engr  
 (3) CHE 378 Heat & Mass Transfr  
(5) ELECTIVES  
 17

(0) CHE 300 Chem Engr Seminar  
 (3) I E 343 Engr Cost Analysis  
 (3) CHE 330 Prin of Molec Engr  
 (3) CHE 348 Chem Reaction Engr  
 (3) CHE 378 Heat & Mass Transfr  
(4) ELECTIVES  
 16

**SENIOR YEAR**Seventh Semester

(0) CHE 400 Chem Engr Seminar  
 (3) CHE 434 Chemical Engr Lab I  
 (3) CHE 456 Process Dyn & C'trol  
(9) ELECTIVES  
 15

## Present

## Proposed

### Eighth Semester

(3)	CHE	435	Chem Engr Lab II
(3)	CHE	450	Design...Process Sys
<u>(9)</u>	ELECTIVES		
15			

#### Footnotes:

#### Present

<sup>a</sup> ChE prefers that students take the CHM 123/124 sequence. Students who have taken CHM 115/116 will also be accepted into the School of Chemical Engineering.

<sup>b</sup> The MA 165/166 (4 cr. each) sequence is preferred; however, the MA161/162 (5 cr. each) sequence may be taken. If MA 161 and/or 162 is taken, these courses will be accepted as only 4 credit hours each toward meeting the graduation requirements for ChE.

<sup>c</sup> C Programming is preferred by ChE; however, FORTRAN will be accepted. If CS 158 or ENGR 115 (both 3 cr. each) are taken, the extra credit may be used toward meeting the "free" or "technical" elective requirements.

<sup>d</sup> A general education elective is suggested in this semester.

<sup>e</sup> A "C" or better must be earned in CHE 205 to continue to enroll in CHE courses.

#### Proposed

<sup>a</sup> ChE prefers that students take the CHM 123/124 sequence. Students who have taken CHM 115/116 will also be accepted into the School of Chemical Engineering.

<sup>b</sup> The MA 165/166 (4 cr. each) sequence is preferred; however, the MA161/162 (5 cr. each) sequence may be taken. If MA 161 and/or 162 is taken, these courses will be accepted as only 4 credit hours each toward meeting the graduation requirements for ChE.

<sup>c</sup> C Programming is preferred by ChE; however, FORTRAN will be accepted. If CS 154, CS 158 or ENGR 117 (3 cr. each) are taken, the extra credit may be used toward meeting the "free" elective requirements.

<sup>d</sup> A general education elective is suggested in this semester.

<sup>e</sup> A "C" or better must be earned in CHE 205 to continue to enroll in CHE courses.

#### Present

†The 33 credit hours of elective courses are to be selected by the student in consultation with his or her undergraduate counselor to best fulfill the objectives of the individual student's program (see options on page 37). Broadly speaking, the elective program consists of 3 credit hours of technical electives, 9 credit hours of engineering electives, 18 credit hours of general education electives, and 3 credit hours of unrestricted electives. The specifics of this program are outlined on planning sheets provided by the undergraduate office to all students entering the school.

#### Proposed

†The 31 credit hours of elective courses are to be selected by the student in consultation with his or her undergraduate counselor to best fulfill the objectives of the individual student's program (see options on page 37). Broadly speaking, the elective program consists of 3 credit hours of technical electives, 9 credit hours of engineering electives, 18 credit hours of general education electives, and 1 credit hours of unrestricted electives. The specifics of this program are outlined on planning sheets provided by the undergraduate office to all students entering the school.

A. Varma, Head  
School of Chemical Engineering  
Date: 2/8/05