

TO: Faculty of the Schools of Engineering
FROM: Faculty of the School of Chemical Engineering
SUBJECT: New Undergraduate Level Course

The Faculty of the School of Chemical Engineering has approved the following new course effective Fall 1996. Approval of the Faculty of the Schools of Engineering is requested for CHE 303.

CHE 303, FRONTIERS IN CHEMICAL ENGINEERING

A. COURSE DESCRIPTION

Semester 1 or 2, Class 1, Credit 1
Prerequisite: Junior Standing in Chemical Engineering or Permission of the Instructor Required

Exposure to advances in thermodynamics, fluid mechanics, heat and mass transfer, kinetics and reaction engineering. Applications of chemical engineering in case studies from the biomedical, biochemical, pharmaceutical, polymer and microelectronics industry.

B. REASON

To expose students to advanced subjects in various chemical engineering sectors in preparation for research and development opportunities at the undergraduate and graduate levels, and to better prepare students for graduate school.

**APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS**

CFR Minutes #866

Date February 7, 1997

Chairman CFR R. Neal Houze



G. V. Reklaitis, Head
School of Chemical Engineering

SUPPORTING DOCUMENTATION

1. **Justification:**
 Increasing needs in the Research and Development sector of companies, as well as better preparation of undergraduate students for graduate school call for the preparation of honors ChE students who will be exposed to more advanced subjects in thermodynamics, fluid mechanics, heat and mass transfer, and reaction engineering. In addition, this course provides short reviews of other chemical engineering sectors such as bioengineering, electronic applications and polymers. Grades are given based on the performance of the students in one or two case studies. This course has been offered as ChE 597H six times and has been well received. Eleven students took it in the Spring 1993, twenty eight in Fall 1993, twenty four in Fall 1994, thirteen in Spring 1995, twenty two in Fall 1995, and twenty in Fall 1996.
2. **Level:** This is a junior level course
3. **Prerequisites:** Junior Standing in Chemical Engineering or Permission of the Instructor Required
4. **Course Instructors:** Professor N. A. Peppas and staff

5. **Course Outline:**

<u>Topics</u>	<u>No. of Lectures</u>
a. Introduction to ChE	1
b. Thermodynamics	3
c. Fluid Mechanics	2
d. Heat and Mass Transfer	2
e. Kinetics	2
f. Design	3
g. Advances in ChE	2

6. **Text:** No textbook is required

APPROVED FOR THE BOARD OF THE SCHOOL OF ENGINEERING BY THE COMMITTEE ON FACULTY RELATIONS

 Dean

 Chairman