

SENATE

PROPOSAL SCC #99700-403

OCT 27

CURRICULUM PROPOSAL FORM 1999-2000

NON-GENERAL EDUCATION PROCESS A

RECEIVED

*DEADLINES: Deadline dates for 1999/2000 submissions: Regular proposals: October 22, 1999 to be implemented in Fall 2000; Short-Term proposals: December 10, 1999 to be implemented in Fall 2000; Regular proposals February 18, 2000 to be implemented in Spring 2001; March 24, 2000 for short-term courses to be implemented in Spring 2001

0906.481

PROPOSAL TITLE: Advanced Process Analysis (0906.481)

SPONSOR(S): Dr. James A. Newell and the Chemical Engineering Curriculum Committee

DEPARTMENT: Chemical Engineering

COLLEGE: Engineering

IF LAS CHECK ONE: History/Humanities Math/Science Social/Behavioral Sciences

Check one: Undergraduate Graduate

THE ATTACHED NON-GEN-ED PROPOSAL IS BEST DESCRIBED BY THE ITEM(S) CHECKED.

New non-gen-ed course

Short-term non-gen-ed course

Minor curricular changes (fewer than three) to:

- existing non-gen-ed course
- non-gen-ed degree requirements
- major
- minor, specialization, concentration, track certificate program

DEPARTMENT

(Signature indicates approval)

Dept. Curriculum Chair/Date *Ravi Mohan Ramachandran* 10/25/99

Dept. Chairperson/Date *[Signature]* 10-22-99

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date *[Signature]*

COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 12/8/95 Approved Not Approved

Comments:

Signature of College Chair/Date: Ravi Bish Rameshwaran

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed 2/3/00

Comments:

Curriculum Chair Signature: [Signature] Date Announced At Senate 2/4/00

EXECUTIVE VICE PRESIDENT/PROVOST

Approved Not Approved If no, reasons are as follows:

Student Credit Hours: _____ Faculty Load Hours: _____ Equalized Credit Hours _____

Official Copy & Approval Sheet Filed (Date): _____ Executive VP/Provost Signature/Date [Signature] 2/21/00

REGISTRAR

Date Approved Course Description Required _____
Hegis Taxonomy & Course Number Assigned 0906.451

Registrar Signature/Date Robert A. Kubat 2/15/00

NOTIFICATION FORWARD

____ Senate Curriculum Committee Chairperson ____ Academic Dean(s)
____ Department Chairpersons ____ Registrar ____ Sponsor(s)

Course Proposal

1. Details:

- a) Course Title:** Advanced Process Analysis (0906.481)
b) Sponsor: James A. Newell and the Chemical Engineering Curriculum Committee
c) Credit Hours: 3 credit hours
d) Course Level: Senior
e) Curricular Effect: Technical Elective for senior engineering students
f) Prerequisites: Senior Standing
g) Suggested Time/ Spring 2001
Scale of Implementation: 1 section
h) Resources: Faculty will be hired consistent with the College of Engineering multi-year budget. No computer software beyond what is currently available will be necessary. Laboratory equipment will be obtained consistent with the College of Engineering capital budget. Library acquisitions will be required consistent with current acquisition plan.

2. Rationale:

The proposed course is a graduate elective in the College of Engineering and is consistent with the establishment of the College of Engineering approved by the Board of Trustees in February 1995.

The course will address process analysis including process consistency, process selection, process optimization, and process documentation.

3. Essence of the Course:

a) Objectives:

Upon completion of the course, students will be able to:

1. Validate the consistency of engineering processes.
2. Identify optimal processing options based on economic analysis.
3. Perform Detailed Process Equipment Replacement Analysis.
4. Prepare and analyze process documentation including budgets and flow sheets.
5. Optimally Ration limited resources among engineering projects

6. Work in teams to solve open-ended design problems.

b) Topical Outline:

The course will be divided into topical modules, each of which will address a specific aspect of process analysis. The topical outline is presented below

Process Consistency

Mass Balances

Closure Issues

Process Optimization

Economic Analysis

Rates of Return

Depreciation and Taxes

Equipment Replacement Analysis

Sensitivity Analysis

Process Selection

Identification of Processing Alternatives

Rationing of Resources

Process Documentation

Budgets and Financial Statements

Process Flowsheets

c) Evaluation and Grading Procedure of Students:

Student grades will be based on examinations, homework, and in-class group assignments. A course syllabus with a stated method of arriving to the final grade, e.g., number of exams, projects, homework, percentage of grade, will be distributed to students the first week of classes.

d) Course Evaluation:

The proposed course will be evaluated on the basis of student evaluations and curriculum review by appropriate faculty.

Catalog Description

Process Analysis (0906.481)

Prerequisite: Senior Standing

This course will examine advanced topics in process analysis including: process consistency, identification of optimal process based on economic analysis, process documentation including flowsheets and budgets, replacement analysis for processing equipment, and rationing limited resources between competing projects