

SENATE

2

CURRICULUM PROPOSAL FORM 1999-2000

OCT 27

NON-GENERAL EDUCATION PROCESS A

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.

0906.480

PROPOSAL TITLE: Project Optimization in Engineering (0906.480)

SPONSOR(S): Kevin D. Dahm

DEPARTMENT: Chemical Engineering

COLLEGE: Engineering

IF LAS CHECK ONE: History/Humanities Math/Sciences 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) *Kevin D. Dahm* 10/25/99

Dept. Curriculum Chair / Date *[Signature]* 10/25/99

Dept. Chairperson / Date

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date *[Signature]*

COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 12-8-99 Approved Not Approved

Comments:

Signature of College Chair/Date: Ravi Rishi Ramchandran

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed 2/1/00

Comments:

Curriculum Chair Signature [Signature] Date Announced At Senate 1/16/00

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] 2/1/00

REGISTRAR

Date Approved Course Description Received _____ Hegis Taxonomy & Course Number Assigned 0906.420

Registrar Signature/Date Robert A. Lubat 2/1/00

NOTIFICATION FORWARD

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

Course Proposal

1. Details:

- a) Course Title:** Project Optimization in Engineering (0906.480)
b) Sponsor: Kevin D. Dahm and the Chemical Engineering Curriculum Committee
c) Credit Hours: 3 credit hours
d) Course Level: senior
e) Curricular Effect: Technical Elective for engineering majors
f) Prerequisites: Junior Engineering Clinic I and II (0901.301, 0901.302)
g) Suggested Time/Scale of Implementation: Fall 2000
1 section
h) Resources: Faculty have been hired consistent with the College of Engineering multi-year budget. No computer software or laboratory equipment beyond what is currently available will be necessary.

2. Rationale:

The proposed course is a new offering consistent with other courses in the Engineering Curriculum Proposal approved by the College Senate in December 1994. The proposed course is consistent with the establishment of the College of Engineering approved by the Board of Trustees in February 1995.

The proposed course is a Technical Elective for all Engineering majors and satisfies the Engineering Topics credit requirements of the Education and Accreditation Committee (EAC) of the American Institute of Chemical Engineers (AIChE) for accreditation of the Chemical Engineering program by the Accreditation Board for Engineering and Technology (ABET).

The course will overview organization, direction and execution of long-term projects in engineering. Topics will include project organization, scheduling, resource allocation, optimization and financial analysis. Research and engineering mini-projects and role-playing exercises with rotating assignments will give the students practical experience, both from the perspective of the leader and from the perspective of people that routinely interact with the leader: employees, consultants, contractors, etc.

3. Essence of the Course:

a) Objectives:

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

1. Assemble complete, workable proposals and plans for engineering projects.
2. Select and implement valid project organizations

3. Apply principles of probability and economics to problems of resource utilization and budgeting
4. Optimize projects using modern modeling techniques.
5. Work in teams to solve open-ended research and engineering problems.
6. Assess the economic, professional and social impact of the project outcome.

b) Topical Outline:

The topics to be covered are listed below. The instructor will supply students with a syllabus during the first week of classes. The instructor will assess advances in the subject matter prior to the course, with particular attention to the continuing evolution of relevant software, and implement any changes deemed appropriate to maintain the level and currency of the course.

Project Planning

- Components of a plan
- Assessing feasibility
- Constructing effective proposals
- Professional responsibility and safety

Project Organization and Scheduling

- Selecting an organizational structure
- Gantt charts
- Network analysis

Project Optimization and Execution

- Assessing resource requirements
- Retrofitting and exploiting existing resources
- Financial analysis and budgeting
- Development and use of process models

Project Assessment

- Assessing experimental results
- Environmental impact
- Economic analysis and financial impact
- Scale-up considerations

c) Evaluation and Grading Procedure of Students:

Student grades will be based on quizzes and projects, with emphasis on the latter. A course syllabus with a stated method of arriving to the final 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

Project Optimization in Engineering (0906.480)

Prerequisite: Junior Engineering Clinic I and II (0901.301, 0901.302)

This course will overview strategies for planning and directing long-term engineering projects. Topics will include project organization, project scheduling, allocation of resources, project optimization and financial analyses.