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PROPOSAL SCC #01-02- H/C

CURRICULUM PROPOSAL FORM 2001-2002

NON-GENERAL EDUCATION PROCESS A

***DEADLINES:** Deadline dates for 2001/2002 submissions: Regular proposals: October 19, 2001 to be implemented in Fall 2002; Short-Term proposals: December 7, 2001 to be implemented in Fall, 2002; Regular proposals February 15, 2002 to be implemented in Spring, 2003; March 22, 2002 for short-term courses to be implemented in Spring 2003.

PROPOSAL TITLE: Controlled Release Theory, Technology and Applications C906-584

SPONSOR(S): Stephanie H. Farrell and the Chemical Engineering Curriculum Committee

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)

[Signature] 10/17/01
Dept. Curriculum Chair / Date

[Signature] 10-17-01
Dept. Chair/Person / Date

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date *[Signature]*

COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 4/26/02 Approved Not Approved _____
Comments:

Signature of College Chair/Date: Kim O Quinn

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed _____
Comments:

Curriculum Chair Signature Juilette Reeves Date Announced At Senate 6/5/02

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 Allen G. Lee
10/31/02

REGISTRAR

Date Approved Course Description Received _____ Hegis Taxonomy & Course Number Assigned CYOC 384

Registrar Signature/Date Edwin E. Eggleston

NOTIFICATION FORWARD

Senate Curriculum Committee Chairperson Academic Dean(s) Cap. Art. Koch
 Department Chairpersons Registrar Tr 11/22/02 _____ Sponsor(s)

Course Proposal

1. Details:

- a) Course Title:** Controlled Release Theory, Technology and Applications (0906.584)
- b) Sponsor:** Dr. Stephanie H. Farrell and
Chemical Engineering Curriculum Committee
- c) Credit Hours:** 3 credit hours
- d) Course Level:** Graduate
- e) Curricular Effect:** Technical elective for engineering graduate courses
- f) Prerequisites:** Graduate standing and approval of Graduate Advisor
- g) Suggested Time/
Scale of Implementation:** Fall 2002
1 section
- h) Resources:** Faculty will be hired consistent with the College of Engineering multi-year budget. No computer software beyond what is currently being acquired for approved course 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 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 will address the areas of controlled release that are important multidisciplinary topics relevant to many areas of engineering and science. The course will describe the basic principles of controlled release, focusing on mechanisms of rate control, design, analysis, modeling, and fabrication. Applications relevant to pharmaceutical, agricultural, and food industry will be addressed.

3. Essence of the Course:

a) Objectives:

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

1. Understand the fundamentals of thermodynamics, kinetics and mass transfer as related to controlled release systems.
2. Design controlled release systems.
3. Model and simulate controlled release systems using analytical mathematics or numerical simulation.
4. Analyze the basic mechanisms of rate control in controlled release systems.
5. Use computer software to analyze release profiles.
6. Lead teams to solve complex, open-ended design problems.

b) Topical Outline:

The topics to be covered are listed below. The instructor will supply the students with a syllabus during the first week of classes. The instructor will assess any technology advances in the subject matter prior to the course and make topic changes as deemed appropriate to maintain the level and currency of instruction.

Introduction to Controlled Release

- Objectives
- Traditional methods
- Mechanisms of controlled release
- Modeling of controlled release systems

Rate Control in Controlled Release Systems

- Diffusion-controlled Matrix Systems
- Membrane-controlled Systems
- Erodible Systems
- Osmotic Systems

Routes of Drug Delivery for Controlled Release Systems

- Oral controlled release
- Parenteral drug delivery
- Transdermal delivery
- Nasal Delivery

Pharmacokinetics

- Dissolution, absorption, metabolism, excretion
- Single and multiple dose

Injection, ingestion, and controlled delivery
Pharmacokinetic models

Pesticide Delivery

Environmental fate of pesticides
Products
Techniques

Design and Fabrication of Controlled Release Devices

Regulatory Issues
Formulation
Testing

Evaluation and Grading Procedure of Students:

Student grades will be based on examinations, homework and required semester presentations and projects. 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.

4. Results of Consultations:

The proposed course is part of the Engineering Curriculum Proposal approved by the Faculty Senate in December 1994. No consultations are relevant.

Catalog Description

Controlled Release Theory, Technology and Applications (0906.584)

Prerequisite: Graduate standing and approval of Graduate Advisor

Controlled release systems are designed to provide delivery of an agent at a pre-determined rate for an extended period of time. Controlled release offers several advantages over traditional methods of formulation and administration: maintenance of effective concentrations for a sustained period, less total agent required, cost effectiveness, convenience and compliance. This course investigates controlled release technologies through the application of chemical engineering principles. Knowledge of materials, mass transfer, heat transfer, fluid flow and chemical reactions are used to analyze and design controlled release systems. Applications to pharmaceutical, agricultural, and food industries will be explored. Laboratory experiments and demonstrations will be integrated throughout the course. A project will focus on the development of an original design and fabrication for a controlled release application.

Faison, Christy

From: Farrell, Stephanie
Sent: Thursday, October 17, 2002 5:29 PM
To: Lewi8025@groupwise.rowan.edu
Subject: RE: Stephanie,



Library Form.doc

Phillip, Thanks for following up on my course proposal. It has been a long process, but it looks like we can see the light! Here's the information you requested:

1. The library form is attached.
2. I will teach the course. This course will be offered as part of the normal Chemical Engineering Elective course rotation.

Thanks. Please don't hesitate to ask me for more information should any additional questions arise.

Stephanie Farrell

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Rowan University
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farrell@rowan.edu
<http://engineering.rowan.edu/~farrell>

-----Original Message-----

From: Lewis, Phillip A.
Sent: Thursday, October 17, 2002 4:36 PM
To: Farrell, Stephanie
Subject: Stephanie,

Stephanie,

This is a follow-up to my lengthy an rambling voice mail message. Regarding Proposal 01-02-410 Controlled Release Theory, Technology and Applications, I need the following:

1. A Library Consultancy
2. And a statement of the faculty needed to teach the course.

These requests are a response to the Provost's questions. So, if you can provide me with the responses, I will attach them to the proposal and re-submit it to the Provost via the Associate Provost (Christy Faison). Thanks.

...PAL

Phillip A. Lewis, Ph.D.
Assistant Professor
Marketing Department
Rowan University



Department of Geography and Anthropology

October 29, 2002

Dr. Ralph Dusseau
DRBA Professor and Chair
Department of Civil and Environmental Engineering
Rowan University
Glassboro, NJ 08028

Dear Dr. Dusseau:

As you requested, I am writing to offer my support for five course proposals written by professor Mehta of your department. I have carefully reviewed the proposals for the following courses:

1. Transportation Engineering [0908-361]
2. Design Elements of Transportation Engineering [0908-564]
3. Pavement Analysis and Evaluation
4. Advanced Pavement Analysis and Evaluation
5. Surveying and Engineering Graphics [0908-203]

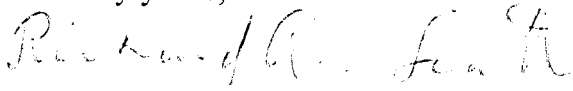
Considered individually, each of the course proposals is complete, logical, and well thought out. Taken together, the proposals would seem to provide undergraduate and graduate students with a comprehensive overview of many of the issues relevant to transportation systems. I am especially impressed by the way in which the proposals dovetail with one another, thereby providing students with a complete tapestry of related material relevant to the topics covered.

A frequent concern of curriculum committees is the question of whether or not proposals for new courses in one department overlap inappropriately with those offered by another department. In this set of courses, I see no significant overlap with courses offered by our department. Even though we do offer a course in transportation geography, that course has very little in common with those proposed here. Specifically, the only area in which there might be overlap is with the course, Design of Elements of Transportation Engineering, where there is some treatment of traffic generation and demand forecasting, a topic treated, to some degree, in our geography of transportation course. Inasmuch as this course is at the graduate level, this overlap in material treated is no concern to me. Moreover, I am very strongly opposed to the notion that there can be no overlap among or between disciplines.

Additionally, I believe that some of the courses might be of interest to students in departments other than yours. For instance, majors in our department who have an interest in planning could certainly benefit from Transportation Engineering [0908-361] and Surveying and Engineering Graphics [0908-203].

After careful review of these proposals, I can give my strong support to all of them and urge the curriculum committee to vote their approval.

Sincerely yours,

A handwritten signature in cursive script that reads "Richard A. Scott".

RICHARD A. SCOTT, Ph.D.

Professor of Geography