

G912
407
10/11/05

PROCESS C New Programs-Major Program Revisions-Title Changes

SCC#05-06-

Library Resource Form Required

Submission Deadlines: Fall - October 11, 2005 Spring - February 14, 2006

TITLE Specialization in Engineering Management within the Existing Master of Science in Engineering Degree Program

Sponsor(s) Ralph Alan Dusseau e-mail: dusseau@rowan.edu
e-mail:
e-mail:

DEPARTMENT Civil and Environmental Engineering Program
College College of Engineering

If LAS -check: History/Humanities Social/Behavioral Sciences
 Math/Science

UNDERGRADUATE GRADUATE

DESCRIBE:

New Degree dusseau concentration, specialization, track
 New Major Newlands@rowan.edu
 New Certif GA)
 Major cha rificate program
 Changes re
 Quasi ci

Signatures Required: represent

the Senate

Department Chair:

Date: 10/11/05

Department CURRICULUM Chair:

Date: 10/11/05

Academic DEAN:

Date: 10/11/05

COLLEGE CURRICULUM CC

1/27/06

Signature: College Curriculum Chair

Ken So on

Signature: SENATE CURRICULUM CHAIR

WLC

Date: 2/27/06

Comments:

Signature: Executive Vice President/Provost:

Ch. Fren

Date: 5/17/06

Approved:

Not Approved:

Signature: REGISTRAR

Handwritten signature

Date: 5/30/06

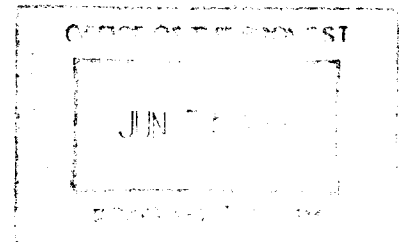
Course Description Received & Approved

Hegis Taxonomy & Course #

Notification Forward:

SCC CHAIR
 IR
 CAP
 Registrar

Academic Dean
 Department Chair
 VP/Student Affairs
 Other-



This form **MUST BE COMPLETED FOR NEW COURSE or PROGRAM PROPOSALS, and EXTENSIVE CHANGES TO A COURSE or PROGRAM.**

The purpose of this form is to provide a channel of communication between the Campbell Librarians and faculty when submitting new course or program proposals, or making extensive changes to existing courses or programs. The information will be used to assess the resources available in the library, and to identify resources the library should acquire to support the new courses/programs, or extensive changes to same. The information will also provide the rationale for institutional support for library acquisitions. This form should be completed in a coordinated effort between the course sponsor(s) and the academic department liaison librarian.

Note: Sponsor(s) complete parts A & B
If assistance is required to complete, please notify the librarian liaison.
Forward this form to the librarian who will complete parts C, D & E

When form is completed, attach to the original curriculum proposal before submitting to the Senate office.

A. College: Engineering

Department: Civil and Environmental Engineering

Proposed by: Ralph Alan Dusseau

Date: October 11, 2005

COURSE TITLE: Specialization in Engineering Management within the Existing Master of Science in Engineering Degree Program

Anticipated Date for Course/Program Offering: Fall 2006

B. List specific resources that should be acquired to support this course.

No additional library resources will be required to support this new degree specialization.

C. Describe the resources available in the library to support this course/program, including reference, monographic, electronic databases, audio-visual materials, etc. A summary statement is sufficient.

We have 12 books in the library on the subject of Engineering Management, all published in the past 25 years. We also have 60 titles under the subject heading Operations Research.

D. List key periodicals available in the library to support this course/program.

Key periodicals for engineering management available electronically through the library include: *Engineering Optimization*, *Operations Research*, and *Project Management Journal*.

E. Librarian comments & recommendations:

The library can support the new specialization with our current resources.

LIBRARIAN LIAISON: Denise Brush

Signature: Denise A. Brush

Major Program Revisions – Specialization in Engineering Management within the Existing Master of Science in Engineering Degree Program

1. Details

Description of Changes:

A new Specialization in Engineering Management is proposed for inclusion within the existing Master of Science in Engineering degree program.

Sponsor:

Ralph Dusseau, Professor and Chair, Civil and Environmental Engineering Program

2. Rationale

A) Need for Change:

Engineering is evolving into a more management-oriented profession. For example, the American Society of Civil Engineers is calling for changes to state regulations that would require applicants for professional engineering licensure to have either a bachelors and a masters degree or a bachelors degree with 30 post-bachelors credits of graduate study. One of the most important areas targeted for this additional year of study for professional licensure is the topic of project management, which is an important subset of engineering management. Similar changes are taking place within the other engineering disciplines. Thus, the topic of engineering management is rapidly become an important area of study for engineering students. In order to keep the College of Engineering at Rowan University on pace with these changes in the engineering profession, a Specialization in Engineering is proposed at the graduate level. This specialization would provide existing bachelors degree holders with the opportunity to fill out their resumes with a course of study that would enhance their prospects for success within the engineering profession. This specialization would also position Rowan University for potential growth in an area that growing rapidly across the country.

B) Description of Curricular Effect

The proposed Specialization in Engineering Management would join the five existing Specializations within the Master of Science in Engineering degree program which are Chemical, Civil, Electrical, Environmental, and Mechanical Engineering. The general requirements for this new Specialization in Engineering Management are described in detail on the following pages.

Courses for the proposed program have already begun with the course 0906.580 Optimization of Engineering Projects being taught at the FAA Tech Center in Fall 2005 as part of the FAA Tech Center initiative funded by the U.S. Department of Education, NASA, and the FAA. This initial course offering currently has over 20 students and future offerings are expected to have the same or higher levels of enrollment. These courses were begun at the FAA Tech Center because of the strong desire by FAA to provide engineering management courses and programs for their employees and subcontractors.

- 3. Results of Consultation:** Consultations were solicited from Dr. Robert Fleming, Chair, Department of Business Administration and Dr. Ronald Czochor, Chair, Mathematics Department. Copies of these consultations are attached.

Admissions Requirements

The admission requirements are the same as the existing Master of Science in Engineering Program. In addition to the University requirements for entrance into a graduate program, the following are required:

1. A bachelor of science in engineering from a program accredited by the Accreditation Board for Engineering and Technology (ABET) or equivalent degree.
2. Students holding a bachelor's degree in science or mathematics disciplines can be admitted into the program provided they have completed all the course requirements listed in Group A and any 6 courses from Group B.

Group A: Chemistry I, Physics I, Calculus I-III, Computer Programming, Differential Equations

Group B: Physics II, Statics, Solid Mechanics, Engineering Materials, Dynamics, Thermodynamics, Fluid Mechanics, Chemistry II, Transfer Processes, Chemical Process Principles, Physical Chemistry I, Organic Chemistry I, Reaction Engineering, Electromagnetics, Separation Processes, Network Theory, Digital Signal Processing, Electronics, Communication Theory, Control Systems, Data Communication & Networking, Operating Systems, Digital Design, Principles of Digital Computers, Numerical Analysis, Partial Differential Equations

General Requirements for the Specialization in Engineering Management within the Existing Master of Science in Engineering Degree Program

The Master of Science in Engineering with a Specialization in Engineering Management will require 30 semester hours of graduate-level courses and thesis/project study. Each student will be assigned a graduate advisor who will approve the student's program, subject to the guidelines of the University and the College of Engineering. With the assistance of the graduate advisor, students will choose courses leading to the Specialization in Engineering Management.

I. Required Common Core 12 S.H.

Two graduate mathematics/computer applications courses will be required from the list below (or other graduate mathematics/computer applications courses approved by the student's graduate advisor):

0901.511 Engineering Optimization
1701.515 Engineering Applications of Analysis
1703.511 Operations Research I
1703.512 Operations Research II

Two graduate business courses will be required from those listed below (or other graduate business courses approved by the student's graduate advisor):

0506.510 Strategic Engineering Management
0506.xxx Corporate Entrepreneurship and New Venture Development

II. Engineering Electives in Engineering Management 18 S.H.

Students will be required to complete a minimum of 18 SH credits (minus 6 to 9 SH for thesis or project) from the following courses:

- 0901.501 Special Topics in Engineering (6 credits maximum)
- 0901.511 Engineering Optimization
- 0901.599 Masters Thesis Research (9 credits maximum)
- 0906.502 Special Topics in Chemical Engineering (6 credits maximum)
- 0906.577 Advanced Engineering Process Analysis and Experimental Design
- 0906.512 Safety in the Process Industries
- 0906.580 Optimization of Engineering Projects
- 0906.581 Advanced Process Analysis
- 0908.503 Special Topics in Civil Engineering (6 credits maximum)
- 0908.504 Engineering Estimating
- 0908.522 Site Remediation Engineering
- 0908.531 Solid and Hazardous Waste Management
- 0908.563 Advanced Transportation Planning, Demand, and Data Analysis
- 0909.504 Special Topics in Electrical Engineering (6 credits maximum)
- 0910.505 Special Topics in Mechanical Engineering (6 credits maximum)

III. Thesis/Project 6 to 9 S.H.

As part of their 18 hours of coursework for the Specialization in Engineering Management, students will be allowed to participate in engineering management project work by choosing one of the two options within the existing Master of Science in Engineering degree program:

OPTION I: THESIS RESEARCH/ENGINEERING PROJECT (6 TO 9 S.H.):

Research leading to a master's thesis carried out under the supervision of a Rowan engineering faculty member. Successful completion of the thesis includes satisfactory oral and written reports to a thesis committee. The thesis committee may include members from industry or from other colleges in the University. A project identified by a faculty member, a student or industry and approved by the graduate program advisor can fill the Option I requirement.

OPTION II: LEADERSHIP OF CLINIC PROJECT (MAXIMUM OF 6 S.H.):

Students, under the supervision of a faculty member, may serve as advisors in clinic projects. In addition to a clinic report to the client, the graduate student must present a satisfactory written and oral report to a Rowan University Graduate Committee chaired by the clinic faculty advisor.

TOTAL 30 S.H.



April 3, 2006

To: Christy Faison, Interim Provost
From: Dianne Dorland, Dean, College of Engineering
Re: Curriculum Proposal SCC-05-06-407

It is my pleasure to provide a letter of consultation in support of the curriculum proposal SCC-05-06-407 "Specialization in Engineering Management within the Existing Master of Science in Engineering." This growth is aligned with the College of Engineering's desire to enhance and expand its graduate programs without diminishing the delivery or impact of undergraduate education.

Engineers have strong technical backgrounds in specific disciplines. As they progress through a career, they frequently recognize that their skills are highly valued, but that management acumen is required for success in the next levels of their aspirations. These engineers seek education such as is available through an MS specialization in Engineering Management.

The Engineering Management track will allow Rowan University to develop a vibrant market for working engineers who seek additional expertise in management. The FAA Pilot Program is providing Rowan University with an opportunity to assess the engineering graduate market in Southern New Jersey. This program will allow us to deliver MS degrees with a specialization in engineering management and assess the broader market for this degree. I firmly support this specialization and feel that Rowan University will benefit from the implementation of this curriculum change.

This is a positive move for the campus and I would be happy to provide any further information if necessary.



April 6, 2006

Ralph Dusseau, Ph.D.
Department of Civil and Environmental Engineering
Rowan University

Dear Dr. Dusseau:

Thank you for the opportunity to review the proposal for a specialization in Engineering Management within the existing Master of Science in Engineering program.

The proposed program has been designed to meet a significant need in Engineering. The program appears to complement the existing Engineering specializations. It is my understanding that applicants to the program would need to meet the same requirements as applicants to the other existing Master of Science specializations. The proposed curriculum follows the model of the existing engineering specialization programs, including a required core, electives, and a thesis.

For all of these reasons, I support the proposal for a specialization in Engineering Management within the existing Master of Science in Engineering program
I look forward to continuing to work with the College of Engineering to implement the program.

Sincerely,

S. Jay Kuder, Ed.D.
Associate Provost for Research and
Dean of The Graduate School

cc. Dean Dianne Dorland

From: McFarland, Daniel J.
Sent: Monday, October 10, 2005 8:33 PM
To: Dusseau, Ralph A.
Cc: Fleming, Robert S.; Schoen, Edward J.; Weaver, Kenneth M.
Subject: RE: Proposal for an Engineering Management Specialization

Dear Ralph,

I am writing on behalf of Robert Fleming, Chair of the Management & MIS Department. He had a family emergency and asked me to send this letter of support for your curriculum proposal.

The Management & MIS Department discussed the Engineering Management Specialization proposal during a Department meeting this afternoon. We are pleased to report that we support the initial Engineering Management proposal you submitted (i.e., the proposal listing 2 management courses). At this point, the department is recommending Strategic Engineering Management (HEGIS: 0506510) and a Graduate Entrepreneurship Course. Mark Weaver will provide you with the HEGIS number(s) for the Entrepreneurship course option(s).

Sincerely, Dan.

*Daniel J. McFarland, Ph.D.
MBA Program Director &
Associate Professor of MIS
Rowan University
201 Mullica Hill Road
Glassboro, NJ 08028
<http://www.rowan.edu/mba>
<http://users.rowan.edu/~mcfarland/>
ph 856.256.5426 ---- fx 856.256.4439*

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

From: Czocho, Ronald

Sent: Tuesday, October 04, 2005 4:41 PM

To: Dusseau, Ralph A.

Subject: RE: Letter of Consultation

Thank you for the opportunity to comment on your proposed specialization in the Master of Science in Engineering degree. The Engineering Management specialization should provide a valuable option for your master's degree students. The mathematics courses you have listed as options for completing the common core are appropriate and the Operations Research courses you list regularly have room so there should be no added resource drain with those courses. There is a problem with the course entitled (1701.515) Engineering Applications of Analysis. This course is only offered in the summer as requested by the engineering program and there are too many students in it already. If this new specialization brings an addition to the enrollment numbers of graduate engineers, this course will not be available to the extra students and this could lead to problems for engineers in other specializations who need to take this course.

Ronald J. Czocho, Chairman

Department of Mathematics

Rowan University

Glassboro, NJ 08028

Phone: 856.256.4845

Fax : 856.256.4816

Email: czochor@rowan.edu

Web:

<http://www.rowan.edu/nats/depts/math/czochor/homepage/homepage.htm>

DeEugenio, Esther

From: Dusseau, Ralph A.
Sent: Monday, February 13, 2006 2:57 PM
To: Milou, Eric
Cc: DeEugenio, Esther
Subject: RE: Curriculum

Dear Eric:

This email is written in response to the email of consultation from Ron Czochor, Chair of the Math Department, regarding enrollments in the course Engineering Applications of Analysis and the impact of the proposed Engineering Management Specialization on these enrollments.

During the first 3 years of the proposed Engineering Management Specialization, this specialization would be offered exclusively at the FAA Tech Center. Math courses would be offered during the summers at the FAA Tech Center and would be paid for using the Federal funds provided for the FAA Tech Center initiative. Thus, during this 3-year period, there would be no enrollment pressures on the summer section of Engineering Applications of Analysis that is currently offered on the Glassboro Campus.

At the end of the FAA Tech Center Initiative in 3 years, a decision will have to be made regarding whether or not a satellite campus is viable at the FAA Tech Center. If enrollments in the Engineering Management Specialization are sufficiently high, then summer offerings of graduate math courses at the FAA Tech Center would continue and there would still be no impact on the section of Engineering Applications of Analysis that is offered on the Glassboro Campus. If enrollments in the Engineering Management Specialization are too small, then the handful of students remaining in the specialization at the FAA Tech Center would have to move to the Glassboro Campus to complete their degree program. Of this handful of students, only those few who have not yet taken their required math courses would be required to enroll in Engineering Applications of Analysis and this would increase enrollments in this course only slightly.

Because the College of Engineering is hoping to double the number of engineering graduate students over the next few years, the question of adding a second section of Engineering Applications of Analysis on the Glassboro Campus during the summer session will likely have to be resolved long before any engineering management students enroll in this section of the course.

Therefore, in conclusion, the proposed Engineering Management Specialization would not have any immediate impact on the enrollments in the section of Engineering Applications of Analysis that is offered during summers on the Glassboro Campus. In addition, any impact on the enrollments in this course would only be felt 3 years from now and this impact would involve only a small number of students.

Thank you very much.

Sincerely,

Ralph Alan Dusseau, Ph.D., P.E.
Professor and Chair
Civil and Environmental Engineering

From: Milou, Eric
Sent: Mon 2/13/2006 1:32 PM
To: Dusseau, Ralph A.
Subject: Curriculum

Ralph,

Your proposal passed the Senate committee today with one minor change:

Please respond to the email from the math department with respect to their concern. Please cc: Esther DeEugenio and myself on your response.

Once your response has been received, the proposal will be moved to the


2/14/2006

Senate floor for a full vote.

Thanks,
Eric Milou
University Senate Curriculum Chairperson



April 3, 2006

To: Christy Faison, Interim Provost
From: Dianne Dorland, Dean, College of Engineering 
Re: Curriculum Proposal SCC-05-06-407

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ROWAN UNIVERSITY
BOARD OF TRUSTEES
ACADEMIC AFFAIRS SUBCOMMITTEE

SCC Proposal # 05-06-407

Department/College: College of Engineering
Civil and Environmental Engineering Department

Action Item: Specialization in Engineering Management within the Existing Master of Science in Engineering Degree Program

Submitted by: Christy L. Stein
(Interim Provost)

Justification: The topic of engineering management is rapidly becoming an important area of study for engineering students. In order to keep the College of Engineering at Rowan University on pace with these changes in the engineering profession, a Specialization in Engineering is proposed at the graduate level. This specialization would provide existing bachelors degree holders with the opportunity to fill out their resumes with a course of study that would enhance their prospects for success within the engineering profession. This specialization would also position Rowan University for potential growth in an area that growing rapidly across the country.

Approved: 5-16-06
(Date)

Signed: [Signature]
(Committee Chair)

Notice of this action item will be **announced** at the full Board of Trustees meeting to be held on 6-14-06 and will be forwarded to the Academic Issues Committee of the New Jersey Presidents' Council for **notification**.

	YES	DATE
AA/BOT	<input checked="" type="checkbox"/>	<u>5-16-06</u>
FULL BOARD	<input checked="" type="checkbox"/>	<u>6-14-06</u>
STATE	<input type="checkbox"/>	<u> </u>