

ROWAN UNIVERSITY CURRICULUM PROPOSAL

R 909

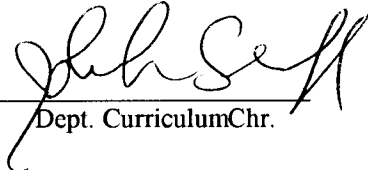
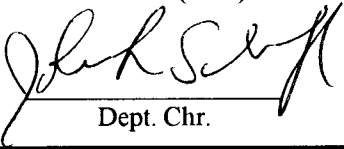

PROPOSAL TITLE
 Creation of a Graduate Specialization: Electrical Engineering

CHECK APPROPRIATE: UNDERGRADUATE GRADUATE SEMESTER HOURS

SPONSOR(S): Dr. J. Schmalzel


DEPARTMENT/TELEPHONE # Dr. J. Schmalzel/256-4629

CHECK ONE: COURSE MINOR PROGRAM CONCENTRATION SPECIALIZATION
 ACHIEVEMENT CERTIFICATE CERTIFICATION PROGRAM MAJOR PROGRAM

<p>Step #1 (Department)</p> <p>240597 Approved (Date) <input type="checkbox"/> Not Approved (Date)</p> <p style="text-align: center;"> Dept. CurriculumChr.</p> <p style="text-align: center;">240597 Reviewed (Date)  Dept. Chr.</p>	<p>Step #2 (Receipt)</p> <p style="text-align: center;">SCC# 97-98-1166</p> <p style="text-align: center;">10-24-97 Date Received Senate</p> <p style="text-align: center;">Senate CurriculumChr.</p>	<p>Step #3 (School)</p> <p style="text-align: right;">Reviewed Date: 10/24/97</p> <p><input checked="" type="checkbox"/> Recommend to Approved <input type="checkbox"/> Recommend NOT to Approve</p> <p>Forward for Open Hearing: <input checked="" type="checkbox"/> WITHOUT Reservations <input type="checkbox"/> WITH Reservations:</p> <p>Comments:  School CommitteeChr.</p>
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Step #4 (Academic Dean): Recommended NOT Recommended Conditionally Recommended (See Comments)

Comments:

Dean Signature/Date:  10/23/97


Step #5 (Senate Curriculum Committee) Open Hearing Date: _____ Approved by Curriculum Committee Date: _____

5-11-98

Returned to Sponsor(s) for the following reason:

6 (Senate) Date announced/voted on at Senate 5/12/98 If voted on: Approved NOT Approved

Date forwarded to Executive Vice President/Provost 10/7/98

Senate Curriculum Committee chair Signature/Date: 

Step #7 (Executive Vice President/Provost): Date Received _____

___ 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 Vice President/Provost Signature Robert A. Kulat

Registrar

Date Approved Course Description Received 11/13/98

Hegis Taxonomy and Course Number Assigned _____

Date/Signature of Registrar Robert A. Kulat 11/17/98

Notification Forward:

_____ Senate Curriculum Committee Chairperson

_____ Department Chairpersons

_____ Academic Dean(s)

_____ Registrar

_____ Sponsor(s)

Creation of a Graduate Specialization: Electrical Engineering

1. Narrative

- a. Title and Sponsor: Specialization in Electrical Engineering for the Degree of Master of Science in Engineering - J. Schmalzel
- b. Need for the Program: There is a need to provide a graduate education which focuses on the needs of the graduate students in electrical engineering.
- c. Relationship to Dept. And School: This specialization will reside within the Department of Electrical Engineering.
- d. Summary of curriculum: The curriculum is provided in the graduate catalog for the Master of Science in Engineering.
- e. Implementation time frame: Effective Fall Semester 1998
- f. Resources required: No additional resources are required.

2. Details

- a. Title: Formation of a Specialization in Electrical Engineering for the degree of Master of Science in Engineering.
- b. Sponsor: J. Schmalzel
- c. Scope: This specialization will serve those students who wish to focus their studies in the area of electrical engineering.
- d. Relationship to Curriculum: The program requirements are the same as those for the Master of Science in Engineering except for the specification of the technical electives as given in Section 4c of this proposal.
- e. Prerequisites: The admissions requirements are the same as for the Master of Science in Engineering program, as provided in the College Catalog.

- f. Suggested time scale
for implementation: Full scale implementation in Fall1998.
- g. Resource Requirement: There are no additional resources required.
- h. Recommended Library
Resources: There are no additional library resources required.

3. Rationale

As the Department of Electrical Engineering grows, it will be providing highly specialized graduate courses within its discipline. In concert, there is a need for graduate students to obtain recognition of their expertise in the area. This specialization will address both of these observations.

4. Essence of the Specialization

- a. Major Goal: The major goal of the program is to enhance the ability of electrical engineers and other engineers who are working in the area of electrical engineering.
- b. Objectives: The objectives of the program is to provide courses in electrical engineering, to enhance the professional development of electrical engineers and other engineers who are working in the area of electrical engineering, and to provide means to specialize in an area of study.
- c. Structure: Out of 21 credits in the technical area, 15 credits in Electrical Engineering technical courses will qualify for specialization in Electrical Engineering.
- d. Administration: Each department will provide guidance to the student and coordinate the activity with the graduate advisor.

5. Results of

Consultation: The Dean (J. Tracey), Associate Dean (S. Chin) and Department Chairs of the other engineering programs (T.R. Chandrupatla, R. Dusseau, and C.S. Slater) were all consulted and concurred with forming a specialization in Electrical Engineering.

CREATION OF SPECIALIZATIONS IN MASTER OF SCIENCE IN ENGINEERING

Total: 30 credits

Common Core: 6 to 9 S.H.

One math course: Engineering Applications of Analysis (3)

Computer application: May be satisfied by a technical course

One business course (3)

The core requirements remain unchanged.

MS in Engineering with Specialization

Of the remaining 21 to 24 credits, 15 Credits in the area of Specialization as listed below will qualify for specialization in that area. Five areas of specialization are given below.

Chemical Engineering

- Courses: 906.502 Special Topics in Chemical Engineering
906.506 Process Heat Transfer
906.508 Membrane Process Technology
906.510 Biochemical Engineering
906.512 Safety in the Process Industries
906.514 Transport Phenomena for Engineers
906.515 Advanced Reactor Design
906.516 Advanced Separation Process Technology
906.518 Polymer Engineering
906.520 Environmental Design for Process Industries
906.5xx Graduate courses in Chemical Engineering to be introduced
- 901.503 Engineering Optimization

Civil Engineering

- Courses: 908.503 Special Topics in Civil Engineering
908.504 Engineering Estimating
908.552 Foundation Engineering
908.553 Earth Retaining Systems
908.562 Advanced Transportation Engineering
908.573 Advanced Structural Analysis
908.584 Prestressed Concrete
908.585 Advanced Reinforced Concrete
908.586 Bridge Engineering
908.5xx Graduate courses in Civil Engineering to be introduced
Upto three courses from Environmental Engineering 908.5xx below
- 901.502 Finite Element Analysis
901.503 Engineering Optimization

Environmental Engineering

Courses: 908.512 Physicochemical Unit Processes
908.522 Advanced Wastewater Treatment
908.532 Groundwater and Soil Remediation
908.543 Advanced Water Resources Engineering
908.5xx Graduate courses in Environmental Eng. to be introduced

906.502 Special Topics in Chemical Engineering
906.506 Process Heat Transfer
906.508 Membrane Process Technology
906.512 Safety in Process Industries
906.516 Advanced Separation Process Technology
906.520 Environmental Design in Industry

910.511 Combustion
901.502 Finite Element Analysis
901.503 Engineering Optimization

Electrical Engineering

Courses: 909.504 Special Topics in Electrical Engineering
909.551 Digital Signal Processing
909.552 Digital Image Processing
909.553 Digital Speech Processing
909.560 Artificial Neural Networks
909.571 Instrumentation
909.5xx Graduate courses in Electrical Engineering to be introduced

901.503 Engineering Optimization

Mechanical Engineering

Courses: 910.501 Computer Integrated Manufacturing and Automation
910.505 Special Topics in Mechanical Engineering
910.511 Combustion
910.512 Rocket Propulsion
910.541 Advanced Mechanism Design
910.5xx Graduate courses in Mechanical Engineering to be introduced

901.502 Finite Element Analysis
901.503 Engineering Optimization

The credits for the Thesis/Project can be used toward specialization if the principal area of the thesis is in that speciality.

Remaining 6 to 9 credits may be across the disciplines.

MS in Engineering (no specialization)

This option is available for those who plan to take courses across disciplines.

21-24 credits of Technical Electives.

Each degree candidate is expected to closely coordinate his/her program of study with a faculty advisor.