

ROWAN COLLEGE
CURRICULUM COMMITTEE

PROPOSAL TITLE: Structural Engineering II

0908

(R)

UNDERGRADUATE GRADUATE 3 CREDIT HOURS

SPONSOR(S): Ralph Alan Dusseau and School of Engineering Curriculum Committee

DEPARTMENT & TELEPHONE# Civil Engineering Program, School of Engineering

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

STEP #1 (DEPARTMENT)	STEP #2 (RECEIPT)	STEP #3 (SCHOOL)
<p>APPROVED/DATE: <u>4-24-96</u></p> <p>NOT APPROVED/DATE: _____</p> <p><i>[Signature]</i></p> <p>DEPT. CURRICULUM CHR.</p> <p>REVIEWED/DATE: <u>4-24-96</u></p> <p><i>[Signature]</i></p> <p>DEPT. CHR.</p>	<p>SCC# <u>96 99-05</u></p> <p>DATE RECEIVED: _____</p> <p style="font-size: 2em; text-align: center;">SENATE</p> <p style="text-align: center;">JUL 9</p> <p style="font-size: 1.5em; text-align: center;">RECEIVED</p> <p><i>[Signature]</i></p> <p>SENATE CURRICULUM CHR.</p>	<p>REVIEWED DATE: <u>4-22-96</u></p> <p><input checked="" type="checkbox"/> RECOMMEND TO APPROVE</p> <p><input type="checkbox"/> RECOMMEND NOT TO APPROVE</p> <p>FORWARD FOR OPEN HEARING</p> <p><input checked="" type="checkbox"/> WITHOUT RESERVATIONS</p> <p><input type="checkbox"/> WITH RESERVATIONS</p> <p>COMMENTS: _____</p> <p><i>[Signature]</i></p> <p>SCHOOL COMMITTEE CHR.</p>

STEP #4 (ACADEMIC DEAN)	COMMENTS:
<p><input checked="" type="checkbox"/> RECOMMEND</p> <p><input type="checkbox"/> NOT RECOMMEND</p> <p><input type="checkbox"/> CONDITIONALLY RECOMMEND (SEE COMMENTS)</p> <p>DATE & SIGNATURE, DEAN OF SCHOOL _____</p>	<p style="font-size: 1.5em; text-align: center;"><i>[Signature]</i> 5/19/96</p>

STEP #5 (SENATE CURRICULUM COMMITTEE)
<p>DATE OF OPEN HEARING <u>10-25-96</u></p> <p>APPROVED BY SENATE CURRICULUM COMMITTEE (DATE) <u>10/25/96</u></p> <p><input type="checkbox"/> RETURNED TO SPONSOR(S) FOR THE FOLLOWING REASONS:</p> <p>_____</p> <p>_____</p>

STEP #6 (SENATE)
<p>DATE PRESENTED TO SENATE <u>11-20-96</u> <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> NOT APPROVED</p> <p>NOTIFICATION TO EXECUTIVE VICE PRESIDENT/PROVOST (DATE) _____</p> <p>SENATE CURRICULUM COMMITTEE CHAIR SIGNATURE/DATE <u><i>[Signature]</i> 1/28/97</u></p>

STEP #7 (EXECUTIVE VICE PRESIDENT/PROVOST)

DATE RECEIVED _____

APPROVED: ___ YES ___ NO

IF NO, REASONS ARE AS FOLLOWS:

STUDENT CREDIT HOURS _____

FACULTY LOAD HOURS _____

EQUALIZED CREDIT HOURS _____

OFFICIAL COPY & APPROVAL SHEET FILED (DATE) 1/31/97

SIGNATURE, EXECUTIVE VICE PRESIDENT/PROVOST C. Mottison

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 14 Mar 97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED 0908.382

DATE/SIGNATURE OF REGISTRAR B. Kelway

NOTIFICATION FORWARD:

___ SENATE CURRICULUM COMMITTEE CHAIRPERSON

___ DEPARTMENT CHAIRPERSON(S)

___ ACADEMIC DEAN(S)

___ REGISTRAR

___ SPONSOR(S)

Course Proposal:

1. Details:

- a) Course Title: Structural Engineering II
- b) Sponsor: Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
- c) Credit Hours: 3 credit hours
- d) Course Level: Junior (0908.382)
- e) Curricular Effect: Required course for civil engineering students who choose the infrastructure engineering option and elective course for students who choose the environmental engineering option
- f) Prerequisites: Structural Engineering I
- g) Suggested Time/
Scale of Implementation: One section during fall semesters
- h) Resources:

Faculty: Existing faculty will teach this course.

Library: Library acquisitions will be required.

Equipment: No laboratory equipment will be required.

Computers: Computer laboratory access will be required. Acquisition, training, and utilization of professional structural engineering analysis and design software will also be required.

2. Rationale:

The proposed course is the revised version of a civil engineering course entitled "Structural Analysis II" which was part of the Engineering Curriculum Proposal approved by the College Senate in December 1994. The proposed course is consistent with the establishment of the School of Engineering approved by the Board of Trustees in February 1995.

The two fundamental themes of the course are the analysis of continuous structures and the design of structural steel members. Many civil engineering structures are continuous (i.e., statically-indeterminate) and many civil engineering structures are made of structural steel (i.e., using hot-rolled structural steel sections). Thus, the two fundamental themes of the course are essential for all infrastructure engineering students.

The proposed course is required for civil engineering students who choose the Infrastructure Engineering Option in the Civil Engineering Program and is an elective for students who choose the Environmental Engineering Option. More-advanced topics in structural engineering analysis and design will be covered in the civil engineering course entitled "Structural Engineering III" which is also required for civil engineering students who select the Infrastructure Engineering Option.

3. Essence of the Course:

a) Objectives:

Upon completion of the course, civil engineering students will be able to analyze continuous structures by hand calculation and by computer including the following tasks:

Determining the types of continuous structures

Determining the types of continuous loads

Analyzing various statically indeterminate structures

Deriving influence lines for statically indeterminate beams

Calculating deflections of statically-indeterminate beams

Upon completion of the course, civil engineering students will also be able to design structural steel members by hand calculation and by computer including the following tasks:

Selecting appropriate types of structural steel

Selecting appropriate structural steel design methods

Selecting the required structural steel cross-section for the following types of structural steel members:

Tension members

Compression members

Beams

Girders

Beam-columns

b) Topical Outline:

The topical outline of the course may vary to some extent depending on the interests of the instructor and the students, and on advances in structural engineering technology. The topics to be covered will include the following:

Analysis of Continuous Structures:

Types of Continuous Structures

Analysis of Statically Indeterminate Structures

Influence Lines in Statically Indeterminate Beams

Deflection of Statically Indeterminate Beams

Design of Structural Steel Members:

Types of Structural Steel

Methods of Design in Structural Steel

Cross-Section Selection for Structural Steel Members
Including the Following:

Tension Members

Compression Members

Beams

Girders

Beam-Columns

c) Evaluation and Grading Procedure of Students:

Student grades will be based on team problems, team projects, individual examinations, and individual homework.

d) Course Evaluation:

The proposed course will be evaluated based on student evaluations and curriculum review by engineering faculty.

4. Results of Consultations:

The proposed course is the revised version of a course entitled "Structural Analysis II" that was part of the Engineering Curriculum Proposal approved by the College Senate in December 1994. Consultations were submitted with the original proposal as specified by the Curriculum Committee.

Catalog Description:

Structural Engineering II (0908.382)

(Prerequisites: Structural Engineering I)

The course deals with the analysis of continuous structures and the design of structural steel members. The study of continuous structures includes the analysis of statically indeterminate structures, influence lines in continuous beams, and deflections of continuous beams. The design of structural steel members includes types of structural steel, structural steel design methods, tension members, compression members, beams, girders, and beam-columns. The course includes appropriate computer applications.