

KOWAN COLLEGE  
CURRICULUM COMMITTEE

(R)

PROPOSAL TITLE: Foundation Engineering for Seniors

0908.452

UNDERGRADUATE

GRADUATE

3 CREDIT HOURS

SPONSOR(S): Ralph Alan Dusseau

DEPARTMENT & TELEPHONE# Civil Engineering, 4628

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

STEP #1 (DEPARTMENT)

APPROVED/DATE: 9/20/96

NOT APPROVED/DATE:

*[Signature]*  
DEPT. CURRICULUM CHR.

Ralph Alan Dusseau

REVIEWED/DATE: 9/20/96

*[Signature]*  
ph Alan Dusseau  
DEPT. CHR.

STEP #2 (RECEIPT)

SCC# 96-97-39

DATE RECEIVED:

*[Signature]*  
SENATE CURRICULUM CHR.

STEP #3 (SCHOOL)

REVIEWED DATE:- 9/23/96

RECOMMEND TO APPROVE

RECOMMEND NOT TO APPROVE

FORWARD FOR OPEN HEARING

WITHOUT RESERVATIONS

WITH RESERVATIONS

COMMENTS:

*[Signature]*  
SCHOOL COMMITTEE CHR.

STEP #4 (ACADEMIC DEAN)

RECOMMEND

NOT RECOMMEND

CONDITIONALLY RECOMMEND  
(SEE COMMENTS)

DATE & SIGNATURE, DEAN OF SCHOOL

*[Signature]*

9/23/96

COMMENTS:

STEP #5 (SENATE CURRICULUM COMMITTEE)

DATE OF OPEN HEARING

APPROVED BY SENATE CURRICULUM COMMITTEE (DATE) 1/24/97

RETURNED TO SPONSOR(S) FOR THE FOLLOWING REASONS:

STEP #6 (SENATE)

PRESENTED TO SENATE

APPROVED

NOT APPROVED

DATE OF NOTIFICATION TO EXECUTIVE VICE PRESIDENT/PROVOST (DATE)

SENATE CURRICULUM COMMITTEE CHAIR SIGNATURE/DATE

*[Signature]* 2/7/97

STEP #7 (EXECUTIVE VICE PRESIDENT/PROVOST)

DATE RECEIVED \_\_\_\_\_

APPROVED:  YES  NO

IF NO, REASONS ARE AS FOLLOWS:

STUDENT CREDIT HOURS 3

FACULTY LOAD HOURS 3

EQUALIZED CREDIT HOURS \_\_\_\_\_

OFFICIAL COPY & APPROVAL SHEET FILED (DATE) \_\_\_\_\_

SIGNATURE, EXECUTIVE VICE PRESIDENT/PROVOST [Signature]

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 14 Mar 97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED 0908.452

DATE/SIGNATURE OF REGISTRAR B J-Kelly

NOTIFICATION FORWARD:

\_\_\_ SENATE CURRICULUM COMMITTEE CHAIRPERSON

\_\_\_ DEPARTMENT CHAIRPERSON(S)

\_\_\_ ACADEMIC DEAN(S)

\_\_\_ REGISTRAR

\_\_\_ SPONSOR(S)

**Course Proposal:**

**1. Details:**

- a) **Course Title:** Foundation Engineering for Seniors
- b) **Sponsor:** Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
- c) **Credit Hours:** 3 credit hours
- d) **Course Level:** Senior (0908.452)
- e) **Curricular Effect:** Elective course for civil engineering graduate students
- f) **Prerequisites:** Geotechnical Engineering or equivalent
- g) **Suggested Time/  
Scale of Implementation:** One section during fall semesters
- h) **Resources**

**Faculty:** A new civil engineering faculty member to be hired in the Fall of 1997 will teach this course.

**Library:** Library acquisitions will be required.

**Equipment:** Laboratory space and appropriate experimental equipment for advanced testing of soils and soil properties will be required.

**Computers:** Computer laboratory access will be required. Acquisition, training, and utilization of appropriate soil and foundation analysis software will be required.

**2. Rationale:**

The proposed course is the revised version of a course entitled "Soil Mechanics and Foundations II" which was part of the Engineering Curriculum 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 purpose of the course is to give civil engineering students the ability to analyze and design structural foundations for buildings and bridges including advanced soil mechanics principles and foundation analysis and design theory. The types of foundations analyzed and designed will include spread footings and pile foundation systems.

### 3. Essence of the Course

#### a) Objectives:

Upon completion of the course, civil engineering students will be able to do the following:

Apply the principles of soil mechanics and utilize appropriate advanced geotechnical laboratory equipment to analyze the following soil phenomenon:

Soil compressibility

Soil shear strength

Soil bearing capacity

Apply the principles of soil mechanics and utilize appropriate geotechnical engineering software to analyze and design the following types of footings:

Wall (linear) spread footings

Single-column spread footings

Multiple-column (combined) spread footings

Apply the principles of soil mechanics and utilize appropriate geotechnical engineering software to perform the following tasks related to pile foundation analysis and design:

Choose appropriate types of pile

Analyze and design individual piles

Analyze and design pile clusters

Analyze and design pile caps

#### 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 geotechnical engineering technology. The topics to be covered will include the following:

##### Advanced Soil Mechanics:

Soil Compressibility

Soil Shear Strength

Soil Bearing Capacity

**Spread Footings:**

Wall (Linear) Spread Footings

Single-Column Spread Footings

Multiple-Column (Combined) Spread Footings

**Pile Foundations:**

Pile Types

Individual Pile Analysis and Design

Pile Cluster Analysis and Design

Pile Cap Analysis and Design

**c) Evaluation and Grading Procedure of Students:**

Student grades will be based on individual examinations, individual homework, and team lab reports.

**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 "Soil Mechanics and Foundation Engineering II" which was part of the Engineering Curriculum approved by the College Senate in December 1994. Consultations were submitted with the original proposal as specified by the Curriculum Committee.

**Catalog Description:**

**Foundation Engineering for Seniors (0908.452)**

**(Prerequisites: Geotechnical Engineering or equivalent)**

The fundamental theme of the course is the analysis and design of structural building and bridge foundations based on advanced principles of soil mechanics. These advanced principles of soil mechanics include compressibility, shear strength, and bearing capacity. The types of foundations analyzed and designed include spread footings and pile foundations. The course includes appropriate laboratory experiments and computer applications.