PROPOSAL TITLE: Civil Engineering Materials

UNDERGRADUATE

GRADUATE

CREDIT HOURS

2

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)
APPROVED/DATED: 4-24-96

DEPT. CURRICULUM CHR.

REVIEWED/DATED: 4-24-96

DEPT. CHR.

STEP #2 (RECEIPT)
DATE RECEIVED: SENATE

JUL 9

RECEIVED

SENATE CURRICULUM CHR.

STEP #3 (SCHOOL)
REVIEWED DATE: 4-24-96

RECOMMEND TO APPROVE

FORWARD FOR OPEN HEARING

RECOMMEND NOT TO APPROVE

WITHOUT RESERVATIONS

WITH RESERVATIONS

COMMENTS:

STEP #4 (ACADEMIC DEAN)

RECOMMEND

NOT RECOMMEND

CONDITIONALLY RECOMMEND

(SEE COMMENTS)

DATE & SIGNATURE, DEAN OF SCHOOL

STEP #5 (SENATE CURRICULUM COMMITTEE)
DATE OF OPEN HEARING 10-28-96

APPROVED BY SENATE CURRICULUM COMMITTEE (DATE)

RETURNED TO SPONSOR(S) FOR THE FOLLOWING REASONS:

STEP #6 (SENATE)

DATE PRESENTED TO SENATE

APPROVED

NOT APPROVED

NOTIFICATION TO EXECUTIVE VICE PRESIDENT/PROVOST (DATE)

SENATE CURRICULUM COMMITTEE CHAIR SIGNATURE/DATE
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 ____________

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 1/9/97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED C969, 381

DATE/SIGNATURE OF REGISTRAR ____________

NOTIFICATION FORWARD:

___ SENATE CURRICULUM COMMITTEE CHAIRPERSON

___ DEPARTMENT CHAIRPERSON(S)

___ ACADEMIC DEAN(S)

___ REGISTRAR

___ SPONSOR(S)
Course Proposal:

1. Details:

   a) Course Title: Civil Engineering Materials
   b) Sponsor: Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
   c) Credit Hours: 2 credit hours
   d) Course Level: Junior (0908.301)
   e) Curricular Effect: Required course for all civil engineering majors
   f) Prerequisites: Engineering Materials I
   g) Suggested Time/Scale of Implementation: One section during fall semesters to be taught during the 2nd quarter

h) Resources:
   Faculty: Existing faculty can teach this course.
   Library: Library acquisitions will be required.
   Equipment: Laboratory space and appropriate experimental equipment for testing civil engineering materials (concrete and asphalt) will be required.
   Computers: No computer resources will be required.

2. Rationale:

   The proposed course is an additional required course that would supplement the Civil Engineering Program approved by the College Senate in June 1996. 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 materials studied in this course are asphalt pavement which is a fundamental paving material and concrete which is a fundamental structural and paving material. The course deals with laboratory testing and mix design for asphalt pavement, concrete pavement, and structural concrete. The course is required for all civil engineering students.
3. Essence of the Course:

a) Objectives:

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

Laboratory tests of aggregates to evaluate the following:

- Grain type
- Grain size
- Gradation
- Specific gravity
- Void ratio
- Other properties

Design of concrete mixes including the following:

- Choosing an appropriate cement type
- Choosing appropriate aggregate types
- Choosing appropriate admixtures
- Choosing an appropriate water-cement ratio

Laboratory tests of concrete specimens including:

- Consistency tests
- Shear tests
- Compression tests

Design of asphalt mixes including the following:

- Choosing an appropriate asphalt binder
- Choosing appropriate aggregate types
- Choosing appropriate admixtures
Laboratory tests of asphalt specimens including:

Consistency tests
Shear tests
Compression tests

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

Aggregates:

Grain Type
Grain Size
Gradation
Specific Gravity
Void Ratio
Other Properties

Concrete:

Types of Cement and Admixtures
Testing of Cement and Admixtures
Design of Concrete Mixes
Testing of Concrete Mixes

Asphalt Pavement:

Types of Asphalt Binders
Testing of Asphalt Binders
Design of Asphalt Mixes
Testing of Asphalt Mixes
c) Evaluation and Grading Procedure of Students:

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

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 an additional course that will be part of the Civil Engineering Program approved by the College Senate in December 1994. Consultations were submitted with the original proposal as specified by the Curriculum Committee.
Catalog Description:

Civil Engineering Materials (0908.301)

(Prerequisites: Engineering Materials I)

The course deals with asphalt pavement, concrete pavement, and structural concrete including: the testing and analysis of aggregates, asphalt binders, cement, and admixtures; the design of asphalt pavement, concrete pavement, and structural concrete; and the testing and analysis of asphalt pavement specimens, concrete pavement specimens, and structural concrete specimens. The course includes appropriate laboratory experiments.