STEP #7 (EXECUTIVE VICE PRESIDENT/PROVOST)

DATE RECEIVED __________

APPROVED: Y YES N NO

IF NO, REASONS ARE AS FOLLOWS:

STUDENT CREDIT HOURS ___

FACULTY LOAD HOURS ___

EQUALIZED CREDIT HOURS ___

OFFICIAL COPY & APPROVAL SHEET FILED (DATE) __________

SIGNATURE, EXECUTIVE VICE PRESIDENT/PROVOST __________

REGISTRAR

DATE APPROVED ___ DESCRIPTION RECEIVED 4/11/67

HEGIS TAXONOMY # COURSE NUMBER ASSIGNED 6415 4786

DATE/SIGNATURE OF REGISTRAR 3/2/67 __________

NOTIFICATION FORWARD:

__ SENATE CURRICULUM COMMITTEE CHAIRPERSON

__ DEPARTMENT CHAIRPERSON(S)

__ ACADEMIC DEAN(S)

__ REGISTRAR

__ SPONSOR(S)
Course Proposal:

1. Details:

a) Course Title: Bridge Engineering for Seniors

b) Sponsor: Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee

c) Credit Hours: 3 credit hours

d) Course Level: Seniors (0908.486)

e) Curricular Effect: Elective course for civil engineering graduate students

f) Prerequisites: Structural Engineering I, II, and III or equivalent

g) Suggested Time/Scale of Implementation: One section during spring semesters

h) Resources:

   Faculty: Existing faculty can 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 an additional civil engineering elective that would supplement 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 fundamental theme of the course is the analysis and design of modern steel highway bridges. Unlike steel or concrete buildings, the analysis techniques and design procedures for modern highway bridges are much more complex. A separate design
code written by the American Association of State Highway and Transportation Officials (AASHTO) covers the analysis and design of all types of modern highway bridges. This AASHTO bridge code will provide the basis for the proposed course.

3. Essence of the Course:

a) Objectives:

Upon completion of the course, civil engineering students will be able to analyze and design modern steel highway bridges by hand calculation and by computer utilizing the AASHTO code and including the following tasks:

Determination of the following:

- Appropriate bridge design loads
- Appropriate load combinations
- Appropriate design methods

Selection of the following for reinforced concrete deck slabs:

- Cross-section dimensions
- Cross-section properties

Selection of steel wide-flange sections for standard steel girder highway bridges

Spacing of steel wide-flange sections for standard steel girder highway bridges

Selection of the following for composite steel-concrete girder highway bridges:

- Concrete cross-section dimensions
- Concrete cross-section properties
- Steel wide-flange sections
- Steel wide-flange spacings
- Steel shear stud sizes
Steel shear stud spacings

Analysis of highway bridges with continuous spans including the following:

Influence lines

Moving loads

Selection of the following for steel-concrete composite plate-girder highway bridges:

Concrete cross-section dimensions

Concrete cross-section properties

Steel cross-section dimensions

Steel cross-section properties

Steel shear stud sizes

Steel shear stud spacings

Selection of the following for elastomeric bridge bearing connections:

Materials

Dimensions

Selection of the following for fixed bridge connections:

Materials

Dimensions

Selection of the following for roller bridge connections:

Materials

Dimensions

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:

Bridge Design Loads
Load Combinations
Design Methods
Reinforced Concrete Deck Slabs
Steel Wide-Flange Stringer Bridges
Composite Steel Wide-Flange Stringer Bridges
Continuous Bridge Spans
Steel Composite Plate-Girder Bridges
Elastomeric Bridge Bearing Connections
Steel Fixed Bridge Connections
Steel Roller Bridge Connections

c) Evaluation and Grading Procedure of Students:

Student grades will be based on midterm and final examinations and homework assignments.

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 elective that would supplement 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:

Bridge Engineering for Seniors (0908.486)

(Prerequisites: Structural Engineering I, II, and III or equivalent)

The fundamental theme of the course is the analysis and design of modern steel highway bridges utilizing the bridge code of the American Association of State Highway and Transportation Officials. The topics covered include bridge loads, load combinations, design methods, reinforced concrete deck slabs, steel wide-flange stringer bridges, steel composite wide-flange stringer bridges, continuous bridge spans, steel composite plate-girder bridges, elastomeric bearing connections, steel fixed bridge connections, and steel roller bridge connections. The course includes appropriate computer applications.