



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. M. Mason*

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 14 MAR 97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED 0908-562

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: Advanced Transportation Engineering
- b) Sponsor: Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
- c) Credit Hours: 3 credit hours
- d) Course Level: Graduate (0908.562)
- e) Curricular Effect: Elective course for civil engineering graduate students
- f) Prerequisites: Transportation Engineering or equivalent
- g) Suggested Time/  
Scale of Implementation: One section during spring semesters

h) Resources:

Faculty: A new civil engineering faculty member to be hired in the Fall of 1998 will teach this course.

Library: Library acquisitions will be required.

Equipment: Appropriate field measurement equipment will be required.

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

2. Rationale:

The proposed course is the revised version of a course entitled "Problems in Transportation and Urban Planning" 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 working knowledge in two advanced areas of

transportation engineering - advanced highway engineering and advanced mass transit systems. The impact and interaction of sociological, geographic, economic, and environmental factors on these advanced transportation topics and systems will also be discussed.

### 3. Essence of the Course

#### a) Objectives:

Upon completion of the course, civil engineering students will be able to perform tasks in the following areas using field measurements, computer analyses, and hand calculations:

Advanced highway engineering including the following tasks:

Inspection, maintenance, and rehabilitation of the following transportation structures:

Bridge structures

Pavements

Other transportation structures

Highway safety including analysis, design, construction, assessment, and management of the following:

Safety systems

Safety structures

Safety signs

Highway drainage including the following:

Storm flow analysis

Culvert design

Design of other drainage structures

Advanced bus, rail, and air mass transportation systems including the following tasks:

Assessment and prediction of passenger volume

Advanced scheduling of bus, rail, and air traffic

Analysis and design of bus, rail, and air terminals

Assessment of bus, rail, and air transportation safety

Upon completion of the course, civil engineering students will also be able to assess the impact and interaction of the following factors on the advanced transportation topics and systems discussed:

Sociological factors

Economic factors

Geographic factors

Environmental factors

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

Advanced Highway Engineering:

Inspection, Maintenance, and Rehabilitation of the Following:

Bridge Structures

Pavements

Other Transportation Structures

Highway Safety Including Analysis, Design, Construction Assessment, and Management of the Following:

Safety Systems

Safety Structures

Safety Signs

Highway Drainage Including the Following:

Storm Flow Analysis

Culvert Design

Design of Other Drainage Structures

Advanced Bus, Rail, Air Transportation Systems:

Assessment and Prediction of Passenger Volume

Advanced Scheduling of Bus, Rail, and Air Traffic

Analysis and Design of Bus, Rail, and Air Terminals

Assessment of Bus, Rail, and Air Transportation Safety

Additional Factors that Impact Transportation Systems:

Sociological Factors

Economic Factors

Geographic Factors

Environmental Factors

c) Evaluation and Grading Procedure of Students:

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

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 "Problems in Transportation and Urban Planning" 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:

Advanced Transportation Engineering (0908.562)

(Prerequisites: Transportation Engineering or equivalent)

The fundamental theme of the course is the study of advanced topics in transportation engineering including advanced highway engineering and advanced mass transit systems. These advanced topics include the impact and interaction of sociological, economic, geographic, and environmental factors on transportation systems. The course includes appropriate field measurements and computer applications.