

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 [Signature]

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 14 Mar. 97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED 0908-342

DATE/SIGNATURE OF REGISTRAR [Signature]

NOTIFICATION FORWARD:

___ SENATE CURRICULUM COMMITTEE CHAIRPERSON

___ DEPARTMENT CHAIRPERSON(S)

___ ACADEMIC DEAN(S)

___ REGISTRAR

___ SPONSOR(S)

Course Proposal:

1. Details:

- a) Course Title: Water Resources Engineering
- b) Sponsor: Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
- c) Credit Hours: 3 credit hours
- d) Course Level: Junior (0908.342)
- e) Curricular Effect: Required course for all civil engineering students
- f) Prerequisites: Fluid Mechanics I
- g) Suggested Time/
Scale of Implementation: One section during spring semesters
- h) Resources:

Faculty: Existing faculty can teach this courses.

Library: Library acquisitions will be required.

Equipment: Laboratory space and appropriate experimental equipment for testing water flow through sewers and channels will be required.

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

2. Rationale:

The proposed course is the revised version of a civil engineering course entitled "Hydraulics and Hydrology" 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 fundamental theme of the course is water resources engineering including hydraulics and hydrology. Hydraulics deals with the flow of water in open channels and in underground aquifers. Hydrology deals with rainfall and the resulting volume

of water in open channels and in underground aquifers. Both topics are essential for civil engineering majors.

The purpose of the course is to give civil engineering students the ability to analyze and design basic water flow structures using the principles of hydraulics and hydrology. This includes the analysis of rainfall, runoff, groundwater flow, and stream flow; and the design of basic hydraulic structures such as open channels, weirs, culverts, storm sewers, etc.

3. Essence of the Course:

a) Objectives:

Upon completion of the courses, civil engineering students will be able to analyze the following phenomenon by laboratory experimentation, computer modeling, and hand calculation:

Open channel flow including the following:

Subcritical flow

Supercritical flow

Hydraulic jumps

Hydraulic profiles

Groundwater flow including the following:

Flow to wellheads

Seepage through dams

Hydrologic cycles including the following:

Precipitation

Streamflow

Upon completion of the courses, civil engineering students will also be able to analyze and design the following hydraulic structures by computer modeling and hand calculation:

Open channels

Weirs

Culverts

Storm sewers

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

Open Channel Flow:

Subcritical

Supercritical Flow

Hydraulic Jumps

Hydraulic Profiles

Groundwater Hydraulics:

Flow to Wellheads

Seepage Through Dams

Hydraulic Structures:

Open Channels

Weirs

Culverts

Storm Sewers

Hydrology:

Precipitation and the Hydrologic Cycle

Volume of Streamflow

c) Evaluation and Grading Procedure of Students:

Student grades will be based on team problems, lab reports, and projects; and individual examinations and 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 "Hydraulics and Hydrology" 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:

Water Resources Engineering (0908.342)

(Prerequisites: Fluid Mechanics I)

The course deals with the analysis and design of basic water flow structures using the principles of hydrology and hydraulics. The topics covered in hydrology include the analysis of rainfall, runoff, groundwater flow, and streamflow. The topics covered in hydraulics include the analysis and design of hydraulic structures such as weirs, open channels, culverts, and storm sewers. The course includes appropriate laboratory experiments and computer applications.