

ROWAN COLLEGE
CURRICULUM COMMITTEE

PROPOSAL TITLE: Advanced Water Resources Engineering for Seniors 0908.443

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)	STEP #2 (RECEIPT)	STEP #3 (SCHOOL)
<input checked="" type="checkbox"/> APPROVED/DATE: <u>9/20/96</u> <input type="checkbox"/> NOT APPROVED/DATE: _____ <hr/> DEPT. CURRICULUM CHR. <u>Ralph Alan Dusseau</u> <input checked="" type="checkbox"/> REVIEWED/DATE: <u>9/20/96</u> <hr/> <u>Ralph Alan Dusseau</u> DEPT. CHR.	SCC# <u>96-97-41</u> DATE RECEIVED: _____ <hr/> <u>Ronald J. Johns</u> SENATE CURRICULUM CHR.	REVIEWED DATE: <u>9/23/96</u> <input checked="" type="checkbox"/> RECOMMEND TO APPROVE <input type="checkbox"/> RECOMMEND NOT TO APPROVE FORWARD FOR OPEN HEARING <input checked="" type="checkbox"/> WITHOUT RESERVATIONS <input type="checkbox"/> WITH RESERVATIONS COMMENTS: <hr/> <u>[Signature]</u> SCHOOL COMMITTEE CHR.

STEP #4 (ACADEMIC DEAN) COMMENTS:

RECOMMEND
 NOT RECOMMEND
 CONDITIONALLY RECOMMEND (SEE COMMENTS)
DATE & SIGNATURE, DEAN OF SCHOOL: [Signature] 9/23/96

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)

DATE PRESENTED TO SENATE _____ APPROVED

NOTIFICATION TO EXECUTIVE VICE PRESIDENT/PROVOST (DATE) _____

SENATE CURRICULUM COMMITTEE CHAIR SIGNATURE/DATE: [Signature] 2/7/97

~~WAS~~

Deed was left
to be returned
to [unclear]

STEP #7 (EXECUTIVE VICE PRESIDENT/PROVOST)

DATE RECEIVED

APPROVED: EG 5/19/97
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 0905-443
DATE/SIGNATURE OF REGISTRAR B. J. Kelsey

NOTIFICATION FORWARD:

___ SENATE CURRICULUM COMMITTEE CHAIRPERSON

___ DEPARTMENT CHAIRPERSON(S)

___ ACADEMIC DEAN(S)

___ REGISTRAR

___ SPONSOR(S)

Course Proposal:

1. Details:

- a) **Course Title:** Advanced Water Resources 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 (0908.443)
- e) **Curricular Effect:** Elective course for civil engineering graduate students
- f) **Prerequisites:** Water Resources Engineering or equivalent
- g) **Suggested Time/Scale of Implementation:** One section during fall semesters

h) Resources

Faculty: Existing faculty can teach this course.

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 course entitled "Advanced Hydraulics and Hydrology" 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 fundamental theme of the course is the study of advanced topics in water resources engineering. The purpose of the course is to give civil engineering students working knowledge in several advanced areas of water resources engineering including the design of advanced hydraulic structures, hydraulic similitude and modeling, wave action, and advanced hydrology.

3. Essence of the Course

a) Objectives:

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

Hydraulic similitude and modeling including the following:

Viscous forces

Gravity forces

Surface tension

Floating bodies

Submerged bodies

Open channel modeling

Wave action in the following environments:

Open channels

Open bodies of water

Advanced hydrology including the following:

Advanced frequency analysis

Advanced hydrographs

Storage routing

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

Gravity dams

Arch dams

Earth-compacted dams

Roller-compacted concrete dams

Spillways

Stilling basins

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:

Design of Advanced Hydraulic Structures:

Gravity Dams

Arch Dams

Earth-Compacted Dams

Roller-Compacted Concrete Dams

Spillways

Stilling Basins

Hydraulic Similitude and Modeling:

Viscous Forces

Gravity Forces

Surface Tension

Floating Bodies

Submerged Bodies

Open Channel Modeling

Wave Action:

Open Channels

Open Bodies of Water

Advanced Hydrology:

Advanced Frequency Analysis

Advanced Hydrographs

Storage Routing

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 "Advanced Hydraulics and Hydrology" 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 Water Resources Engineering for Seniors (0908.443)

(Prerequisites: Water Resources Engineering or equivalent)

The fundamental theme of the course is the study of advanced topics in water resources engineering including the analysis and design of advanced hydraulic structures, hydraulic similitude and modeling, wave action, and advanced hydrology. The course includes appropriate laboratory experiments and computer applications.