ROWAN COLLEGE
CURRICULUM COMMITTEE

PROPOSAL TITLE: Engineering Estimating 0908.504

___UNDERGRADUATE x ___GRADUATE 3 _____CREDIT HOURS

SPONSOR(S): Ralph Alan Dusseau and School of Engineering Curriculum Committee

DEPARTMENT & TELEPHONE# Civil Engineering Program, School of Engineering

CHECK ONE: x COURSE ___MINOR PROGRAM ___CONCENTRATION ___SPECIALIZATION

___ACHIEVEMENT CERTIFICATE ___CERTIFICATION PROGRAM ___MAJOR PROGRAM

STEP #1 (DEPARTMENT)

___APPROVED/DATE: 4-24-96

___NOT APPROVED/DATE:

DEPT. CURRICULUM CHR.

___REVIEWED/DATE: 4-24-96

DEPT. CHR.

STEP #2 (RECEIPT)

SCC# 96 97-20

DATE RECEIVED: SENATE

JUL 9

RECEIVED

SENATE CURRICULUM CHR.

STEP #3 (SCHOOL)

REVIEWED DATE: 4-24-96

✓ RECOMMEND TO APPROVE

___RECOMMEND NOT TO APPROVE

FORWARD FOR OPEN HEARING

✓ WITHOUT RESERVATIONS

___WITH RESERVATIONS

COMMENTS:

SCHOOL COMMITTEE CHR.

STEP #4 (ACADEMIC DEAN)

COMMENTS:

✓ RECOMMEND

___NOT RECOMMEND

___CONDITIONALLY RECOMMEND (SEE COMMENTS)

DATE & SIGNATURE, DEAN OF SCHOOL James M. Lacey 5/14/96

STEP #5 (SENATE CURRICULUM COMMITTEE)

DATE OF OPEN HEARING 10-28-96

APPROVED BY SENATE CURRICULUM COMMITTEE (DATE) 10/28/96

___RETURNED TO SPONSOR(S) FOR THE FOLLOWING REASONS:

STEP #6 (SENATE)

DATE PRESENTED TO SENATE 11-20-96 X APPROVED ___NOT APPROVED

NOTIFICATION TO EXECUTIVE VICE PRESIDENT/PROVOST (DATE)_____

SENATE CURRICULUM COMMITTEE CHAIR SIGNATURE/DATE Ronald J. Gushon 12/4/96

STEP #7 (EXECUTIVE VICE PRESIDENT/PROVOST)

DATE RECEIVED 1/29/97

APPROVED: ___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) 1/31/97

SIGNATURE, EXECUTIVE VICE PRESIDENT/PROVOST C Mottern

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED 19 Mar 97

HEGIS TAXONOMY AND COURSE NUMBER ASSIGNED 0908.504

DATE/SIGNATURE OF REGISTRAR 13 Feb 97

NOTIFICATION FORWARD:

___SENATE CURRICULUM COMMITTEE CHAIRPERSON

___DEPARTMENT CHAIRPERSON(S)

___ACADEMIC DEAN(S)

___REGISTRAR

___SPONSOR(S)

Course Proposal:

1. Details:

a)	Course Title:	Engineering Estimating
b)	Sponsor:	Dr. Ralph Alan Dusseau and School of Engineering Curriculum Committee
c)	Credit Hours:	3 credit hours
d)	Course Level:	Graduate (0908.504)
e)	Curricular Effect:	Elective course for civil engineering graduate students
f)	Prerequisites:	Microeconomics or permission of instructor
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. Additional software may be required, although existing spreadsheets should be sufficient.

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 development of engineering estimates, i.e. cost estimates for the construction of a civil engineering project or project component. This is an important skill for all civil engineering students.

3. Essence of the Course:

a) Objectives:

Upon completion of the course, civil engineering students will be able to develop accurate engineering estimates of the cost of civil engineering projects and project components including the following tasks:

- Determining labor costs including the following:
  - Determining the manhours required for a given task
  - Deriving wage rates for trades and crews
  - Calculating fringe benefit costs
  - Assessing required labor contingency
- Determining material costs including the following:
  - Performing quantity takeoffs for materials
  - Assessing accurate material prices
  - Assessing required material contingency
- Determining equipment costs including the following:
  - Calculating soil volumes and choosing soil stabilization methods
  - Choosing bulldozer and/or front-end loader types and calculating equipment productivity
  - Choosing scraper, crane, and excavator types and calculating equipment productivity
  - Choosing truck and/or wagon types and calculating equipment productivity
- Deriving total project costs including:
  - Direct and indirect costs
  - Field and home-office costs
  - Cost contingency

Performing civil engineering estimates utilizing spreadsheets and/or specific estimating software for the following project components:

Piles, cofferdams, wellpoints, and earthdrilling

Water systems, sanitary sewers, and storm sewers

Road and highway pavements

Reinforced concrete buildings and bridges

Structural steel buildings and bridges

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

Labor Costs:

Manhours

Wage Rates

Fringe Benefits

Labor Contingency

Material Costs:

Quantity Takeoff

Material Pricing

Material Contingency

Equipment Costs:

Soil Volumes and Stabilization

Bulldozers and Front-End Loaders

Scrapers, Cranes, and Excavators

Trucks and Wagons

Total Project Costs:

Direct and Indirect Costs

Field and Home-Office Costs

Cost Contingency

Civil and Environmental Engineering Estimates:

Piles, Cofferdams, Wellpoints, and Earthdrilling

Water Systems, Storm Sewers and Sanitary Sewers

Road and Highway Pavements

Reinforced Concrete Buildings and Bridges

Structural Steel Buildings and Bridges

c) Evaluation and Grading Procedure of Students:

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

Engineering Estimating (0908.504)

(Prerequisites: Microeconomics or permission of instructor)

The course deals with the development of engineering estimates for civil engineering projects and project components including labor, materials, and equipment. Total project costs including direct and indirect costs, field and home-office costs, and contingency are covered. Also covered are the various types of civil engineering estimates including piles and cofferdams, wellpoints and earthdrilling, water and sewer systems, road and highway pavements, concrete buildings and bridges, and steel buildings and bridges. The course includes appropriate computer applications.