

Engineering Faculty Document No. 41-03
May 5, 2004

TO: The Faculty of the Schools of Engineering
FROM: The Faculty of the School of Civil Engineering
DATE: May 5, 2004
SUBJECT: Change of Course Requirements for the Degree of Bachelor of Science in
Construction Engineering and Management

The Faculty of the School of Civil Engineering has approved four modifications to the curriculum for the Bachelor of Science in Construction Engineering and Management resulting in no change in the total of 134 credit hours required for the degree. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Current and proposed plans of study are attached. Detailed descriptions of proposed changes are provided along with reasons for these proposed changes.

Reasons for the proposed changes to the curriculum are explained below:

- Change 1:** Delete CE 293 Computers and Computer Programming for Civil Engineers from the curriculum.
Reason: Civil Engineering has deleted class from course offerings because students are now better prepared with regard to computer skills than previously as a result of life experiences and study in First Year Engineering. They therefore require a reduced amount of formal study in this area. Some study of engineering problem solving software has been integrated into CE 203.
- Change 2:** Replace CE 200 Fundamentals of Surveying in the curriculum with CE 203 Principles and Practice of Geomatics.
Reason: Civil Engineering has replaced CE 200 with CE 203.
- Change 3:** Replace CE 292 Oral and Written Communications for Civil Engineers with CE 399 Oral and Written Communications for Civil Engineers.
Reason: The ability to communicate engineering ideas in an effective manner is critically important. This was a needed area of improvement identified through internship evaluations. This will be accomplished by replacing CE 292 having 1 credit hour with CE 399 having 3 credit hours.
- Change 4:** Replace CE 392 Stochastic Concepts and Methods in Civil Engineering in the curriculum with STAT 511 Statistical Methods.
Reason: Civil Engineering has deleted CE392 from course offerings and STAT 511 is an appropriate substitute since the content is similar.

Fred L. Mannering, Head
School of Civil Engineering

Curriculum in Construction Engineering and Management – Current

Credit Hours Required for Graduation: 134

	<i>Credit Hours</i>
Mathematics and Physical Sciences: Calculus: MA 165, 166, 261, 265, 266 Chemistry: CHM 115, 116 Physics: PHYS 152, 241	18 8 7
Computing: ENGR 106, CS 156, CGT 164, C E 293	9
Seminars: ENGR 100, CEM 290	1
Communication and General Education: English Composition: ENGL 101 Speech: COM 114 Technical Communication: CE 292 Humanities and Social Sciences: Courses are selected according to an approved list with the help of a faculty advisor.	3 3 1 18
Core Engineering Courses: Surveying: CE 200 Basic Mechanics/Materials: CE333, CE270, CE297, CE298 Thermodynamics: ME 200 Stochastics: CE 392 Construction: CE220, CE221, CE321, CE424, CE521, CE524 Management: MGMT200 Final Design Project: CE 425 This course must be taken during the student's final fall semester.	3 13 3 3 18 3 3
Technical Electives: Courses are selected with the help of a faculty advisor to accommodate the student's professional goals and to provide the student with sufficient design background.	20

Plan of Study for Construction Engineering and Management - Current

Credit Hours Required for Graduation: 134

Freshman Year (See First Year Engineering Plan of Study)

Summer Session

(0) CEM 191 (Construction Internship I)

Sophomore Year

Third Semester

(3) **CE 200** (Fundamentals of Surveying)
(3) **CE 220** (Construction Management)
(3) **CE 297** (Basic Mechanics I: Statics)
(4) **MA 261** (Multivariate Calculus)
(2) **CGT 164** (Graphical Communication and Spatial Analysis)
(3) General education elective*

(18)

Fourth Semester

(3) **CE 221** (Construction Plans and Estimates)
(4) **CE 270** (Introductory Structural Mechanics)
(3) **CE 333** (Engineering Materials)
(3) **PHYS 241** (Electricity and Optics)
(3) **MA 265** (Linear Algebra)
(0) **CEM 290** (Construction Seminar)

(16)

Summer Session

(0) CEM 291 (Construction Internship II)

Junior Year

Fifth Semester

(1) **CE 292** (Oral and Written Communications for Civil Engineers)
(3) **CE 293** (Computers and Computer Programming for Civil Engineers)
(3) **CE 298** (Basic Mechanics II: Dynamics)
(3) **CE 392** (Stochastic Concepts and Methods in Civil Engineering)
(3) **MA 266** (Ordinary Differential Equations)
(3) General education elective*

(16)

Sixth Semester

(3) **CE 321** (Construction Planning and Scheduling)
(3) **MGMT 200** (Introductory Accounting)
(3) **ME 200** (Thermodynamics)
(7) Technical Elective**
(3) General education elective*

(19)

Summer Session

(0) CEM 391 (Construction Internship III)

Senior Year

Seventh Semester

(3) **CE 424** (Human Resource Management in Construction)
(3) **CE 425** (Construction Practice Project)
(3) **CE 521** (Construction Business Management)
(6) Technical elective**
(3) General education elective*

(18)

Eighth Semester

(3) **CE 524** (Legal Aspects in Engineering Practice)
(7) Technical elective**
(6) General education elective*

(16)

*Eighteen credit hours of general education electives are chosen in accordance with the general education requirements of the Schools of Engineering;

** Technical electives vary depending on the specialty area of interest and career objectives. A list of acceptable technical electives is available from the CEM division.

**Plan of Study for Construction Engineering and Management - Current
(continued)**

Specialty Areas of Emphasis

Candidates for the Bachelor of Science in Construction Engineering and Management degree are to select technical electives within the specialty areas of emphasis according to the following guidelines:

Building/Heavy Highway Construction Specialty

- (3) CE 340 (Hydraulics)
- (1) CE 344 (Drainage Design Laboratory)
- (3) CE 371 (Structural Analysis I)
- (3) CE 383 (Geotechnical Engineering I)
- (4) CE 473 (Theory of Reinforced Concrete)

Plus at least 6 credits from the current approved technical electives list available from the CEM Division.

Electrical Construction Specialty

- (3) EE 201 (Linear Circuit Analysis I)
- (1) EE 207 (Electronic Measurement Techniques)
- (3) EE 432 (Elements of Power System Engineering)

Plus at least 12 credits from the current approved technical electives list available from the CEM Division.

Mechanical Construction Specialty

- (3) EE 201 (Linear Circuit Analysis I)
- (3) ME 309 (Fluid Mechanics)

Plus at least 12 credits from the current approved technical electives list available from the CEM Division.

Curriculum in Construction Engineering and Management - Proposed

Credit Hours Required for Graduation: 134

	<i>Credit Hours</i>
Mathematics and Physical Sciences:	
Calculus: MA 165, 166, 261, 265, 266	18
Stochastics: STAT 511	3
Chemistry: CHM 115, 116	8
Physics: PHYS 152, 241	7
Computing:	
ENGR 106, CS 156, CGT 164	6
Seminars:	
ENGR 100, CEM 290	1
Communication and General Education:	
English Composition:	3
Speech: COM 114	3
Technical Communication: CE 399	3
Humanities and Social Sciences: Courses are selected according to an approved list with the help of a faculty advisor.	18
Core Engineering Courses:	
Surveying: CE 203	4
Basic Mechanics/Materials: CE 333, 270, 297, 298	13
Thermodynamics: ME 200	3
Construction: CE 220, 221, 321, 424, 521, 524	18
Final Design Project: CE 425 This course must be taken during the student's final fall semester.	3
Management Course:	
Management : MGMT 200	3
Technical Electives:	
Courses are selected with the help of a faculty advisor to accommodate the student's professional goals and to provide the student with sufficient design background.	20

Plan of Study for Construction Engineering and Management - Proposed

Credit Hours Required for Graduation: 134

Freshman Year (See First Year Engineering Plan of Study)

Summer Session

(0) CEM 191 (Construction Internship I)

Sophomore Year

Third Semester

(4) **CE 203** (Fundamentals of Surveying)
(3) **CE 220** (Construction Management)
(3) **CE 297** (Basic Mechanics I: Statics)
(4) **MA 261** (Multivariate Calculus)
(2) **CGT 164** (Graphics for Civil Engineers and Construction)

(16)

Fourth Semester

(3) **CE 221** (Construction Plans and Estimates)
(4) **CE 270** (Introductory Structural Mechanics)
(3) **CE 333** (Engineering Materials)
(3) **PHYS 241** (Electricity and Optics)
(3) **MA 265** (Linear Algebra)
(0) **CEM 290** (Construction Seminar)

(16)

Summer Session

(0) CEM 291 (Construction Internship II)

Junior Year

Fifth Semester

(3) **CE 399** (Oral and Written Communications for Civil Engineers)
(3) **CE 321** (Construction Planning and Scheduling)
(3) **CE 298** (Basic Mechanics II: Dynamics)
(3) **STAT 511** (Statistical Methods)
(3) **MA 266** (Ordinary Differential Equations)
(3) General education elective*

(18)

Sixth Semester

(3) **MGMT 200** (Introductory Accounting)
(3) **ME 200** (Thermodynamics)
(10) Technical Elective**
(3) General education elective*

(19)

Summer Session

(0) CEM 391 (Construction Internship III)

Senior Year

Seventh Semester

(3) **CE 424** (Human Resource Management in Construction)
(3) **CE 425** (Construction Practice Project)
(3) **CE 521** (Construction Business Management)
(4) Technical elective**
(6) General education elective*

(19)

Eighth Semester

(3) **CE 524** (Legal Aspects in Engineering Practice)
(6) Technical elective**
(6) General education elective*

(15)

*Eighteen credit hours of general education electives are chosen in accordance with the general education requirements of the Schools of Engineering:

** Technical electives vary depending on the specialty area of interest and career objectives. A list of acceptable technical electives is available from the CEM Division.

**Plan of Study for Construction Engineering and Management – Proposed
(continued)**

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