# CIVIL ENGINEERING - BACHELOR OF SCIENCE IN CIVIL ENGINEERING

## Requirements (127 Credits)

In addition to the university requirements for graduation, all students including transfers must satisfy the requirements contained in the academic policies for the NMSU College of Engineering. Students must have a 2.0 grade-point average in all departmental courses and all prerequisites and co-requisites must be taken as required. If a student takes a class and a co-requisite for that class at the same time and does not achieve a grade of C- or better in the co-requisite, the student may take no further classes for which the course or the co-requisite are prerequisite. A student who completes a class three times without achieving a grade of C- or better will be dismissed from the Civil Engineering program, and not allowed to take any Civil Engineering courses from the department.

## General Education

### State of New Mexico Common Core

**Area I: Communications**
- ENGL 111G  
  Rhetoric and Composition  
  (3)  
- Written Communications Elective (ENGL 218 strongly recommended)  
  (3)  
- Oral Communications Elective (COMM 265 strongly recommended)  
  (3)

**Area II: Mathematics**
- MATH 191G  
  Calculus and Analytic Geometry I  
  (4)

**Area III: Natural Science**
- CHEM 111G  
  General Chemistry I  
  (4)  
- PHYS 215G  
  Engineering Physics I  
  (3)  
- PHYS 215GL  
  Engineering Physics I Laboratory  
  (1)

**Areas IV & V: Social and Behavioral Sciences & Humanities and Fine Arts**
- Select 15 total credits from Area IV and V, with at least 6 credits from each area:
  - **Area IV: Social and Behavioral Sciences:**
    - Select 6-9 credits from Economics, Political Science, Psychology, Sociology and Anthropology electives
  - **Area V: Humanities and Fine Arts:**
    - Select 6-9 credits from History, Philosophy, Literature, Art, Music, Dance, or Theater electives

## Institution Specific General Education

**Viewing a Wider World electives**
- (6)

## Program Specific Requirements

### Mathematics
- MATH 192G  
  Calculus and Analytic Geometry II  
  (4)  
- MATH 291G  
  Calculus and Analytic Geometry III  
  (3)  
- MATH 392  
  Introduction to Ordinary Differential Equations  
  (3)  
- STAT 371  
  Statistics for Engineers and Scientists I  
  (3)

### Natural Science
- GEOL 111G  
  Introductory to Geology  
  (4)

- PHYS 216G  
  Engineering Physics II  
  (3)  
- PHYS 216GL  
  Engineering Physics II Laboratory  
  (1)

**Technical**
- ENGR 100  
  Introduction to Engineering  
  (3)  
- SUR 222  
  Plane Surveying  
  (3)

**Civil Engineering**
- C E 151  
  Introduction to Civil Engineering  
  (3)  
- C E 233  
  Mechanics-Statics  
  (3)  
- C E 234  
  Mechanics-Dynamics  
  (3)  
- or M E 234  
  Mechanics-Dynamics  
  (3)
- C E 256  
  Environmental Engineering and Science  
  (3)
- C E 256 L  
  Environmental Science Laboratory  
  (1)
- C E 301  
  Mechanics of Materials  
  (3)  
- C E 311  
  Civil Engineering Materials  
  (3)  
- C E 315  
  Structural Analysis  
  (4)  
- C E 331  
  Fluid Mechanics and Hydraulics  
  (3)  
- C E 331 L  
  Fluid Mechanics and Hydraulics Laboratory  
  (1)
- C E 356  
  Fundamentals of Environmental Engineering  
  (3)

**Civil Engineering Option Electives**
- (6)

**Capstone Course**
- Select one from the following:
  - C E 469  
    Structural Systems  
    (3)
  - C E 482  
    Hydraulic Structures  
    (3)
  - C E 485  
    Design of Earth Dams  
    (3)
  - ENVE 456  
    Environmental Engineering Design  
    (3)

**Concentrations**

Select from the following concentrations:
- Environmental
- General
- Geotechnical
- Structural
- Water Resources

**Total Credits**
- 127

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1. See the required courses (http://catalogs.nmsu.edu/nmsu/essential-information-students/general-education-courses) section of the catalog for a full list of courses.
2. Students must complete 15 total credits from Area IV and V, with at least six credits from each area, including ECON 251G Principles of Macroeconomics or ECON 252G Principles of Microeconomics as an Area IV course. In addition, students must complete 6 total credits of Viewing a Wider World (VWW) electives. See the required courses (http://catalogs.nmsu.edu/nmsu/essential-information-students/general-education-courses) section of the catalog for a full list of courses.
Students are required to take three credits of capstone design. The required capstone design course depends on the area of concentration as follows: C E 469 Structural Systems (structural); C E 482 Hydraulic Structures (water resources); C E 485 Design of Earth Dams (geotechnical); and ENVE 456 Environmental Engineering Design (environmental). For the general option, students may take any one of the four capstone design courses.

Concentration: Environmental (9 credits)

Required Elective Courses
Select two from the following:

- ENVE 450 Aquatic Chemistry
- ENVE 451 Unit Processes/Operation of Water Treatment
- ENVE 452 Unit Processes/Operation of Wastewater Treatment
- ENVE 458 Urban Water-Energy-Environment Systems
- ENVE 487 Air Pollution Control Systems Design

Required Capstone Design
ENVE 456 Environmental Engineering Design

Total Credits 9

Concentration: General (9 credits)

Required Elective Courses
Design electives selected from Environmental, Structural, Water Resources, or Geotechnical Options (other Civil Engineering electives may be taken under General Option with approval of department head)

Required Capstone Design
Capstone design selected from Environmental, Structural, Water Resources, or Geotechnical Options

Total Credits 9

Concentration: Geotechnical (9 credits)

Required Elective Courses
Select two from the following:

- C E 452 Geohydrology
- C E 470 Design of Municipal and Hazardous Waste Landfills
- C E 479 Pavement Analysis and Design

Required Capstone Design
C E 485 Design of Earth Dams

Total Credits 9

Concentration: Structural (9 credits)

Required Elective Courses
C E 444 Elements of Steel Design
Select one from the following:

- C E 454 Wood Design
- C E 455 Masonry Design
- C E 544 Advanced Design of Steel Structures (requires department head approval)
- C E 545 Advanced Concrete Design (requires department head approval)

Recommended Freshman Year

Course Sequence

| ENGR 100 | Introduction to Engineering | 3 |
| C E 151 | Introduction to Civil Engineering | 3 |
| MATH 191G | Calculus and Analytic Geometry I | 4 |
| MATH 192G | Calculus and Analytic Geometry II | 4 |
| CHEM 111G | General Chemistry I | 4 |
| PHYS 215G | Engineering Physics I | 3 |
| ENGL 111G | Rhetoric and Composition | 4 |
| ENGL 218G | Technical and Scientific Communication | 3 |
| General Education Common Core | 3 |

Total Credits 32