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 4
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 2 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
CE 151 Introduction to Civil Engineering 3
CE 233 Mechanics-Statics 3
CE 234 Mechanics-Dynamics 3
or ME 234 Mechanics-Dynamics 3
CE 256 Environmental Engineering and Science 3
CE 256 L Environmental Science Laboratory 1
CE 301 Mechanics of Materials 3
CE 311 Civil Engineering Materials 3
CE 315 Structural Analysis 4
CE 331 Fluid Mechanics and Hydraulics 3
CE 331 L Fluid Mechanics and Hydraulics Laboratory 1
CE 356 Fundamentals of Environmental Engineering 3
CE 357 Soil Mechanics 3
CE 382 Hydraulic and Hydrologic Engineering 3
CE 445 Reinforced Concrete Design 3
CE 457 Foundation Design 3
CE 471 Transportation Engineering 3
CE 477 Engineering Economics and Construction Management 3
Civil Engineering Option Electives 6
Capstone Course 3
Select one from the following:
   CE 469 Structural Systems
   CE 482 Hydraulic Structures
   CE 485 Design of Earth Dams
   ENVE 456 Environmental Engineering Design
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.

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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 3

**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 3

**Total Credits**
9

### Concentration: Structural (9 credits)

**Required Elective Courses**
- C E 444 Elements of Steel Design 3

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)

**Required Capstone Design**
C E 469 Structural Systems 3

**Total Credits**
9

### Concentration: Water Resources (9 credits)

**Required Elective Courses**
Select one from the following:
- C E 483 Surface Water Hydrology
- A EN 475 Soil and Water Conservation
- A EN 478 Irrigation and Drainage Engineering

Select one from the following:
- C E 452 Geohydrology
- A EN 459 Design of Water Wells/Pumping Systems

**Required Capstone Design**
C E 482 Hydraulic Structures 3

**Total Credits**
9

### 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
- PHYS 215GL Engineering Physics I Laboratory 1
- ENGL 111G Rhetoric and Composition 4
- ENGL 218G Technical and Scientific Communication 3

**Total Credits**
32