ENGINEERING (CIVIL ENGINEERING) - DOCTOR OF PHILOSOPHY

In support of the mission and vision statements for the graduate program, the Civil Engineering Department adopts the following goals for the Doctor of Philosophy (Ph.D.) degree:

1. Prepare students to develop and conduct fundamental and applied research to generate innovative and original solutions for civil engineering problems.
2. Prepare students for research-based professional careers or academic careers in the civil engineering discipline.
3. Develop a culture of research/teaching scholarship among students.

Students may specialize in environmental, geotechnical, structural, transportation, or water resources engineering. Further information related to the Ph.D. degree may be found under the Academic Programs of Study (https://catalogs.nmsu.edu/nmsu/regulations-policies/) section of the catalog.

Requirements

The Ph.D. program in Civil Engineering is open to students with a master's degree. Exceptionally well qualified students may petition for direct entry to the Ph.D. program without first obtaining a master's degree. The program of study requires a minimum of 36 graduate credits beyond the master's, including at least 18 credits of dissertation work.

Option 1 - Ph.D. with Completed Master's Degree

If the student has both bachelor's and master's degrees in fields that are not closely related to Civil Engineering, they must complete any undergraduate and graduate coursework deficiencies identified by the faculty in their area of specialization. Deficiencies may be identified upon admission, based on the student's performance on the qualifying exam, or both. Beyond completion of any deficiency coursework, the following requirements must be met:

Prefix	Title	Credits
Pass Qualifying Exam		
Graduate Electives (beyond master's degree, or equivalent thereof) these electives may include research (C E 600) or dissertation (C E 700) credits [1]		18
Pass Comprehensive Exam		
Doctoral Dissertation		18
C E 700	Doctoral Dissertation	
Complete and Defend Doctoral Dissertation		

[1] Graduate course work credits from the following prefixes are permitted for the Ph.D. degree. If a graduate course outside this list of prefixes logically fits into the Ph.D. program, see your graduate advisor about requesting an exception.
Prefixes: A EN, ENVE, ENVS, GENE, SOIL, BIOL, CS, CHEM, GEOG, GEOL, GPHY, MATH, MOLB, PHYS, STAT, A ST, A E, CE, CHME, EE, IE, ME

Option 2 - Direct Ph.D. with BSCE or Equivalent, but no Master's Degree

If the student has the equivalent of a BSCE degree, but no master's degree, they must fulfil the following requirements:

Prefix	Title	Credits
Area of Specialization (beyond the bachelor's degree, 450 or higher) [1]		18
Pass Qualifying Exam		
Graduate Electives (beyond master's degree, or equivalent thereof) these electives may include research (C E 600) or dissertation (C E 700) credits [2]		18
Pass Comprehensive Exam		
Doctoral Dissertation		18
C E 700	Doctoral Dissertation	
Complete and Defend Doctoral Dissertation		

[1] **Specialization Courses:**
Environmental: ENVE 456 Environmental Engineering Design, ENVE 550 Aquatic Chemistry, ENVE 551 Unit Processes/Operation of Water Treatment, ENVE 552 Unit Processes/Operation of Wastewater Treatment, ENVE 557 Surface Water Quality Modeling, ENVE 598 Special Research Programs
Geotechnical: C E 452 Geohydrology, C E 470 Design of Municipal and Hazardous Waste Landfills, C E 479 Pavement Analysis and Design, C E 485 Design of Earth Dams, C E 507 Design of Earth Retaining Structures, C E 508 Advanced Soil Behavior, C E 509 Deep Foundations, C E 579 Ground Improvement, C E 585 Slope Stability Analysis and Design
Structural: C E 454 Wood Design, C E 455 Masonry Design, C E 501 Advanced Mechanics of Materials, C E 510 Introduction to Nondestructive Testing, C E 515 Finite Element Methods, C E 544 Advanced Design of Steel Structures, C E 545 Advanced Concrete Design, C E 554 Wood Design, C E 555 Masonry Design, C E 571 Structural Dynamics
Transportation: C E 479 Pavement Analysis and Design C E 482 Hydraulic Structures, C E 501 Advanced Mechanics of Materials, C E 507 Design of Earth Retaining Structures, C E 509 Deep Foundations, C E 510 Introduction to Nondestructive Testing, C E 515 Finite Element Methods, C E 544 Advanced Design of Steel Structures, C E 545 Advanced Concrete Design, C E 547 Bridge Engineering
Water Resources: A EN 459 Groundwater, Wells & Pumps, A EN 478 Irrigation and Drainage Engineering, C E 452 Geohydrology, C E 482 Hydraulic Structures, C E 483 Surface Water Hydrology, C E 485 Design of Earth Dams, C E 682 Topics in Hydrodynamics II, ENVE 557 Surface Water Quality Modeling, ENVE 630 Fate and Transport of Environmental Contaminants, SOIL 652 Advanced Soil Physics

[2] **Included Prefixes:** Graduate course work credits from the following prefixes are permitted for the Ph.D. degree. If a graduate course outside this list of prefixes logically fits into the Ph.D. program, see your graduate advisor about requesting an exception. **Prefixes:** A EN, ENVE, ENVS, GENE, SOIL, BIOL, CSCI, CHEM, GEOG, GEOL, GPHY, MATH, MOLB, PHYS, STAT, A ST, A E, CE, CHME, EE, IE, ME

Additional Requirements

Ph.D. candidates in the College of Engineering, who have successfully completed their Ph.D. Qualifier Examination after January 1, 2018, must satisfy a publication requirement which requires two papers:

> Paper #1: An archival paper accepted or published in any journal listed in the source publication list for the Web of Science, or a refereed Journal or Conference Proceeding approved by the student's doctoral committee and the cognizant Department Head(s), before the Doctorate of Philosophy final examination. The candidate should be listed as the lead author in Paper #1.

Paper #2: An additional archival paper submitted, accepted, or published in any journal listed in the source publication list for the Web of Science. Alternatively, one conference paper accepted or published in a national or international conference proceedings.