Prerequisite Requirements for Graduate Degrees in Civil Engineering

Name ____________________________________________ Degree/Discipline ____________________________________

Note: Applicants must show evidence of completed prerequisites as the example below:

List course taken (as shown on your transcript) to fulfill requirement __ Calculus II (MATH-2411 or equivalent)

1. Master of Science or PhD in Civil Engineering* → Mark courses taken here AND specialty area list.

   ___ Calculus I (MATH-1401 or equivalent)
   ___ Calculus II (MATH-2411 or equivalent)
   ___ Calculus III (MATH-2421 or equivalent)
   ___ Linear Algebra and Differential Equations (MATH-3195 or equivalent)
   ___ Physics I (PHYS-2311 or equivalent)
   ___ Statics (CVEN-2121 or equivalent)
   ___ Mechanics of Materials (CVEN-3121 or equivalent)
   ___ Fluid Mechanics (CVEN-3313 or equivalent)
   ___ Computer Programming (ENGR-1100 or equivalent)

   1.1 Construction Engineering and Management
   ___ Engineering Surveying (CVEN-2212 or equivalent)
   ___ Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
   ___ Introduction to Structural Materials (CVEN 3141 or equivalent)
   ___ Structural Analysis (CVEN-3505 or equivalent)

   1.2 Hydrologic, Environmental and Sustainability
   ___ General Chemistry (CHEM-1130 or equivalent)
   ___ Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
   ___ Environmental Engineering (CVEN-3401 or equivalent)
   Note: Statics (CVEN-2121) and Mechanics of Materials (CVEN-3121) are NOT required for this specialty area.

   1.3 Geographic Information Systems and Geomatics
   ___ Engineering Surveying (CVEN-2212 or equivalent)
   ___ Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
   ___ Any other course listed on another M.S. specialty area list

   1.4 Geotechnical
   ___ Physics II (PHYS-2331 or equivalent)
   ___ Dynamics (CVEN-3111 or equivalent)
   ___ Geotechnical Engineering I (CVEN-3718 or equivalent)
   ___ Intermediate Foundation Engineering (CVEN-4738 or equivalent)
   ___ Engineering Geology (CVEN-5780 or equivalent)

   1.5 Structural
   ___ Physics II (PHYS-2331 or equivalent)
   ___ Dynamics (CVEN-3111 or equivalent)
   ___ Structural Analysis (CVEN-3505 or equivalent)
   ___ Geotechnical Engineering I (CVEN-3718 or equivalent)
   ___ Structural Steel Design (CVEN-4575 or equivalent)
   ___ Reinforced Concrete Design (CVEN-4585 or equivalent)

   1.6 Transportation
   ___ Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
   ___ Transportation Engineering (CVEN-5621 or equivalent)
   ___ Engineering Economy or Contracts or Cost Estimation (CVEN-4077, 4087, or 5233 or equivalent)
   ___ Highway Engineering (CVEN-5602 or equivalent)
   ___ Any other course listed on another M.S. specialty area list

2. Master of Engineering → Mark courses already taken in relevant specialty area list.

   * EASPhD students must satisfy all pre-requisites specified by their advisor, which will range between the CE PhD requirements for a student’s specialty area and the MEng requirements of that area if offered. See other side.
*All courses listed on previous page DO NOT apply to Masters of Engineering students.*

Note: Applicants must show evidence of completed prerequisites as the example below:

**List course taken (as shown on your transcript) to fulfill requirement**

2.1 Construction Engineering and Management

- Calculus I (MATH-1401 or equivalent)
- Calculus II (MATH-2411 or equivalent) or Autocad (CVEN 1025 or equivalent)
- Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
- Physics I (PHYS-2311 or equivalent)
- Statics (CVEN-2121 or equivalent)
  or (ARCH 3340 Theory of Structures I + ARCH 4340 Theory of Structures II or equivalent)
- Engineering Surveying (CVEN-2212 or equivalent)
- Computer Programming (ENGR-1100 or equivalent)

2.2 Geographic Information Systems and Geomatics

- Calculus I (MATH 1401 or equivalent)
- Probability & Statistics (MATH 3800 or equivalent; CVEN 5611 will satisfy requirement)
- Plane Surveying (CVEN 2212 or equivalent; CVEN 5391 will satisfy requirement)
- Two basic science courses (e.g., Physics, Chemistry, Biology, Ecology, Physiology)
- Computer Programming (ENGR-1100 or equivalent or other programming courses)

2.3 Hydrologic, Environmental and Sustainability

- Calculus I (MATH-1401 or equivalent)
- Calculus II (MATH-2411 or equivalent)
- Engineering Statistics (CVEN-3611 or equivalent) or Probability and Statistics (MATH-3800)
- Physics I (PHYS-2311 or equivalent)
- Chemistry or Biology or Ecology
- Computer Programming (ENGR-1100 or equivalent)

2.4 Transportation Systems

- Calculus I (MATH 1401 or equivalent)
- Probability & Statistics (MATH 3800 or equivalent; CVEN 5611 will satisfy requirement)
- Engineering Economy (CVEN 4077 or equivalent or other economics courses)
- Two basic science courses (e.g., Physics, Chemistry, Biology, Ecology, Physiology)
- Computer Programming (ENGR-1100 or equivalent or other programming courses)

* EASPhD students must satisfy all pre-requisites specified by their advisor, which will range between the CE PhD requirements for a student’s specialty area and the MEng requirements of that area, if offered. It depends on a student’s intended curriculum and dissertation emphasis, career goals, and plans to pass the FE and PE exams. Please speak directly with your intended advisor.

**NOTES:**

1. Suggested course numbers are provided, but prerequisites may be fulfilled with equivalent courses taken at the undergraduate or graduate levels, either at CU Denver or at an equivalent institution.
2. Applicants with more than 5 deficiencies will not be admitted except for rare instances.
3. After admission, a student may file a petition to the department to have a prerequisite waived.
4. A student may complete no more than 9 credit hours of graduate work before completing all prerequisites.
5. Fulfillment of prerequisites, which requires a grade of C- or better, will be checked by the student’s research advisor when the student applies for admission to candidacy prior to graduation.