Prerequisite Requirements for Graduate Degrees in Civil Engineering

Name _____ Degree/Discipline _____

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.

1. Master of Science or PhD in Civil Engineering[*] → *Mark courses taken including specialty area list.*
_____ Calculus I (MATH-1401 or equivalent)
_____ Calculus II (MATH-2411 or equivalent)
_____ Calculus III (MATH-2421or equivalent)
_____ Linear Algebra and Differential Equations (MATH-3195 or equivalent)
_____ Physics I (PHYS-2311or equivalent)
_____ Statics (CVEN-2121 or equivalent)
_____ Mechanics of Materials (CVEN-3121 or equivalent)
_____ Fluid Mechanics (CVEN-3313 or equivalent)
_____ Computer Programming (CVEN-2200 or equivalent)

1.1 Construction Engineering and Management
_____ Engineering Surveying (CVEN-2212 or equivalent)
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ 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)
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ 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)
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ 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)
_____ Geotechnical Engineering II (CVEN-4728 or equivalent)
_____ Intermediate Foundation Engineering (CVEN-4738 or equivalent)
_____ Engineering Geology (CVEN-5780 or equivalent)

1.6 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)

1.7 Transportation
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ 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

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[*] EASPhD students must satisfy all pre-requsites specified by their advser, which will range between the CE PhD requirements for a student's specality area and the MEng requirements of that area if offered. See other side.

Reviewed and signed by Advisor _____

Student _____ *Date* _____

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

Note: All courses listed on previous page DO NOT apply to Masters of Engineering students.

2.1 Construction Engineering and Management
_____ Calculus I (MATH-1401 or equivalent)
_____ Calculus II (MATH-2411 or equivalent) or Autocad (CVEN 1025 or equivalent)
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ Physics I (PHYS-2311 or equivalent)
_____ Statics (CVEN-2121 or equivalent)
_____ Engineering Surveying (CVEN-2212 or equivalent)
_____ Computer Programming (CVEN-2200 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 (CVEN 2200 or equivalent or other programming courses)

2.3 Hydrologic, Environmental and Sustainability
_____ Calculus I (MATH-1401 or equivalent)
_____ Calculus II (MATH-2411 or equivalent)
_____ Probability and Statistics (MATH-3800 or equivalent)
_____ Physics I (PHYS-2311 or equivalent)
_____ Chemistry or Biology or Ecology
_____ Computer Programming (CVEN-2200 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 (CVEN 2200 or equivalent or other programming courses)

[*] EASPhD students must satisfy all pre-requsites specified by their advser, which will range between the CE PhD requirements for a student's speciality 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.

Separate list for Ph.D. in Civil Engineering Systems has been removed and is no longer needed.

Reviewed and signed by Advisor _____

Student _____ *Date* _____