Prerequisite Requirements for Graduate Degrees in Civil Engineering

Name __________________________________________________________  Degree/Discipline ________________________________

Notes
1. Suggested course numbers are provided, but prerequisites may be fulfilled with equivalent courses taken at the undergraduate or graduate levels, either at UC Denver or at an equivalent institution.
2. Applicants with more than 5 deficiencies will not be admitted except for rare instances.
3. A student may file a petition to the graduate admissions committee 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 Ph.D. in Civil Engineering → Check the following courses, plus the relevant discipline-specific 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 (CVEN-2200 or equivalent)

1.1 Environmental and Sustainability
   Probability and Statistics (MATH-3800 or equivalent)
   General Chemistry (CHEM-1130 or equivalent)
   Environmental Engineering (CVEN-5401 or equivalent)

1.2 Geomatics and Geographic Information Systems (GIS)
   Probability and Statistics (MATH-3800 or equivalent)
   Physics II (PHYS-2311 or equivalent)
   Plane Surveying (CVEN-2212 or equivalent)
   Any other course listed on another Master of Science discipline-specific list

1.3 Geotechnical
   Physics II (PHYS-2331 or equivalent)
   Dynamics (CVEN-3111 or equivalent)
   Geotechnical Engineering (CVEN-3708 or equivalent)
   Intermediate Soils Engineering (CVEN-4718 or equivalent)
   Intermediate Foundation Engineering (CVEN-4738 or equivalent)
   Engineering Geology (CVEN-5790 or equivalent)

1.4 Hydrologic and Hydraulic Engineering
   General Chemistry (CHEM-1130 or equivalent)
   Physics II (PHYS-2331 or equivalent)
   Dynamics (CVEN-3111 or equivalent)
   Applied Fluid Mechanics (CVEN-3323 or equivalent)
   Design of Water and Wastewater Systems (CVEN-3414 or equivalent)

1.5 Structural
   Physics II (PHYS-2331 or equivalent)
   Dynamics (CVEN-3111 or equivalent)
   Structural Analysis (CVEN-3505 or equivalent)
   Geotechnical Engineering (CVEN-3708 or equivalent)
   Structural Steel Design (CVEN-4575 or equivalent)
   Reinforced Concrete Design (CVEN-4585 or equivalent)

1.5 Transportation
   Probability and Statistics (MATH-3800 or equivalent)
   Physics II (PHYS-2331 or equivalent)
   Engineering Economy (CVEN-4077 or equivalent)
   Transportation Engineering (CVEN-5621 or equivalent)
   Highway Engineering (CVEN-5602 or equivalent)
   Any other course listed on another Master of Science discipline-specific list
2. Master of Engineering  →  Check the appropriate discipline-specific list below.

2.1 Construction and Engineering Management
   — 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)
   — Statics (CVEN-2121 or equivalent)
   — Plane Surveying (CVEN-2212 or equivalent)
   — Computer Programming (CVEN-2200 or equivalent)

2.2 Geomatics and Geographic Information Systems (GIS)
   — Calculus I (MATH-1401 or equivalent)
   — Calculus II (MATH-2411 or equivalent)
   — Probability and Statistics (MATH-3800 or equivalent)
   — Basic Science (2 semesters)
   — Plane Surveying (CVEN-2212 or equivalent)
   — Computer Programming (CVEN-2200 or equivalent)

2.3 Sustainable Infrastructure
   — 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)
   — Physics II (PHYS-2331 or equivalent) or Thermodynamics (ENGR-3012 or equivalent)
   — Chemistry or Biology or Ecology
   — Computer Programming (CVEN-2200 or equivalent)
   — Environmental Engineering (CVEN-5401 or equivalent)

2.4 Transportation Systems
   — 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)
   — Basic Science (in addition to Physics I)
   — Economics (Macro-, Micro-, or Engineering Economics) or approved related topics
   — Computer Programming (CVEN-2200 or equivalent)

3. Ph.D. in Civil Engineering Systems  →  Check the following courses.
   — 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)
   — Physics II or Thermodynamics
   — Chemistry I or Biology I or Ecology I or Physiology I
   — Statics (CVEN-2121 or equivalent)
   — Fluid Mechanics (CVEN-3313 or equivalent)
   — Computer Programming (CVEN-2200 or equivalent)