Prerequisite Requirements for Graduate Degrees in Civil Engineering

1. Master of Science or Ph.D. in Civil Engineering → Check the following courses, plus the relevant discipline-specific list.

1.1 Construction Engineering and Management

- Probability and Statistics (MATH-3800 or equivalent)
- Physics I (PHYS-2311 or equivalent)
- Introduction to Structural Materials (CVEN 3141 or equivalent)
- Plane Surveying (CVEN-2212 or equivalent)
- Structural Analysis (CVEN-3505 or equivalent)

1.2 Environmental and Sustainability

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

1.3 Geomatics and Geographic Information Systems (GIS)

- Probability and Statistics (MATH-3800 or equivalent)
- Physics II (PHYS-2331 or equivalent)
- Plane Surveying (CVEN-2212 or equivalent)
- Any other course listed on another M.S. discipline-specific 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)

1.5 Hydrologic and Hydraulic Engineering

- General Chemistry (CHEM-1130 or equivalent)
- Physics II (PHYS-2331 or equivalent)
- Dynamics (CVEN-3111 or equivalent)
- Hydrosystems Engineering (CVEN-3323 or equivalent)
- Water Supply and Distribution Systems (CVEN-3414 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)
- 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

For the PhD in Civil Engineering Systems, see the list on page 2.

† M.S. not available for CEM. For M.Eng., see the list on page 2. For Ph.D., use this list.

Reviewed and signed by Advisor ________________________________ Date ____________________

Student ________________________________ Date ____________________

Page 1
2. Master of Engineering → Check the appropriate discipline-specific list below.

2.1 Construction Engineering and 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)
- Physics II or Thermodynamics
- 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)