Civil and Environmental Engineering

IMAGINE, INNOVATE AND DESIGN

The following is the potential courses that could be taken to meet the Department’s requirements. Before taking a course you should discuss with your advisor to see if they meet your curriculum plan. If a student’s advisor and supervisory committee wishes to vary from the course requirements a formal petition must be submitted to the Graduate Studies Committee.

Required Courses
All graduate students within the Infrastructure Group must take a total of two courses selected from the list provided below, with the additional requirement that the two courses must be from two different emphasis areas.

Materials
CVEEN 6570, Pavement Design
CVEEN 7560, Advanced Construction Materials

Structures
CVEEN 6210, Structural Analysis II
CVEEN 6220, Concrete Design II
CVEEN 6230, Steel Design II

Geotechnics
CVEEN 6310, Foundation Engineering
CVEEN 6330, Soil Dynamics

Core Courses
CVEEN 6210 Structural Analysis II
CVEEN 6220 Concrete Design II
CVEEN 6225 Concrete Science
CVEEN 6230 Steel Design II
CVEEN 6240 Masonry/Timber Design
CVEEN 6250 Structural Dynamics
CVEEN 6270 Computer-Aided Structural Analysis
CVEEN 6305 Introduction to Foundations
CVEEN 6310 Foundation Engineering
CVEEN 6330 Soil Dynamics
CVEEN 6340 Advanced Geotechnical Testing
CVEEN 6350 Soil Improvement and Stabilization
CVEEN 6510 Highway Design
CVEEN 6525 Highway and Traffic Engineering
CVEEN 6570 Pavement Design
CVEEN 7225 Prestressed Concrete Design
CVEEN 7230 Advanced Topics in Steel Design
CVEEN 7250 Structural Earthquake Engineering
CVEEN 7255 Advanced Dynamics of Structures
CVEEN 7310 Advanced Foundation Engineering
CVEEN 7330 Geotechnical Earthquake Engineering
CVEEN 7360 Advanced Soil Mechanics

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CVEEN 7450       Carbon Capture and Store
CVEEN 7520       Transportation Safety
CVEEN 7560       Advanced Materials
CVEEN 7570       Pavement Maintenance and Rehabilitation

**Elective Courses**
CVEEN 6225      Concrete Material Science
CVEEN 6235      Bridge Design
CVEEN 6260      Applied Probability and Statistics
CVEEN 6305      Introduction to Foundation Engineering
CVEEN 6320      Waste Containment Systems
CVEEN 6350      Soil Improvement and Stabilization
CVEEN 6810      Cost Estimating and Proposal Writing
CVEEN 6820      Project Scheduling
CVEEN 6830      Project Management and Contract Administration
CVEEN 6850      Engineering Law & Project Management
CVEEN 6920      Special Topics (courses emphasizing Materials, Structures or Geotechnics only)
CVEEN 6930      Independent Study
CVEEN 7260      Seismic Rehabilitation of Reinforced Concrete Buildings
CVEEN 7920      Special Topics (courses emphasizing Materials, Structures or Geotechnics only)
CVEEN 7930      Advanced Independent Study
CS 5600        Introduction to Computer Graphics
CS 6300        Artificial Intelligence
CS 6610        Interactive Computer Graphics
GEO 5075       Introduction to Geological Engineering
GEO 5150       Geological Engineering Design
GEO 5200       Depositional Environments
GEO 5210       Seismology I: Tectonophysics and Elastic Waves
GEO 5220       Seismology II: Exploration and Engineering Seismology
GEO 5320       Signal and Image Processing in the Geosciences
GEO 6160       Clay Mineral Geochemistry
GEO 6260       Petrophysics and Well-Logging
GEO 6330       Earthquake Seismology and Risk Assessment
GEO 6350       Groundwater
GEO 6360       Fluid Dynamics of Earth Materials
GEO 6370       Contaminant Partitioning for Engineers and Scientists
GEO 6660       Geochemistry
MATH 6420      Partial Differential Equations
MATH 6610      Analysis of Numerical Methods I
MATH 6620      Analysis of Numerical Methods II
ME EN 6300      Advanced Strength of Materials
ME EN 6400      Vibrations
ME EN 6510      Introduction to Finite Elements
ME EN 6520      Mechanics of Composite Materials
ME EN 7060      Fatigue and Creep Considerations in Design
ME EN 7070      Tribology and Corrosion Considerations in Design
ME EN 7530      Fundamentals of Fracture Mechanics
ME EN 7540      Advanced Finite Elements
ME EN 7550      Theory of Plates and Shells
MET E 6100      Micromechanisms of Fatigue and Fracture
MET E 6250      Fundamentals of Engineering Analysis
MET E 6300      Alloy and Material Design
MET E 6450      Mechanical Metallurgy
MET E 6600      Corrosion Fundamentals & Minimization
MG EN 5150      Mechanics of Materials
MG EN 5270      Landslides and Slope Stability
MG EN 5290      Introduction to Finite Element Modeling in Geomechanics
MSE 5032       Thermodynamics of Solids
MSE 5475       Introduction to Composites
MSE 6001       Engineering Materials

Only 9 credits outside of the Department may be used towards a master’s degree.
Other courses may be approved by Supervisory Committee.