CVEN Construction Engineering Management Emphasis - Suggested Course Plan

Proficiencies (3 total)
CVEN 3256 Construction Engineering (Equipment & Methods)
CVEN 4555 Reinforced Concrete
CVEN 3718 Geotech Engineering II

CEAE Technical Electives (2 total)
AREN 4506 Pre-construction Estimating and Scheduling
AREN 4606 Project Execution and Control

Highly Recommended Tech/Free Elective (2 Tech Electives & 2 Free Elective)
CVEN 3602 Transportation Systems
CVEN 4545 Steel Design
CVEN 4728 Foundation Engineering
CVEN 4147 Civil Engineering Systems
CVEN 4333 Engineering Hydrology
CVEN 4565 Design of Wood Structures
AREN 4315 Masonry Design
CEM Graduate courses with instructor consent

Other Good Options – Tech/Free Elective
CVEN 3227 Probability, Statistics, and Decision Making for Civil Engineers
CVEN 4147 Civil Engineering Systems
CVEN 5565 Life-cycle Engineering of Civil Infrastructure Systems
AREN 3540 Illumination I
AREN 3010 Mechanical Systems for Buildings
AREN 4110 HVAC Design
AREN 4830 Computer Simulations of Building Systems
EMEN 4100 Business Methods and Engineering Economics
AREN 1027 Engineering Drawing (Free Elective only as it is lower division)
AREN 2050 Building Systems and Materials (Free Elective only as it is lower division)
CVEN 1837 Civil Engineering Drawing (Free Elective only as it is lower division)

Revised 3/19/18
CVEN Water Resources Emphasis – Suggested Course Plan

**Proficiencies (3 total)**
CVEN 4333 Engineering Hydrology
CVEN 3424 Water and Wastewater

*Choose one additional course from the following list:*
  - CVEN 3718 Geotechnical Engineering II
  - CVEN 4555 Reinforced Concrete
  - CVEN 4545 Steel Design

**CEAE Technical Electives (2 total)**
CVEN 4353 Groundwater Engineering
CVEN 4323 Water Resource Engineering Design
CVEN 4838 Groundwater Modeling
CVEN 5363 Modeling of Hydrologic Systems

**Highly Recommended Tech/Free Elective (2 Tech Electives & 2 Free Elective)**
Courses listed under CEAE Technical Electives and Proficiencies that are not used to fulfill either the CEAE Technical Elective or Proficiencies requirement
GEOG 4321 Snow Hydrology
GEOG 4501 Water Resources and Water Management of the Western United States
ATOC 3600 Principles of Climate (requires ATOC 1050 Weather and the Atmosphere)

**Other Good Options – Tech/Free Electives**
CVEN 3434 Introduction to Applied Ecology
CVEN 4404 Water Chemistry
APPM 4350 Methods of Applied Mathematics: Fourier Series and Boundary Value Problems

**Revised 3/19/18**
CVEN Structural Engineering and Structural Mechanics Emphasis – Suggested Course Plan

**Proficiencies (3 total)**
CVEN 4545 Steel Design (spring) or CVEN 4555 Reinforced Concrete (fall)
CVEN 3718 Geotech Engineering II
CVEN 3256 Construction Engineering (Equipment & Methods)

**CEAE Technical Electives (2 total)**
CVEN 4161 Mechanics of Materials II (spring)
CVEN 4545 Steel Design (spring) or CVEN 4555 Reinforced Concrete (fall)

**Recommended Tech Electives (2 total) and Free Elective (2 total)**

*Primarily Design Oriented Careers*
CVEN 4525 Analysis of Framed Structures
CVEN 4535 Construction Materials
CVEN 4565 Design of Wood Structures (every other spring)
AREN 4315 Design of Masonry Structures (every other spring)
CVEN 4728 Foundation Engineering

*Primarily Theoretical Oriented Careers and Graduate School Preparation*
CVEN 4525 Analysis of Framed Structures
CVEN 4511 Finite Element Analysis
CVEN 5111 Introduction to Structural Dynamics
CVEN 5131 Continuum Mechanics and Elasticity

Revised 3/19/18
CVEN Environmental Engineering Emphasis – Suggested Course Plan

Proficiencies (3 total)
CVEN 3424 Water & Wastewater
CVEN 4333 Engineering Hydrology
CVEN 3718 Geotechnical Engineering II

CEAE Technical Electives (2 total)
CVEN 4404 Water Chemistry
CVEN 4484 Environmental Microbiology

Highly Recommended Tech/Free Electives (2 Tech Electives & 2 Free Electives)
CVEN 4464 Environmental Engineering Processes
CVEN 3434 Intro to Applied Ecology
CVEN 4554 Fundamentals of Air Quality Management
CVEN 4594 Water Reuse and Reclamation
EVEN 41000 Environmental Sampling and Analysis
CVEN 4474 Hazardous Waste Management
CVEN 4434/EVEN 4434 Environmental Engineering Design
CVEN 4969 Water Air Sanitation Hygiene

Revised 3/19/18
CVEN Geotechnical Engineering Emphasis – Suggested Course Plan

Proficiencies (3 total)
CVEN 3718 Geotechnical Engineering II
CVEN 4555 Reinforced Concrete
CVEN 4333 Engineering Hydrology

CEAE Geotech Technical Electives (2 total)
CVEN 4728 Foundation Engineering
CVEN 5708 Soil Mechanics
Any CVEN 5**8 introductory graduate level geotechnical engineering course

Other Highly Recommended Tech/Free Electives (2 Tech Electives & 2 Free Electives)
Courses listed under CEAE/Geotech Technical Electives and Proficiencies that are not used to fulfill either the CEAE/Geotech Technical Elective or Proficiencies requirement
CVEN 4161 Mechanics of Material II
CVEN 4511 Introduction to Finite Element Analysis
CVEN 5131 Continuum Mechanics & Elasticity

Other Good Options – Tech/Free Electives
APPM 3050 Scientific Computing in Matlab
APPM 4350 Methods of Applied Mathematics: Fourier Series and Boundary Value Problems
CVEN 3424 Water & Wastewater
CVEN 5454 Statistical Methods for Natural/Engineered Systems
GEOL 5714 Field Geophysics

Note – Free Elective
**CVEN 3698 Engineering Geology (if not already taken)

Revised 3/19/18
Draft of Prerequisites List for Senior Design

CVEN 3256 Construction Equipment and Methods AND
AREN 4506 Project Management I

OR

CVEN 4555 Reinforced Concrete Design (Fall) AND
CVEN 4545 Steel Design (Spring)

OR

CVEN 3323 Hydraulic Engineering (Fall) AND
CVEN 4333 Engineering Hydrology

OR

CVEN 3718 Geotechnical Engineering II AND
CVEN 4728 Foundation Engineering (Fall)