



PE – Professional Engineer

While each state licensing board has its own laws regarding engineering licensure, there is a general three-step process for licensure candidates. PE candidates must possess a degree accredited by EAC or ABET. They must take two exams, the Fundamentals of Engineering (FE) exam and the Principles and Practice of Engineering (PE) exam. Most states require four years of acceptable, progressive, and verifiable work experience in the industry. Once students pass the FE exam, they earn an Engineering in Training certificate or an Engineering Intern (EI) certificate depending on the certifying organization.

Year 5-6



Master's Degree in Civil Engineering (Structural Engineering Emphasis)

Year 6: Students choose specific transportation engineering electives to round out their skill set. Examples include traffic operations, intelligent transportation systems, queuing theory, project management, and environmental impacts.

Year 5: During the first year, students take core courses.

Structural Design Courses

Bridge Design
Soil-structure and fluid-solid interaction
Structural Reliability and Safety
Inelastic Behavior
Earthquake Engineer
Finite Element Analysis
Composite Structures
Cost-Benefit Analysis

Project Management

Bridge and Highway Infrastructure Management
Structural Dynamics
Wind and Turbulent Flow

Experiential learning includes internships, externships, co-ops and fieldwork

Year 3-4



Bachelor's Degree in Civil Engineering (Structural Engineering Emphasis)

Year 3 & 4: Students fulfill internship or co-op and fieldwork requirements. Elective courses that complement bridge design include construction management, geometric design, pavement materials, traffic operations, and environmental impacts of transportation.

Year 1 & 2: Students take several engineering courses to build a strong technical background.

GE Courses

Chemistry, Geology, Calculus, Differential Equations, Statistics, Liberal Arts, and Communications

Civil Engineering Required Courses

Fluid Mechanics, Environmental Engineering, Soil Mechanics, Internship, and Senior Capstone Design

Bridge Design-Related Courses

Structural Analysis
Steel Bridge Design

Reinforced Concrete Design

Structural Mechanics
Load Resistance Factor Design (LFRD)
Materials for Constructed Facilities
Construction Project Management
Pavement Design
Bridge Engineering
Engineering Economics
Foundation Design

Experiential learning includes internships, externships, co-ops and fieldwork

Year 1-2



Associate's Degree in Civil Engineering Technology

Year 2: Students continue to take GE courses and technical courses that can prepare them for a position as a technologist. Those intending to transfer to a 4-year program will take additional mathematics courses.

Year 1: Students are required to take general education courses interspersed with technical coursework. Certifications are built into the curriculum.

GE Courses

English Composition and Oral Comm., Intro to Psychology/Conflict Resolution, Trigonometry & Algebra w/Applications, Physics, Statics, and Economics

Design-Related Courses

Intro to Civil Engineering & Architecture
Building Material & Construction Method
AutoCAD for Construction Science
Soil and Materials Testing

Structural Mechanics

Construction Project Management
3D CAD: Digital Terrain Modeling
3D CAD: Building Information Modeling
Surveying and GPS Fundamentals
Geographical Information Systems
Civil Engineering Drafting
Construction Estimating
Surveying–Construction/Route/Highway
3D Modeling and Virtualization
Sewer & Storm Water Management
Capstone: CET–Highway Technology

Year 0



High School Diploma

Transportation-related career academies.