

# STR ME Curriculum

Updated March 2024

*Students earning an ME in Civil Engineering take 30 credits comprising a mix of required and other core courses (4), modern practice electives (2), and technical electives (4). Course options for the groups of classes vary by subdiscipline (“track”). Across all tracks, students take no fewer than six courses (18 credits) of graduate CE coursework.*

## **Required Courses**

CE 6370 Dynamics of Structures

CE 6710 Advanced Mechanics of Materials

## **Other Course Courses**

*Students select two courses from the lists below – one each from Groups A and B.*

### Group A – Structural Design

CE 5300 Advanced Design of Metal Structures

CE 5310 Prestressed Concrete Design

CE 5320 Advanced Reinforced Concrete Design

CE 6500 Introduction to Bridge Engineering and Design

### Group B – Mechanics of Materials and Structures

CE 5340 Advanced Topics in Structural Engineering

CE 6700 Energy Principles in Mechanics

CE 6720 Continuum Mechanics

CE 6750 Mechanics of Composite Materials

CE 6775 Theory of Structural Stability

CE 6770 Theory of Elasticity

MAE 6710 Finite Element Analysis

## **Modern Practice Electives**

*Students select two courses from this list.*

CE 6050 Risk Analysis

CE 5000 Management of Large-Scale Construction Projects

CE 5500 Building Information Modeling

CE 5500 Human-in-the-Loop Cyber-Physical Systems

CE 6030 Green Engineering and Sustainability

CE 6360 Smart Structures

CE 6500 Smart and Healthy Buildings

CE 6500 Sustainability & Systems in the Built Environment

**Technical Electives**

*Students select four courses (5xxx-level or above) from the following programs. One of the technical electives may constitute research or supervised professional experience [with appropriate approvals] via CE 6995. See website for additional details.*

Civil Engineering (CE), Applied Mathematics (APMA), Architecture (ARCH), Chemical Engineering (CHE), Computer Science (CS), Data Science (DS), Economics (ECON), Environmental Science (EVSC/EVHY/EVGE/EVEC/EVAT), Landscape Architecture (LAR), Planning (PLAN/PLAC), Public Health Sciences (PHS), Public Leadership (PSPL), Statistics (STAT), Systems Engineering (SYS).

**NOTES:**

Pre-requisites of the STR track include: Structural Mechanics (CE 3300 or equivalent), Introduction to Design of Structural Systems (CE 3330 or equivalent).

Students must complete at least six CE courses.

Students may be permitted to modify this framework, pending approval of their academic advisor or the ME Program Director.