CE 365 Design of Structural Systems

This course will focus on the behavior and design of bridge and buildings structures. It is intended to be a finishing course for undergraduates who plan to enter the structural engineering profession at the completion of their undergraduate program. The course will require the students to draw on their knowledge from several of their CEE and TAM courses. The course will introduce the students to the design-construction cycle including planning, pre-bid documents, design of bridges including the superstructure, substructure and foundation, design of building structures and foundations and preparation of drawings and other legal documents. The students will work in teams and do two semester projects, one bridge and one building. Practicing engineers will be invited to speak to the class about the design process and preparation of design documents.

Course Outline

I. Bridges
   A. Anatomy of a Bridge.
   B. Functional Requirements
   C. Loadings
   D. Analysis
   E. Steel Bridges
      1. Superstructure and Deck.
      2. Cross frames and Diaphragms
      3. Bearings
      4. Abutments and Piers
      5. Foundations.
   F. Concrete Bridges
      1. Superstructure and Deck
      2. Diaphragms
      3. Bearings
      4. Abutments and Piers
      5. Foundations
   G. Drawings and Construction Documents

II. Buildings
   A. Anatomy of a Building
   B. Loads
   C. Analysis
   D. Steel Framing Systems
   E. Floor Systems
   F. Pedestals and Footings
   G. Foundations
   H. Drawings and Construction Documents

Prerequisite: CEE 263 or CEE264 with concurrent enrollment in the other.