

ABET Course Syllabus

Course Information, Textbook and Supplementary Materials

Course Description: Fundamentals of analysis and design of steel structures; structural elements; simple and eccentric connections; design project.

Required for: BSCE General, Structural and Building Science

Prerequisites: CE 207L Introduction to Design of Structural Systems
CE 225 Mechanics of Deformable Bodies

Co-Requisite: CE 358 Theory of Structures I

Required Textbook: Steel Design, Fifth Edition, by William T. Segui, Cengage Learning, 2012, ISBN 13: 978-1-111-57600-4

Topics Covered	Learning Outcomes
Design of tension members for ultimate loads	The student will be able to do the following: 1. Understand the limit states for members subjected to tension loads. 2. Evaluate the effective cross sectional area of a tension member. 3. Understand the concept of block shear failure.
Design of compression members for ultimate loads	4. Understand basic column theory and concept of effective length. 5. Estimate the effective length of columns in frame. 6. Understand the concept of overall buckling and local buckling. 7. Design columns for axial compression.
Design of beams for flexure and shear	8. Understand basic flexural theory, concept of plastic moment capacity. 9. Understand the limit states for flexural members and concept of compact section. 10. Design for flexure including local buckling and lateral torsion buckling. 11. Design beams for shear. 12. Design members for combined axial load and bending.
Design simple connections	13. Understand the mechanical properties of bolts and welding procedures. 14. Design simple bolted and welded connections.

Lecture and Lab Schedule			
Lecture		Lab	
Sessions per Week	Duration per Session	Sessions per Week	Duration per Session
1	3 hours	n/a	

**Relation of Course
Objectives to Program Outcomes**

The Civil Engineering program is designed to teach beyond the technical content of the curriculum and prepare the students to utilize what they learn in a professional setting.

This course contributes to the program outcomes as outlined in the adjacent table.

Course Contribution to Program Outcomes (a-k)	✓ Key
c. An ability to communicate effectively	✓

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