

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE  
SCHOOL OF ENGINEERING  
DEPARTMENT OF STRUCTURAL AND GEOTECHNICAL ENGINEERING  
ABET COURSE SYLLABI

**ICE2823      STRUCTURAL DESIGN PROJECT: STEEL BUILDING**

**Credits and contact hours:** 10 UC credits/10 hours (3 h. Lectures and 7 h. Independent learning experiences)

**Instructor's name:** Raúl Álvarez

**Course coordinator's name** None

**Textbook:** AISE (2003) Guide for the design and construction of mill buildings. Technical report, n°13. Pittsburgh, United States.

**Course Catalog Description:** Students will be faced to the design process of a real steel building or industrial facilities structure. They have to define the load cases using Chilean codes, perform the structural analysis of the building, design the structural members following the corresponding material codes (AISC, NCh), and draw some typical details of the main structural elements they have designed.

**Prerequisite Courses:** ICE2533 Steel structures and ICE2703 Earthquake engineering

**Co-requisite Courses:** None

**Status in the Curriculum:** Required

**Course Learning Outcomes:**

1. Understand and apply building codes.
2. Understand the design process of a steel structure.
3. Analysis and design of a steel structure.

**Relation of Course to ABET Criteria:**

- b. Design and conduct experiments: analyze and interpret data
- c. Design a system, component, or process
- d. Multidisciplinary teams
- e. Identify, formulate, and solve engineering problems
- f. Professional and ethical responsibility
- g. Effective communication

- h. Broad education necessary for global, economic, environmental and societal context
- i. Recognition of the need for, and an ability to engage in life-long learning

**Topics covered:**

1. Defining design criteria (codes).
2. Structure determination and element dimensioning.
3. Load determination.
4. Structural analysis.
5. Non-seismic and secondary element design.
6. Main structural element design.
7. Joint connections and foundation anchorage.
8. Foundation design.