

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
SCHOOL OF ENGINEERING
DEPARTAMENT OF CONSTRUCTION ENGINEERING AND MANAGEMENT
ABET COURSE SYLLABI

ICC2954 AEC COLLABORATIVE WORKSHOP

Credits and contact hours: 10 credits / 10 hours (3 h. Labs and 7 h. Independent learning experiences and group work for week)

Instructor's name: Claudio Mourgues

Course coordinator's name Claudio Mourgues

Textbook:

- De Solminihac, H.; Thenoux, G. (2005) Procesos y técnicas de construcción.
- Serpell, A.; Alarcón, L. (2001) Planificación y control de proyectos. Santiago.

Course Catalog Description: This workshop integrates the knowledge necessary to design and build industrial projects of infrastructure and edification. An essential part of this workshop is to combine the specialties that are essential in the daily professional work of this kind of projects (architecture, structural design and construction engineering) introducing competition in collaborative, multi-disciplinary and eventually, long distance work. This way of work consists in forming multi-disciplinary groups of students (for example, an architect, a structural engineer and construction engineer) to develop a project from a number of functional requirements from a hypothetical client.

Prerequisite Courses: ICC2304 Construction Engineering and ICC2204 Project Planning and Control

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes:

1. Learn and understand the reality of complementary professional disciplines.
2. Integrate knowledge from various disciplines.
3. Understanding the challenges of working including the various dimensions of a project.
4. Apply the knowledge of their specialty in the scenario of multidisciplinary work.
5. Using collaborative technologies to work remotely and concurrently.
6. Explore material alternatives, equipment, and construction methods to resolve specific problems.
7. Determine cost, time and building approach to a construction project.
8. Identify and prioritize the variables of the problem at different levels of

detail.

9. Understand and apply standards/codes of structural design to a specific problem.
10. Perform an appropriate analytical model of a building structural system.
11. Become a change agent in the generation or collaborative and interdisciplinary networks.

**Relation of Course to ABET
Criteria:**

- 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
- k. Techniques, skills, and modern tools for engineering practice.

Topics covered:

1. Introduction
 - 1.1.Collaborative work
 - 1.2.Disciplinary knowledge of architecture: firmitas, venustas, utilitas y locus.
 - 1.3.Disciplinary knowledge: engineering.
 - 1.4.Disciplinary knowledge: construction.
 - 1.5.Methods of creative work: exquisite corpse, iteration, parallel thinking etc.
2. Project location
3. Codes and standards
4. Provision
5. Project Materiality
6. Uses and their relationships in space
7. Structural system definition
8. Structural analysis and design
9. Project costs
10. Project life cycle cost analysis
11. Layout
12. Building strategy and project planning
13. Client interaction