

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

ICC2944 PROJECT WORKSHOP

Credits and contact hours:	10 credits / 10 hours
Instructor's name:	Eduardo Effa, Carlos Lamana
Course coordinator's name	Sergio Vera
Textbook:	Peurifoy, R.; Oberlender, G. (2002) Estimating Construction Cost. 5 th edition. McGraw Hill.
Course Catalog Description:	<p>This course is the final design course of the specialization of Engineering and Construction Management, where students apply the competences acquired in the minimum required courses of the specialization in relation to constructive methodologies, selection and use of materials, project administration, operation management, budget preparation, all of which are needed to execute a project.</p> <p>The course considers the application of theoretical contents, previously learned during the study and group work, in the development and preparation of an economical and technical proposal for a real construction project under specific bidding conditions.</p>
Prerequisite Courses:	ICC2104 Technology of Civil Engineering Materials and ICC2204 Project Planning and Control and ICC2304 Construction Engineering
Co-requisite Courses:	None
Status in the Curriculum:	Required course
Course Learning Outcomes:	<ol style="list-style-type: none">1. Understand and interpret bidding documents for a construction works.2. Understand and interpret technical specifications for a construction works.3. Understand and interpret engineering drawings.4. Plan and schedule a construction project according to drawings, specifications and bidding conditions.5. Estimate quantities and costs of resources (machinery, labor force, and materials) needed to execute a construction project, as well as how to administer them.6. Know, evaluate and select, technically and economically, the construction methods and equipment that are most adequate for the activities of a construction works.7. Define the costs, term, and constructive approach of a project in order to prepare a technical and economical proposal of construction

- projects for a public or private bidding.
8. Take decisions that are technically and/or economically justified considering the existence of a range of alternatives (procedures and constructive techniques, resources, terms).
 9. Identify and evaluate the factors that affect the planning of construction projects.

**Relation of Course to ABET
Criteria:**

- a. Knowledge of mathematics, science and engineering
- b. Designing and conducting experiments: to analyze and interpret data
- c. Design a system, component, or process
- d. Identify, formulate, and solve engineering problems
- e. Broad education necessary for global, economic, environmental and societal context
- f. Techniques, skills, and modern tools for engineering practice.

Topics covered:

1. Presentation of the project: General description, bidding documents (administrative conditions, technical specifications, project drawings and studies).
2. Analysis of the construction works bidding: presentation of the analysis structure of a construction works bidding, describing its objectives and scope.
3. Stages of the bidding's analysis.
 - 3.1. Design of works facilities and close analysis of the bidding documents.
 - 3.2. Summary of documents, important dates and other bidding backgrounds.
 - 3.3. Drawings and technical specifications of the building.
 - 3.4. Preliminary planning.
 - 3.5. Project logistics: analysis of relevant factors, compatibilization of activities, necessary resources to comply with the planning, particular constructive methodologies.
 - 3.6. Works Budget: Detailed cubication of all OG lots and finishing, unit price analysis, general expenses.
 - 3.7. Evaluation of the quality control plan and the works' follow-up plan: quality control plan, cost analysis, works' follow-up plan.
 - 3.8. Contingency plan and financial flow: works' organization, indirect general expenses, quantify unexpected events and define contingency plans, financial costs, summary of the works' final planning (Gantt chart, resources program, etc).
 - 3.9. Construction proposal of the project: Documentation, economic and technical proposal.