

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

ICC3244 CONSTRUCTION MANAGEMENT OPERATIONS

Credits and contact hours:	10 credits / 10 hours (3 hours in lectures; 7 h. individual work hours per week)
Instructor's name:	Ximena Ferrada 1, Alfredo Serpell 2
Course coordinator's name	Alfredo Serpell
Textbook:	<ul style="list-style-type: none">- Forbes, L.; Ahmed, S., (2011) Modern Construction: Lean project delivery and integrated practices. CRC Press, USA.- Serpell, A., (2002) Administración de operaciones de construcción. 2ª ed., Editorial Alfaomega.
Course Catalog Description:	<p>This course presents the main concepts, strategies and practices of construction operation management, the role of high impact in the competitiveness of a construction company. Construction is a production system that has some special characteristics that differentiate them, in large part, from the production systems used in manufacturing and the understanding of these production systems has an even more relevant impact on the efficiency and effectiveness of the construction system. In recent years, the operations management in construction has evolved considerably, due to the incorporation of new methods and approaches, such as lean construction, process reengineering, supply chain management and other related developments. All these contributions seek to achieve operations that are highly efficient and effective with a focus on customer satisfaction and improving the performance of the works.</p>
Prerequisite Courses:	ICC2204 Project Planning and Control and ICC2304 Construction Engineering
Co-requisite Courses:	None
Status in the Curriculum:	Required
Course Learning Outcomes:	<ol style="list-style-type: none">1. Understand and explain the basic principles of competitiveness in the construction process, including its strategic aspects and complexities.2. Understand and explain the production model of construction from different perspective.3. Understand and explain the factors that affect productivity.4. Perform construction quality planning.5. Actively Participate in construction planning and management.6. Adequately manage productive resources of construction works.7. Lead activities for studies and improvement of construction processes.

**Relation of Course to ABET
Criteria:**

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

Topics covered:

1. General context of operations management in construction: Strategic aspects, production system models in construction. Sustainable construction.
2. Measure Operation performance in construction: productivity concepts, lean construction, losses, factors that affect the productivity of the construction projects.
3. Construction planning: Installations and site impact, process selection and planning, y planificación de los procesos, capacity management of the production system, operational planning and Last Planner system, knowledge management.
4. Construction resource management: human capital, at work health and safety, supply chain, materials, inventory, equipment and machinery.
5. Quality and quality management: concepts of variation statistical thinking, design, basic quality tools, seis sigma, Lean seis sigma.
6. Managing and improving construction performance: building processes, measurement, monitoring and control, measurement tools, simulation, queuing theory or waiting lines, transport and assignment problems, building process improvement.