Course guide
310520 - 310520 - Lean Construction: Principles and Application Techniques

Last modified: 09/05/2025

Unit in charge: Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: MASTER'S DEGREE IN BUILDING CONSTRUCTION MANAGEMENT (Syllabus 2015). (Optional subject).

Academic year: 2025 **ECTS Credits:** 5.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: Victor Roig

Others: Victor Roig

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE03MUGE. Manage strategic and infrastructure planning and programming and apply to the management, planning and control of operations.
CE12MUGE. Apply management models suitable for edification processes

Generical:
CG1MUGE. Apply the acquired knowledge in solving complex problems in any sector of the building management.
CG4MUGE. Analyse, evaluate and synthesise critically, the information to propose solutions or alternatives to situations arising from building management processes.

Transversal:
05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.

Basic:
CB7. The students must be able to apply the acquired knowledges and their ability of resolution of problems in new or little known environments inside more wide environments (or multidisciplinary) related with their study field.
CB9. The students must be able to communicate their conclusions and the knowledges and ultimate reasons which support to specialised and non-specialised audiences in a clear mode and without ambiguities.
CB10. The students must possess the learning abilities which allow them to continue studying in a way which should be to a large extent self-directed and autonomous.

TEACHING METHODOLOGY

Theoretical classes where the faculty will teach the theoretical and practical contents of the subject.
Practical class: the students, in work groups, must solve the problems presented to the class and present them in front of the class.
Self-study: Students diagnose their learning needs, in collaboration with the lecturers, and plan their own learning process.

LEARNING OBJECTIVES OF THE SUBJECT

The aim of this course is to teach the subject related to the organization of productive and logistical systems focused on the construction sector, providing students with both a theoretical and practical vision. The course takes a holistic approach to the building life cycle, including design, construction, management, maintenance and sustainability, with an emphasis on collaborative management practices.

STUDY LOAD

Type	Hours	Percentage
Hours small group	5,0	4.00
Hours medium group	5,0	4.00
Guided activities	7,5	6.00
Self study	90,0	72.00
Hours large group	17,5	14.00

Total learning time: 125 h

CONTENTS

Introduction to LEAN Construction

Description:
This content works on:
-The origins of the LEAN philosophy and its basic principles.
-The singularities of the construction sector.
-The foundations of LEAN construction.

Specific objectives:
Knowing the origins and principles of Lean Thought and understand construction waste.

Related activities:
Theoretical sessions with practical exercises.

Full-or-part-time: 25h
Theory classes: 3h
Practical classes: 6h
Self study : 16h

The development of a LEAN project

Description:
This content works on:
-The stages of a LEAN project
-The functions and responsibilities of agents
-LEAN project management systems

Specific objectives:
Knowing the differences between traditional projects and LEAN projects.
Practical application of LEAN tools and LEAN process management systems.

Related activities:
Theoretical sessions and practical workshops on the application of tools and systems.

Full-or-part-time: 75h
Theory classes: 9h
Practical classes: 18h
Self study : 48h

Collaborative contracts applying LEAN

Description:
This content works on:
-The principles of collaborative contracts
-Differences between the phases of a traditional contract and a collaborative contract.
-Particular clauses of collaborative contracts.

Specific objectives:
Knowing the collaborative contracts and their application to the construction sector.
Identifying the responsibilities of the main parts of a collaborative contract.

Related activities:
Theoretical sessions with practical exercises.

Full-or-part-time: 25h
Theory classes: 3h
Practical classes: 6h
Self study : 16h

GRADING SYSTEM

Continuous assessment about the practical exercises that are developed during the classes (20%)
Mid-term work (35%)
Final work (45%)

BIBLIOGRAPHY

Basic:
- Pons Achel, Juan Felipe. Introducción al Lean Construction . Fundación Laboral de la Construcción,
- Pons Achel, Juan Felipe. Lean Construction y la planificación colaborativa. Fundación Laboral de la Construcción,
- Ayats, Cristina. Lean: Diseño y Construcción. Círculo Rojo,

Complementary:
- Fisher, Martin. Integrated Project Delivery:.
- Pease, James. Integrated Project Delivery: An Action Guide for Leaders.