

## Course guide

### 310782 - 310782 - Lean Production Planning on Site

Last modified: 23/06/2026

**Unit in charge:** Barcelona School of Building Construction  
**Teaching unit:** 732 - OE - Department of Management.

**Degree:** BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019).  
(Optional subject).

**Academic year:** 2026    **ECTS Credits:** 3.0    **Languages:** English

#### LECTURER

**Coordinating lecturer:** Pedro Baringo Sabater

**Others:** Xavier Pallàs espinet

#### REQUIREMENTS

For a proper follow-up of the subject, it is essential to use a laptop to work in a BIM environment.  
Apply for the planning program license through the means offered by the subject

#### TEACHING METHODOLOGY

The teaching methodology is delivered through weekly face-to-face sessions combining theoretical concepts with practical applications in construction projects. Throughout the course, students work on examples and exercises related to production planning and control, applying Lean tools to improve the organisation, monitoring and continuous improvement of construction processes. Learning activities include lectures, interactive classes, practical problem-solving exercises, case study analysis and collaborative planning workshops. These activities are designed to support the progressive acquisition of skills and the application of knowledge to real-world construction project environments.

#### LEARNING OBJECTIVES OF THE SUBJECT

This course provides a practical approach to production planning and control in construction projects, introducing students to the tools and methodologies used in real project management environments. Through case studies and applied exercises, students will develop the skills required to organise, plan and optimise construction processes in an efficient and collaborative manner.

- Understand the principles of Lean Construction and their application to production planning and control in construction projects.
- Apply tools such as the Last Planner System, Line of Balance, Takt Planning and Kanban to improve the organisation of construction processes.
- Identify constraints, waste and bottlenecks, proposing solutions aimed at continuous improvement and increased productivity.
- Design production systems that enhance coordination between activities, resources and work crews.
- Use digital tools for production planning, monitoring and control in construction projects.
- Develop analytical and decision-making skills to optimise workflow and maximise value generation on site.

#### STUDY LOAD

| Type               | Hours | Percentage |
|--------------------|-------|------------|
| Hours large group  | 15,0  | 20.00      |
| Self study         | 45,0  | 60.00      |
| Hours medium group | 15,0  | 20.00      |

**Total learning time:** 75 h



## CONTENTS

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### CONTENTS: LEAN CONSTRUCTION PRODUCTION PLANNING

**Description:**

Theoretical Contents and Learning of Digital Tools for Lean Planning and Control

T1. Fundamentals of Lean Construction and the Last Planner System (LPS).

T2. Variability, production flow and waste reduction in construction projects.

T3. Location-Based Planning and Line of Balance (LoB).

T4. Production System Design and Project Zoning.

T5. Takt Planning and Work Train Planning.

T6. Constraint Management and Commitment Control.

T7. Pull Systems, Kanban and Visual Management.

T8. Supply Chain Integration and Just-In-Time (JIT) Strategies.

T9. Identification and Management of Bottlenecks.

T10. Industrialised Construction, Prefabrication and Continuous Improvement in Production.

P1. Development of a continuous project involving the planning and production control of a construction project, progressively applying the Lean tools studied throughout the course.

E1. Oral presentation and defence of the continuous project.

**Full-or-part-time:** 75h

Theory classes: 30h

Self study : 45h

## GRADING SYSTEM

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Assessment will be based on the presentation of the work developed throughout the course(40%) and its oral defence(60%). Evaluation will consider the technical quality of the work, the application of the course contents, and the student's ability to explain and justify the decisions made.

## EXAMINATION RULES.

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Failure to submit any of the partial assignments required in the course will be considered a non-submission for assessment purposes. The use of generative artificial intelligence tools may be permitted in those learning activities where expressly authorised by the instructor and subject to the conditions established for each activity. The use of such tools will not be permitted during in-person assessment activities.

## BIBLIOGRAPHY

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**Basic:**

- Kenley, Russell; Seppänen, Olli. Location-based management for construction : planning, scheduling and control . London : Spon Press, 2010. ISBN 9780415370509.

- Ohno, Taiichi; Bodek, Norman. Toyota Production System : beyond large-scale production . Portland : Productivity Press, cop. 1988. ISBN 9780915299140.