Course edition	2	Academic Year	2023/2024		
Ref.	MBUILD03 / M13				
MODULE	GPC/MCP - MANAGEMENT OF CONSTRUCTION PROJECTS				
ECTS	6				
Year/Semester	Y1/S1				

**≝∣THM** 

## 1. OBJECTIVES

Class hours

**Teaching location** 

• Understand the concepts of Lean Production and Lean Construction, and apply some of its tools;

4 h/week \* 13 weeks = 52 h

FEUP, Porto, Portugal

- Understand the specificities of construction industry, its life cycle, and importance of design stage;
- Understand that is fundamental to apply project management techniques to increase processes efficiency in construction, namely in design;
- Understand that cost estimation and control is one of the major problems of construction activity and it is fundamental to adopt techniques and data basis to help this estimation;
- Understand how digitalization is fundamental to push construction industry and what are the fundamental concerns in design stage to achieve this objective.

## 2. LEARNING OUTCOMES AND COMPETENCES

- Know about the Lean philosophy and the tools that can be used to improve work efficiency, both in the design and the construction stages;
- Kown several project management approaches and apply some of them to a case study;
- Identify the several components of cost in a construction project, know and apply some strategies to develop a comprehensive budget in the design stage;
- Know about the developments in digitalization in the CI and the way their output can be integrated in the design stage;
- Know and apply BIM software and techniques for improving the design output.

## 3. SYLLABUS/TOPICS

- 1. Lean Production + Lean Construction and its approach to both design and execution activities.
- 2. General Construction life cycle. Understanding and relevance of design stage for the solution final performance. Development of design work. RIBA Plan of Work. Organising personal work.
- 3. Management and coordination of Teams. Project Management approaches. IPD Integrated Project Delivery. Agile Planning and SCRUM.
- 4. Deep analysis of design phase in the construction global life cycle. Requirements, design teams and deliverables. Case analysis.
- 5. Relevance of cost estimation in the design stage. Methodologies of cost estimation. Uncertainty and risks.
- 6. Construction digitalization and impacts on the design stage. Construction Information systems.
- 7. BIM Coordination. Clash detection.
- 8. Design Management and BIM.



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## 4. MANDATORY REFERENCES

To be provided during the classes, according to the development of the themes and the work developed by the students.

# 5. ADDITIONAL REFERENCES

- Winch, G M (2009). Managing Construction Projects. Wiley- Blackwell. ISBN: 978-1405184571
- George J. Ritz (1994). Total Construction Project Management. Mc GRAW-HILL. ISBN: 0-07-113630-4
- Williams, D. (1996). Preparing for Project Management. Reston VA, USA: ASCE Press, ISBN 978-0784470183
- Kimmons, R; Loweree, J. (1989). Project Management. A reference for Professionals. Marcel Dekker, INC.
- Project Management Institute (2017). A guide to the project management body of knowledge (PMBOK guide). ISBN: 978-1628251845
- Ostime, N. (2013). RIBA Job Book (Ninth Edition). London, UK: RIBA Publishing, ISBN 978-1859464960
- Sinclair, D. (2013). Guide to Using the RIBA Plan of Work 2013. London, UK: RIBA Publishing, ISBN 978-1859465042
- The American Institute of Architects (2007). Integrated Project Delivery: A Guide (Version 1). Washington DC, USA: AIA, AIA CC
- Chuck Eastman [et al.] (2008); BIM handbook. ISBN: 978-0-470-18528-5
- Other resources to be provided during the module.

# 6. Assessment Type

• Distributed only (courseworks and activities developed during the semester)

## 7. ASSESSMENT COMPONENTS AND CALCULATION OF FINAL GRADE

## 7.1. Normal assessment

The module will be assessed by:

- Courseworks, to be developed during the teaching period;
- Discussion of Individual Courseworks, at the end of the teaching period;
- Exam, during the exam period (two opportunities).

Group Courseworks	30%	
Individual Courseworks	30%	
Exam	40%	
	100%	

## 7.2. Resit assessment

In the case of students that failed the module in the normal assessment, and as the next instance of the module will occur when they will not be in FEUP, the following procedure will be followed, having the student the possibility of choosing one or both of the resit options (new coursework, new exam or both):

- Re-submission of ONE of the Individual Courseworks (at student's choice);
- Taking the exam of the new instance of the module, to be done at the university where the student is residing, at the same date/time and equal to the one delivered in FEUP;
- The previously obtained grades for the Group Courseworks and the remaining Individual Coursework will be considered for the calculation of the final grade.

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# 8. TEACHING STAFF

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