

Course guide

250732 - 250732 - Construction Seminars with BIM

Last modified: 22/05/2026

Unit in charge:	Barcelona School of Civil Engineering	
Teaching unit:	751 - DECA - Department of Civil and Environmental Engineering.	
Degree:	MASTER'S DEGREE IN STRUCTURAL AND CONSTRUCTION ENGINEERING (Syllabus 2015). (Optional subject).	
Academic year: 2026	ECTS Credits: 2.5	Languages: Spanish

LECTURER

Coordinating lecturer:	JOSE TURMO CODERQUE
Others:	AHMAD ALAHMAD, JOSE TURMO CODERQUE

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

13365. Designing and building using traditional materials (reinforced concrete, prestressed concrete, structural steel, masonry, wood) and new materials (composites, stainless steel, aluminum, shape memory alloys?).
13367. To apply innovative and sustainable technological aspects in the management and implementation of projects and works.
13370. To analyze the multiple technical and legal conditions arising in the construction of public works, and use proven methods and proven technologies with the aim of achieving greater efficiency in construction while respecting the environment and protecting the safety and health of workers and users of public works.

Generical:

13361. To develop, improve and use conventional materials and new construction techniques to ensure the safety requirements, functionality, durability and sustainability.
13362. To define construction processes and methods of organization and management of projects and works.
13363. To design plans for safety, quality and environmental and socioeconomic impacts related to the construction process.

TEACHING METHODOLOGY

The communication of the teachers will be mostly in Spanish. Workshops and interventions by speakers other than the teachers of the subject are planned for the course. These will be held in Spanish and very exceptionally in Catalan or English. In total, 20 hours of interventions are planned, a teaching load that corresponds to the 2.5 ECTS of the subject. Student queries may be answered in Spanish, Catalan or English. The exam can be answered in Spanish, Catalan or English. Support material is used through the virtual campus: contents and bibliography. The material can be in Spanish, Catalan and English. Site visits made within the framework of the subject, if applicable, will be in Spanish or Catalan.

Although most of the sessions will be given in the language indicated, sessions supported by other occasional guest experts may be held in other languages.

LEARNING OBJECTIVES OF THE SUBJECT

Subject to acquire knowledge related to the application of digital tools in the construction sector

- Criteria, knowledge and reflections on the qualities and values of a good manager (Ability to manage the execution and control of the costs of projects and works).
- Ability to acquire knowledge in the most advanced aspects of research related to construction (Capacity to create and manage digital models of civil infrastructures and buildings)

The engineer in the current context. The manager: leadership, creativity, innovation, motivation and communication.
Recent advances related to construction research. Introduction to the Building Information Modeling (BIM) methodology
Introduction to modeling and management of BIM models
Introduction to the scheduling and visualization of BIM projects (4D)
Introduction to the economic management of BIM projects (5D)

Subject to acquire knowledge related to the application of digital tools in the construction sector

- Ability to create and manage digital models of civil infrastructures and buildings
- Ability to manage the execution and control of project costs and works

STUDY LOAD

Type	Hours	Percentage
Hours large group	22,5	36.00
Self study	40,0	64.00

Total learning time: 62.5 h

CONTENTS

Introduction to Building Information Modeling (BIM) methodology

Description:

Presentation of the course.

Introduction to digitization in civil engineering and architecture Introduction to the fundamental characteristics and uses of the BIM methodology

Full-or-part-time: 4h 48m

Theory classes: 2h

Self study : 2h 48m

Introduction to modeling and management of BIM models

Description:

Introduction to BIM modeling

Introduction to BIM model management

Full-or-part-time: 26h 24m

Laboratory classes: 11h

Self study : 15h 24m



Introduction to the management and temporary visualization of BIM projects (4D)

Description:

Introduction to the schedule management of BIM projects
Introduction to the temporary visualization of BIM projects

Full-or-part-time: 18h

Laboratory classes: 7h 30m

Self study : 10h 30m

Introduction to the financial management of BIM projects (5D)

Description:

Introduction to the economic management of BIM projects

Full-or-part-time: 4h 48m

Laboratory classes: 2h

Self study : 2h 48m

GRADING SYSTEM

Any academic fraud, plagiarism or use or possession of unauthorised means in an assessment activity leads to a mark of zero (0) for the affected test or assignment. Furthermore, in accordance with the University's regulations, if disciplinary proceedings are initiated the subject is recorded as "Pending Assessment" until a decision is reached. These incidents are managed in accordance with the [Action Framework for Academic Integrity in Assessment at the UPC](#).

The mark of the subject is obtained from the marks of continuous evaluation. Continuous assessment consists of carrying out different activities, both individual and group. Additive in nature and format, carried out during the course (inside the classroom and outside). The evaluation tests consist of carrying out some practical work in groups, which have a value of 70% of the final grade, and an individual exam which has a value of 30%. The realization and delivery in time and form of practical work is an essential condition to pass the course.

EXAMINATION RULES.

If any of the continuous assessment activities are not carried out in the scheduled period, it will be graded with a score of zero. If you do not take the exam or any of the assignments, you will not be able to pass the subject.

BIBLIOGRAPHY

Basic:

- Sacks, R. Eastman, C. Lee, G. Teicholz, P.. BIM Handbook: A Guide to Building Information Modeling for Owners, Designers, Engineers, Contractors, and Facility Managers [on line]. 3rd ed. Hoboken, New Jersey: Wiley, 2018 [Consultation: 27/01/2025]. Available on: <https://onlinelibrary-wiley-com.recursos.biblioteca.upc.edu/doi/book/10.1002/9781119287568>. ISBN 9781119287537.

- Roberti, F. Ferreira, D.. Increasing Autodesk Revit Productivity for BIM projects [on line]. Birmingham: Packt Publishing, 2021 [Consultation: 27/01/2025]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6640533>. ISBN 9781800566408.

Complementary:

- Manual REVIT AUTODESK.
- Manual NAVISWORKS.
- Manual Microsoft Project.