



Nota de traducción académica / Academic Translation Note

ES

El presente documento constituye una traducción académica literal al inglés de las Guías Docentes oficiales (*Guías Docentes*) del Máster XXXXXX de la Universidad de Burgos, correspondientes al curso académico 2025–2026.

La traducción se ha realizado siguiendo criterios académicos e institucionales, respetando fielmente la estructura, contenidos, competencias, resultados de aprendizaje, sistemas de evaluación y distribución de créditos ECTS de los documentos originales en lengua española. En caso de discrepancia interpretativa, la versión original en español prevalecerá a efectos académicos, administrativos y legales.

EN

This document is an academic-literal English translation of the official Course Guides (*Guías Docentes*) of the Master's Degree in XXXXXX, University of Burgos, for the academic year 2025–2026.

The translation has been carried out following academic and institutional criteria, faithfully preserving the structure, contents, competencies, learning outcomes, assessment systems and ECTS credit distribution of the original Spanish documents. In the event of any discrepancy, the original Spanish version shall prevail for academic, administrative and legal purposes.

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COURSE GUIDE 2025–2026 — CODE 6466

Construction Management

ECTS

6

COMPETENCIES (Learning Outcomes)

Transversal Competencies

T.01 - Results orientation

T.02 - Customer orientation

I.01 - Capacity for analysis and synthesis

I.02 - Capacity for organization and planning

I.03 - Oral and written communication in the native language

I.05 - Computer skills related to the field of study

I.06 - Information management capacity

I.07 - Problem solving

I.08 - Decision making

P.01 - Teamwork *

P.02 - Work in an interdisciplinary team *

P.04 - Interpersonal relationship skills *

P.06 - Critical reasoning *

S.02 - Adaptation to new situations *

S.07 - Motivation for quality

A.01 - Capacity for imagination and adaptation to face new situations *

A.02 - Positive attitude towards social and technological innovations *

A.03 - Capacity for reasoning, discussion and presentation of one's own ideas

A.04 - Capacity for communication through words and images

A.05 - Study habits and work methodology

A.06 - Capacity for computer-based search, analysis and selection

Specific Competencies

EGP.01 - Capacity to plan and organize construction teams and the technical and human resources required for the execution of construction processes and their maintenance. *

EGP.06 - Knowledge of the organization of professional work and of studios, offices and professional firms; the regulations and legislation related to the functions performed by the Building Engineer and the framework of responsibility associated with the activity. *

* Curricular sustainability competence



TEACHING OBJECTIVES

The objective of the subject is to apply the different methods of planning, scheduling and control of the different activities that make up the production process, as well as their valuation, supplier analysis and, in general, the coordinated management of the construction project.

UNITS

Thematic Unit 1: General Concepts of Construction Organization

Topic 1 Introduction to Construction Organization

Topic 2 The Construction Company

Topic 3 Stakeholders in Construction Projects

Topic 4 Economic Study of a Construction Project: The Construction Budget

Topic 5 Construction Planning

Topic 6 The Construction Execution Process

Thematic Unit 2: Phases of Construction Organization

Topic 7 Phases of Organization

Planning, Scheduling, Execution and Control

Topic 8 Planning. Concepts

Activity, event.

Topic 9 Planning methodology

Activity analysis, duration

Thematic Unit 3: Gantt Chart

Topic 10 Analysis and drawing

Topic 11 Economic valuation

Topic 12 Workforce curve

Thematic Unit 4: Critical Path Methods

Topic 13 Introduction to critical path methods

Topic 14 Roy Method

Maximum and minimum time. Slack. Constraints and dependencies. Delays.

Establishment of levels.

METHODOLOGY

The relationship between the teaching methodology and the competencies / learning outcomes that the student must acquire is structured as follows:



Theoretical class

Related competencies: EGP.01, EGP.06, A.02

Face-to-face hours: 24

Independent work hours: 40

Total hours: 64

Practical class

Related competencies: EGP.01, I.05, I.06, I.07, I.08, P.01, P.02, P.04, A.02, A.06

Face-to-face hours: 18

Independent work hours: 30

Total hours: 48

Public presentations

Related competencies: I.03, I.05, P.01, T.01, T.02, A.04

Face-to-face hours: 4

Independent work hours: 6

Total hours: 10

Seminars, debates, others

Related competencies: I.01, I.02, I.03, I.06, I.08, P.01, S.01, T.01, A.03, A.04, A.05

Face-to-face hours: 2

Independent work hours: 6

Total hours: 8

Tutorials

Face-to-face hours: 2

Independent work hours: 0

Total hours: 2

Assignments, reports, study, papers and assessment tests

Related competencies: EGP.01, I.01, I.02, I.03, I.05, I.06, I.07, I.08, P.01, P.06, S.02, S.07, T.01, A.01, A.03, A.05, A.06

Face-to-face hours: 4

Independent work hours: 14

Total hours: 18

Total: 54 face-to-face hours; 96 independent work hours; 150 total hours

ASSESSMENT SYSTEM

In order to pass the subject, it is necessary to pass the theoretical exam and the practical work separately.

The practical work is not recoverable, since it is carried out during the practical sessions schedule, with weekly corrections.

Procedure:

Practical Exam — Weight in the first call: 40%. Weight in the second call: 40%.

Theoretical Exam — Weight in the first call: 30%. Weight in the second call: 30%.



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Technical Architecture

Practical work and other assessable activities — Weight in the first call: 30%. Weight in the second call: 30%.

Total: 100%

LANGUAGE

Spanish (English friendly)



COURSE GUIDE 2025–2026 — CODE 6471

Economic and Urban Management

ECTS

6

COMPETENCIES (Learning Outcomes)

Transversal Competencies

T.01 - Results orientation

T.02 - Customer orientation

I.01 - Capacity for analysis and synthesis

I.02 - Capacity for organization and planning

I.05 - Computer knowledge related to the field of study

I.06 - Information management capacity

I.07 - Problem solving

I.08 - Decision making

P.01 - Teamwork *

P.02 - Work in an interdisciplinary team *

P.06 - Critical reasoning *

P.07 - Ethical commitment *

S.01 - Autonomous learning

S.02 - Adaptation to new situations *

S.07 - Motivation for quality

S.08 - Sensitivity towards environmental issues *

A.01 - Capacity for imagination and adaptation to face new situations *

A.02 - Positive attitude towards social and technological innovations *

A.03 - Capacity for reasoning, discussion and presentation of one's own ideas

A.05 - Study habits and work methodology

A.06 - Capacity for computer-based search, analysis and selection

Specific Competencies

EGU.03 - Knowledge of the regime and urban classification of land. Knowledge of urban planning instruments and planning figures. Ability to carry out land readjustment processes, urban management and control, and to perform the role of urban planning advisor.

EGU.04 - Knowledge of economic management techniques in building. Economic control of production.

* Curricular sustainability competence



TEACHING OBJECTIVES

The objective of the subject is to provide knowledge of current urban planning legislation and urban management, as well as the economic management of the construction process and the study of the economic feasibility of real estate developments.

UNITS

TOPIC 1 URBAN MANAGEMENT

1. URBAN PLANNING

1.1 Historical evolution

1.2 Urban planning legislation:

1.2.1 State Law 2/2008 Consolidated Text of the Land Law

1.2.2 Urban Planning Law of Castile and León

1.3 Guiding principles of urban planning

1.4 Land classification

1.5 Urban legal regime of land ownership

2. URBAN PLANNING

2.1 Concepts and objectives of urban planning

2.2 Urban planning:

2.2.1 General planning

2.2.2 Development planning

2.3 Preparation and approval of urban plans

3. URBAN MANAGEMENT

3.1 Urban management: isolated and integrated actions:

3.1.1 Agreement system

3.1.2 Cooperation system

3.1.3 Compensation system

3.1.4 Expropriation system



3.1.5 Competition system

3.2 Action project

3.2.1 Urban agents

3.2.2 Land readjustment project

3.2.3 Urbanization project

4. URBAN DISCIPLINE

4. THE MUNICIPAL ADVISOR

4.1 Intervention in land use

4.1.1 Urban planning license

Major works license

Minor works license

First occupancy license

Environmental license

Opening license

4.2 Sectoral regulations

4.2.1 Heritage

4.2.2 Accessibility

4.2.3 Roads

4.2.4 Environmental Prevention Law

4.2.5 River Basin Authority

4.2.6 Municipal Ordinances

4.3 Conservation and rehabilitation

4.3.1 Enforcement orders

4.3.2 Declaration of ruin



4.4 Protection of legality

TOPIC 2 ECONOMIC MANAGEMENT

5. ECONOMIC STUDY OF A CONSTRUCTION PROJECT

5.1 Capital investment and profitability

5.2 Maximum capital, minimum capital

5.3 Economic chart and construction schedule

6. CALCULATION OF THE FEASIBILITY OF REAL ESTATE DEVELOPMENTS

METHODOLOGY

The teaching and learning methodology and its relationship with the competencies / learning outcomes that the student must acquire is structured as follows:

Theoretical classes

Related competencies: EGU.03, EGU.04, P.07, S.08, A.02

Face-to-face hours: 24

Independent work hours: 44

Total hours: 68

Practical classes

Related competencies: EGU.03, EGU.04, P.07, I.01, I.05, I.06, I.07, I.08, P.01, P.02, S.01, S.08, A.02, A.06

Face-to-face hours: 16

Independent work hours: 14

Total hours: 30

Public presentations

Related competencies: I.05, P.01, T.01, T.02

Face-to-face hours: 5

Independent work hours: 10

Total hours: 15

Seminars, debates, others

Related competencies: EGU.03, EGU.04, I.01, I.02, I.06, I.08, P.01, S.01, T.01, A.03, A.05

Face-to-face hours: 5

Independent work hours: 5

Total hours: 10

Tutorials

Face-to-face hours: 2

Independent work hours: 0

Total hours: 2



Assignments, reports, study, papers and assessment tests

Related competencies: EGU.03, EGU.04, P.07, I.01, I.02, I.05, I.06, I.07, I.08, P.01, P.06, P.07, S.01, S.02, S.07, S.08, T.01, A.01, A.03, A.05, A.06

Face-to-face hours: 2

Independent work hours: 23

Total hours: 25

Exam

Face-to-face hours: 0

Independent work hours: 0

Total hours: 0

Total: 54 face-to-face hours; 96 independent work hours; 150 total hours

ASSESSMENT SYSTEM

Procedure:

Theoretical exam — Weight in the first call: 40%. Weight in the second call: 40%.

Practical work — Weight in the first call: 40%. Weight in the second call: 40%.

Assignments and other assessable activities — Weight in the first call: 20%. Weight in the second call: 20%.

NOTE: In order to pass the subject it is necessary to pass the theoretical exam and the practical work separately, with a minimum grade of 5.00 points, which in the case of students who have attended more than 60% of the practical classes will be 4.50 points.

Total: 100%

LANGUAGE

Spanish (English friendly)



COURSE GUIDE 2025–2026 — CODE 6472

SUSTAINABLE CONSTRUCTION

ECTS

3

Competences

Transversal Competences

T.01 - Results orientation

T.02 - Customer orientation

I.01 - Capacity for analysis and synthesis

I.02 - Capacity for organization and planning

I.03 - Oral and written communication in the native language

I.05 - Computer knowledge related to the field of study

I.06 - Capacity for information management

I.07 - Problem solving

I.08 - Decision making

P.01 - Teamwork

P.02 - Work in an interdisciplinary team

P.04 - Skills in interpersonal relationships

P.06 - Critical reasoning

P.07 - Ethical commitment

S.01 - Autonomous learning

S.02 - Adaptation to new situations

S.03 - Creativity

S.04 - Initiative and entrepreneurial spirit

S.05 - Leadership

S.07 - Motivation for quality

S.08 - Sensitivity towards environmental issues

A.01 - Capacity for imagination and adaptation to face new situations

A.02 - Positive attitude towards social and technological innovations

A.03 - Capacity for reasoning, discussion and presentation of one's own ideas

A.04 - Capacity for communication through word and image

A.05 - Study habits and work method

A.06 - Capacity for computer-based search, analysis and selection

Specific Competences

ETE.04 - Knowledge of technical regulations in the building process

ETE.08 - Capacity to generate technical specification documents for the procedures and construction methods of buildings. To propose and solve constructive solutions

ETE.09 - Capacity for the analysis of the life cycle of construction elements and systems

ETE.10 - Knowledge of the evaluation of the environmental impact of building and demolition processes, sustainability in building, and of the procedures and techniques to evaluate the energy efficiency of buildings

Teaching Objectives

The objective of the subject is to make known the sustainability criteria so that students can apply them in their professional life.



Students must become aware of environmental issues, in such a way that they seek construction solutions and materials that are more sustainable and that produce a smaller ecological footprint.

Teaching Units

TOPIC 1. SUSTAINABLE CONSTRUCTION. INTRODUCTION

1. What is sustainability?
2. Why must we introduce the concept of sustainability in construction?
3. Current situation
4. Sustainable construction
 - 4.1. Integration with the environmental characteristics of the surroundings
 - 4.2. Not more economically costly
 - 4.3. Saves resources
 - 4.4. Saves energy
 - 4.5. Waste management
 - 4.6. Increases user comfort
5. Sustainable buildings
6. Legislative framework

TOPIC 2. SUSTAINABLE URBAN PLANNING

1. Brief historical note
 - 1.1. The city of the modern movement
2. Consequences of urbanization on the territory. The ecological footprint
 - 2.1. Consequences of urbanization on the territory
 - 2.2. Ecological footprint
3. Sustainable urban planning
 - 3.1. Sustainable urban planning design

TOPIC 3. SUSTAINABLE ARCHITECTURE AND CONSTRUCTION

1. Sustainable architecture
 - 1.1. Main guidelines for building design
2. Study of the building environment
 - 2.1. Orientation. Solar exposure
 - 2.2. Location
3. Active and passive systems
4. Passive systems for winter conditions
 - 4.1. Solar capture systems
 - 4.2. Energy accumulation and distribution
5. Passive systems for summer conditions
 - 5.1. Passive cooling systems
6. Life Cycle Analysis
 - 6.1. Introduction
 - 6.2. LCA. Definition and objectives
 - 6.3. Regulations
 - 6.4. Methodology
7. Sustainable construction materials
 - 7.1. Types of materials
8. Sustainable construction systems
9. Rehabilitation of existing buildings
10. Tools for the environmental evaluation of buildings



TOPIC 4. RENEWABLE ENERGY IN BUILDINGS

1. Use of renewable energies

1. Biomass
2. Hydropower
3. Wind
4. Solar
5. Geothermal

Methodology

Theoretical classes – Related competences: ETE.04, ETE.10, S.08, A.02. Face-to-face hours: 12. Independent work hours: 12. Total hours: 24.

Practical classes – Related competences: ETE.04, ETE.08, ETE.10, I.01, I.05, I.06, I.07, I.08, P.01, P.02, P.04, S.01, S.02, S.05, S.08, A.01, A.02, A.06. Face-to-face hours: 9. Independent work hours: 18. Total hours: 27.

Public presentations – Related competences: I.03, I.05, P.01, S.08, T.01, T.02, A.04. Face-to-face hours: 3. Independent work hours: 6. Total hours: 9.

Seminars, debates, others – Related competences: ETE.08, ETE.10, I.01, I.02, I.03, I.06, I.08, P.01, S.01, S.08, T.01, A.03, A.04, A.05. Face-to-face hours: 1. Independent work hours: 2. Total hours: 3.

Tutorials – Face-to-face hours: 1. Independent work hours: 0. Total hours: 1.

Assignments, reports, study, papers and assessment tests – Related competences: ETE.04, ETE.08, ETE.10, I.01, I.02, I.05, I.06, I.07, I.08, P.01, P.06, P.07, S.01, S.02, S.03, S.04, S.07, S.08, T.01, A.01, A.03, A.05, A.06. Face-to-face hours: 1. Independent work hours: 10. Total hours: 11.

Total hours: Face-to-face 27. Independent work 48. Total 75.

Assessment System

The assessable tests and assignments are compulsory and must be submitted on time and in the proper form, in accordance with the requirements of the lecturers of the subject.

THEORETICAL EXAM – Weight in the first call: 30 %. Weight in the second call: 30 %.

PRACTICAL ASSIGNMENT 1 – Weight in the first call: 25 %. Weight in the second call: 25 %.

PRACTICAL ASSIGNMENT 2 – Weight in the first call: 35 %. Weight in the second call: 35 %.

ATTENDANCE AT PRACTICAL SESSIONS – Weight in the first call: 10 %. Weight in the second call: 10 %.

NOTE: In order to pass the subject it is necessary to pass the theoretical exam, with a minimum grade of 5.00 points, which in the case of students who have attended more than 60 % of the practical classes will be 4.50 points.

Practical assignments 1 and 2 are not recoverable, since they are carried out or presented during the timetable of the practical sessions.



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Technical Architecture

Total: 100 %.

Language

Spanish (English friendly)



COURSE GUIDE 2025–2026 — CODE 6482

NEW MATERIALS FOR APPLICATION IN CONSTRUCTION

ECTS

6

Competences

Basic Competences

CB3 - Students must have the ability to gather and interpret relevant data, within their field of study, in order to make judgments that include reflection on relevant issues of a social, scientific or ethical nature.

General Competences

CG9 - Provide technical advice in the manufacturing processes of materials and elements used in the construction of buildings.

Transversal Competences

I.01 - Capacity for analysis and synthesis.

I.02 - Capacity for organization and planning.

I.03 - Oral and written communication.

I.06 - Capacity for information management.

I.07 - Problem solving.

I.08 - Decision making.

P.02 - Work in an interdisciplinary team.

P.06 - Critical reasoning.

P.07 - Ethical commitment.

S.01 - Autonomous learning.

S.07 - Motivation for quality.

S.08 - Sensitivity towards environmental issues.

A.02 - Positive attitude towards social and technological innovations.

Specific Competences

OPT.07 - Knowledge of new materials and their applications in construction.

ETE.09 - Capacity for the analysis of the life cycle of construction elements and systems.

Teaching Objectives

The student must acquire training and knowledge of new materials and their applications in construction, as well as achieve autonomous learning and reasoning, efficiently and technically solving any situation that arises in the face of technological innovations related to these materials for application in construction.

Teaching Units

GENERAL INTRODUCTION

Thematic Unit 1. General introduction

ADVANCED POLYMERIC MATERIALS



Thematic Unit 2. Advanced polymeric materials

RESINS AND REINFORCEMENT FIBERS

Thematic Unit 3. Resins and reinforcement fibers

COMPOSITE MATERIALS

Thematic Unit 4. Composite materials

POLYMER-CONCRETE

Thematic Unit 5. Polymer-concrete

NANOMATERIALS IN CONSTRUCTION

Thematic Unit 6. Nanomaterials in building and civil engineering

ADVANCED COATINGS

Thematic Unit 7. Advanced coatings

ADVANCED CERAMICS

Thematic Unit 8. Advanced ceramics

SMART GLASS

Thematic Unit 9. Smart glass

BITUMENS AND GEOTEXTILES

Thematic Unit 10. Bitumens

Thematic Unit 11. Geotextiles

PHASE CHANGE MATERIALS

Thematic Unit 12. Phase change materials

SUSTAINABILITY IN BUILDING AND CIVIL ENGINEERING

Thematic Unit 13. Sustainable architecture

Thematic Unit 14. Waste and sustainability

Thematic Unit 15. Construction and the SDGs

Thematic Unit 16. Waste management

LIFE CYCLE ANALYSIS

Thematic Unit 17. LCA

MATERIALS FOR 3D CONSTRUCTION



Thematic Unit 18. Materials for 3D construction

VEGETATED BUILDING ENVELOPE

Thematic Unit 19. Green façades and green roofs

NEW WOODS

Thematic Unit 20. New woods

GRAPHENE IN CONSTRUCTION

Thematic Unit 21. Graphene and construction materials

COURSE PRACTICALS

Workshop and laboratory practices of materials

Methodology

Theoretical classes – Related competences: CB3, OPT.07, T.01, I.01-02-03-06-07-08, P.02-06-07, S.01-04-07-08, A.02-03-05. Face-to-face hours: 24. Independent work hours: 50. Total hours: 74.

Practical classes – Related competences: CB3, OPT.07, T.01, I.01-02-03-06-07-08, P.02-06-07, S.01-04-07-08, A.02-03-05. Face-to-face hours: 12. Independent work hours: 20. Total hours: 32.

Laboratory practices – Related competences: CB3, OPT.07, T.01, I.01-02-03-06-07-08, P.02-06-07, S.01-04-07-08, A.02-03-05. Face-to-face hours: 12. Independent work hours: 5. Total hours: 17.

Assignments and other activities in continuous assessment – Face-to-face hours: 0. Independent work hours: 12. Total hours: 12.

Tutorials – Face-to-face hours: 0. Independent work hours: 9. Total hours: 9.

Assessment tests – Face-to-face hours: 6. Independent work hours: 0. Total hours: 6.

Total hours: Face-to-face 54. Independent work 96. Total 150.

Assessment System

Within the section “COMPLETION OF SUPERVISED ASSIGNMENTS AND PRESENTATIONS IN CLASS”, the assessment of the discussion of proposed questions and the seminars, individual or in groups, that will be carried out in the classroom is included. The practical assignments that students must complete during non-face-to-face hours for subsequent discussion are also included in this assessment.

The competences NOT ACQUIRED in this section are not recoverable in the second call, due to the physical impossibility of assessing competences that are only acquired with a certain continuity within the classroom.

The completion of the face-to-face workshop practices must be carried out and assessed in their entirety in due time and form. The competences NOT ACQUIRED in these practices are not



recoverable in the second call, since carrying them out requires resources and time that make them incompatible with the nature of the second call.

In order for the assessable activities to be computed, it is necessary to obtain a grade equal to or higher than 5 points out of 10 in the Theory exam.

Theoretical exam – Weight in the first call: 30 %. Weight in the second call: 30 %.

Completion of supervised assignments and presentations in class – Weight in the first call: 40 %. Weight in the second call: 40 %.

Course follow-up. Practices, seminars and other activities in continuous assessment – Weight in the first call: 30 %. Weight in the second call: 30 %.

Total: 100 %.

Language

Spanish and English