

Course guide

250718 - 250718 - Quality Management

Last modified: 22/05/2025

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: MASTER'S DEGREE IN STRUCTURAL AND CONSTRUCTION ENGINEERING (Syllabus 2015). (Optional subject).

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

LECTURER

Coordinating lecturer: NURIA FORCADA MATHEU

Others: NURIA FORCADA MATHEU

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

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:

13360. To conceive, design, analyze and manage structures or structural elements of civil engineering or building, encouraging innovation and the advance of knowledge.
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 course is based on face to face sessions where the teacher will present the concepts and basic materials, examples and exercises. Support material will be available through the virtual campus ATENEA: content, programming, evaluation activities and bibliography.

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 give a clear vision of quality in construction

- Capability to interpret the results of in situ tests in structures and laboratory tests. - Capability to perform management and quality assurance in construction .

The quality of construction. The life cycle of a construction project . The management of construction projects. The Project Manager and his functions. Management models. Types and methods of recruitment. Evolution of the concept of quality. Quality and costs. Regulation and infrastructure for quality. Standardization. Certification. Introduction to the ISO 9000 family. Implementation of a system of quality management. Development of a Quality Manual. Structure and content of the Quality Plans . Audits . Integration of management systems : quality, safety and environment. Quality control in the construction project, materials, execution, installation, concrete works .

This course aims to give an overview of the systems and tools for quality management and control in projects and organizations linked to the construction sector.

Currently the quality represents a strategic value and differentiation in all companies. The characteristics of the construction sector and the lack of training has led to the construction companies encounter difficulties in developing appropriate systems of quality management. The aim of this course is therefore that students know the importance of proper quality management for obtaining professional success and corporate survival and to become familiar with technologies for quality management. The subject also covers aspects of support infrastructures and national and international regulations.

The course covers practical areas of knowledge, so that students can analyze situations that arise in their professional lives and provide possible solutions. In the course we can distinguish three areas to acquire the basis for development of suitable skills:

- Quality Management Systems.
- Quality Control and Management tools.
- Analysis, control and quality improvement.

STUDY LOAD

| Type | Hours | Percentage |
|-------------------|-------|------------|
| Self study | 80,0 | 64.00 |
| Hours large group | 45,0 | 36.00 |

Total learning time: 125 h

CONTENTS

INTRODUCTION

Description:

Introduction to the construction sector
Introduction to the quality concept

Full-or-part-time: 21h 36m

Theory classes: 9h

Self study : 12h 36m

QUALITY MANAGEMENT SYSTEMS

Description:

Quality Assurance Measures
Quality Management Systems ISO 9000 / ISO 21500
Tools for quality management and control
Lean Management

Full-or-part-time: 36h

Theory classes: 6h
Practical classes: 9h
Self study : 21h

ANALYSIS CONTROL AND QUALITY IMPROVEMENT

Description:

Quality Management in the design stage
Quality Management in the construction stage
Quality Management in the operational and maintenance stage
BIM for quality management
Non-quality costs
Assessment

Full-or-part-time: 50h 24m

Theory classes: 15h
Practical classes: 6h
Self study : 29h 24m

GRADING SYSTEM

The subject evaluation consists on a continuous evaluation based on several activities.

These activities are both individual or group activities to be done during the course (during classes or at home).

EXAMINATION RULES.

Failure to perform an assessment activity in the scheduled period will result in a mark of zero in that activity.

BIBLIOGRAPHY

Basic:

- García Meseguer, A. Fundamentos de calidad en construcción. Sevilla: Fundación Cultural del Colegio Oficial de Aparejadores y Arquitectos Técnicos de Sevilla, 2001. ISBN 8495278219.
- ISO. Normas ISO 9000:2015: sistemas de gestión de la calidad: fundamentos y vocabulario [on line]. AENOR, 2015 [Consultation: 28/04/2020]. Available on: <http://www.umc.edu.ve/pdf/calidad/normasISO/ISO%209000-2015.pdf>.