

Course guide

310734 - 310734 - Quality in the Building Process

Last modified: 24/01/2024

Unit in charge: Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology.

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

Academic year: 2023 **ECTS Credits:** 4.5 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Gaspar Fàbregas, Kàtia

Others: Avellaneda Lopez, Alina
Gaspar Fàbregas, Kàtia
Pidemunt Moli, Antoni

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. FE-20 Ability for the management of the quality control in the building constructions, the writing, application, implementation and updating of manuals and quality plans, realisation of audits of management of the quality in the companies, as well as for the writing of the Building Log Book.

Transversal:

2. ENTREPRENEURSHIP AND INNOVATION - Level 3. Using knowledge and strategic skills to set up and manage projects. Applying systemic solutions to complex problems. Devising and managing innovation in organizations.
3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
4. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

TEACHING METHODOLOGY

The directed learning hours consist on:

. Theoretical classes (big group) where the faculty does a brief exposition to introduce the general learning objectives related with the basic concepts of the subject. Subsequently and by means of practical exercises the faculty tries to motivate and involve the students so that they can participate actively in their own learning. It is used support material in detailed teaching plan format, by ATENEA: learning objectives by contents, concepts, examples, evaluation and directed learning activities schedule and bibliography.
. Practical classes (medium group) where the students work in groups of 3 to 6 members, by the resolution of practices related with the specific learning objectives of each one of the contents of the subject. In these practical sessions it is pretended to incorporate some generic competences, like the teamwork and the enterprising competences, as well as the effective oral and written communication competences. Generally, after each practical session out of class tasks are proposed, which must be worked in group and are the basis of the directed activities.

The autonomous work is limited to the learning of the contents and the oriented readings.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course, students should be able to:

- Explain the meaning of quality foundations and its management.
- Identify the regulations related to the quality field.
- Identify the processes of an organization.
- Explain the models of quality management.
- Apply the knowledge related to the quality management in order to document a quality management system and to plan its implementation.
- Determine the key points in the audits of the quality management systems.
- Identify and interpret the applicable regulations for the works quality control.
- Apply the regulations for the establishment of software about materials control.
- Apply the regulations for the establishment of software about the works units execution control.
- Interpret and value the results from quality controls.
- Propose actions to carry out from the obtained control results.

STUDY LOAD

Type	Hours	Percentage
Self study	65,5	58.22
Hours medium group	11,0	9.78
Hours large group	30,0	26.67
Guided activities	6,0	5.33

Total learning time: 112.5 h

CONTENTS

C1 THE QUALITY IN THE WORK

Description:

In this content the students work:

- The quality regulations.
- Control of materials.
- Control of execution processes.

Related activities:

Theoretical explanation class.

Activity 1. Practice 1. Construction control. (20%)

Activity 2. Evaluation 1. Individual continuous evaluation exam at class (content 1). (25%)

Full-or-part-time: 56h 15m

Theory classes: 15h

Practical classes: 7h 30m

Self study : 33h 45m

C2 QUALITY IN ORGANIZATION

Description:

In this content the students work:

- . Concept of process.
- . The management by processes. Map of processes.
- . Quality planning. Objectives. Indicators.
- . Models of quality management.
- . Documentation of a quality management system.
- . Establish of the responsibilities.
- . Implementation of quality management systems.
- . Audit of quality management systems.

Related activities:

Theoretical explanation class.

Activity 3. Practice 2. Processes and models. (20%)

Activity 4. Evaluation 2. Individual continuous evaluation exam at class (content 2). (25%)

Full-or-part-time: 56h 15m

Theory classes: 15h

Practical classes: 7h 30m

Self study : 33h 45m

ACTIVITIES

A1 PRACTICE 1. Construction control (CONTENT 1)

Description:

Practice in group of 3 to 6 members.

The practice consist on the establishment of a part of a material control and/or execution control program, which will be predetermined by the faculty of each group.

The development of the practice will be exposed at class, and as directed activity the student will finish it.

Specific objectives:

At the end of the activity, the students should be able to:

- . Identify the regulations and legal rules in quality.
- . Develop a material control program and/or an execution control of the construction units.

Material:

Guide notes of the practices and notes of the content available (PowerPoint) in ATENEA.

Delivery:

Delivery of the practice the next week.

The valuation of the practice with the corresponding feedback of the professor is communicated.

It represents a part of the continuous evaluation (20% of the final mark).

Related competencies :

FE-20. FE-20 Ability for the management of the quality control in the building constructions, the writing, application, implementation and updating of manuals and quality plans, realisation of audits of management of the quality in the companies, as well as for the writing of the Building Log Book.

05 TEQ N3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

Full-or-part-time: 22h 30m

Theory classes: 3h

Practical classes: 7h 30m

Self study: 12h

A2 EVALUATION 1. INDIVIDUAL TEST FOR CONTINUOUS EVALUATION (CONTENT 1)

Description:

Individual fulfilment at class of an exam with a part of the essential concepts of the content 1 which covers all the specific learning objectives of the content. Correction by the faculty.

Specific objectives:

At the end of the activity, the students should be able to:

- . Identify and understand the regulations applicable for the quality control in the construction.
- . Apply the regulation for the establishment of quality control programmes.
- . Apply the regulation for the establishment of execution control of construction units.
- . Understand and value the results of the quality control.
- . Propose actions to make based on the results obtained during the control.

Material:

Exam wording.

Delivery:

Resolution of the exercise by the student.

The professor communicates the mark of the exercise in a maximum period of two weeks.

It represents a part of the continuous evaluation (25% of the final mark).

Related competencies :

FE-20. FE-20 Ability for the management of the quality control in the building constructions, the writing, application, implementation and updating of manuals and quality plans, realisation of audits of management of the quality in the companies, as well as for the writing of the Building Log Book.

Full-or-part-time: 9h

Theory classes: 3h

Self study: 6h

A3 PRACTICE 2. PROCESS AND MODELS (CONTENT 2)

Description:

Practice in group of 3 to 6 members (the same members of the Practice 1).

The practice will consist on:

- Making of a processes map of a company, predetermined by the faculty and assigned to each group, and in the establishment of the indicators which allow to measure the processes. Identifying the requirements of the management models according to the regulation UNE-EN ISO 9001.

The development of the practice will be planned at class, and as a directed activity the student will finish this practice out of class.

Specific objectives:

At the end of the practice the students should be able to:

- . Identify the processes of a company.
- . Make the processes map of a company.
- . Propose an indicator system for the monitoring of the quality objectives.
- . Connect the requirements of the management models according to the UNE-EN ISO 9001, with the processes of a company.
- . Identify the documentation which form a quality management system.

Material:

Practice guide notes and notes of the content available (PowerPoint) in ATENEA.

Delivery:

Delivery and exposition of the practice the next week.

The valuation of the practice and its corresponding feedback by the faculty are given.

It represents a part of the continuous evaluation (20% of the final mark).

Related competencies :

FE-20. FE-20 Ability for the management of the quality control in the building constructions, the writing, application, implementation and updating of manuals and quality plans, realisation of audits of management of the quality in the companies, as well as for the writing of the Building Log Book.

01 EIN N3. ENTREPRENEURSHIP AND INNOVATION - Level 3. Using knowledge and strategic skills to set up and manage projects. Applying systemic solutions to complex problems. Devising and managing innovation in organizations.

05 TEQ N3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

Full-or-part-time: 22h 30m

Theory classes: 3h

Practical classes: 7h 30m

Self study: 12h

A4 EVALUATION 2. INDIVIDUAL TEST FOR CONTINUOUS EVALUATION (CONTENT 2)

Description:

Individual fulfilment at class of an exam with a part of the essential concepts of the content 2 which will cover all the specific learning objectives of the topic. Correction by the faculty.

Specific objectives:

At the end of the practice the students should be able to:

- . Define the concepts of process and process management.
- . Identify the processes of a company.
- . Analyze the processes map of a company.
- . Plan the quality objectives of a company.
- . Explain the different quality management models.
- . Understand the quality management requirements according to the regulation UNE-EN ISO 9001.
- . Propose the compliance system of the quality management requirements according to the regulation UNE-EN ISO 9001 in a company.
- . Identify the documentation which form a quality management system.
- . Explain the content of each one of the documentation categories which form a quality management system.
- . Propose quality control plans for the considered processes.
- . Value the flexibility of the management system of a company and suggest improvements.
- . Identify the stages of implementation of a quality management system, proposing a planning for the form and time.
- . Explain the methodology used for the audits in the quality management systems.
- . Make an audit plan of the quality management systems.

Material:

Exam wording.

Delivery:

Resolution of the exercise by the student.

The professor gives the valuation of the exercise in a maximum period of two weeks.

It represents a part of the continuous evaluation (25% of the final mark).

Related competencies :

FE-20. FE-20 Ability for the management of the quality control in the building constructions, the writing, application, implementation and updating of manuals and quality plans, realisation of audits of management of the quality in the companies, as well as for the writing of the Building Log Book.

Full-or-part-time: 9h

Theory classes: 3h

Self study: 6h

GRADING SYSTEM

The final mark is the addition of these marks:

$$N_{\text{final}} (100\%) = N_{\text{pct}} (50\%) + N_{\text{pg}} (40\%) + N_{\text{pa}} (10\%)$$

N_{final} : Final mark. (100%)

N_{pct} : Mark of the exams of the theory contents. (50%)

N_{pg} : Mark of the group practices. (40%)

N_{pa} : Mark of the active participation at class. (10%)

$$N_{\text{pct}} = 0,25 \cdot N_{\text{pct}1} + 0,25 \cdot N_{\text{pct}2}$$

$N_{\text{pct}1}$: Mark of the exam of the theory content 1 (25%). (Date: Week 7).

$N_{\text{pct}2}$: Mark of the exam of the theory content 2 (25%). (Date: Week 16).

$$N_{\text{pg}} = 0,20 \cdot N_{\text{pg}1} + 0,20 \cdot N_{\text{pg}2}$$

$N_{\text{pg}1}$: Mark of the practice of the content 1 (20%). (Date: Week 8).

$N_{\text{pg}2}$: Mark of the practice of the content 2 (20%). (Date: Week 15).

$$N_{\text{pa}} = 0,05 \cdot N_{\text{pa}1} + 0,05 \cdot N_{\text{pa}2}$$

$N_{\text{pa}1}$: Partial mark of the participation at class 1 (5%).

$N_{\text{pa}2}$: Partial mark of the participation at class 2 (5%).

EXAMINATION RULES.

Active participation at class: If the students do not participate significantly in the educational activities, these activities will be considered as non-marked (and non-recoverable).

Group practices: If a practical activity is not done it will be considered as non-marked (and non-recoverable). Moreover, the students need to deliver the corresponding practice to gain the right to do the oral expositions of the practices of the contents 1 and 2. Non-participation in the oral presentations of the practices will be evaluated as 0 NP.

In order to perform the re-evaluation of the Theory Contents (1 and / or 2), the student must have been evaluated of the subject as failed (S) with a minimum mark of 3'5. It is not allowed for the student to attend the reevaluation if he has passed the subject.

If the student obtained a mark of the subject lower than 3'5, the student will not be entitled to re-evaluation and his mark will be maintained.

If a student chooses to apply for reevaluation and obtains a mark lower than the one that entitles him / her to present, the initial mark will be maintained.

The maximum mark that can be obtained in the re-evaluation is 5

BIBLIOGRAPHY

Basic:

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- Omachonu, V. K. ; Ross J. E. Principles of total quality. 3a ed. Boca Raton: St. Lucie Press, 2004. ISBN 1574443267.
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- Guía de aplicación del Código Estructural para la gestión de la calidad de los productos y de la ejecución de estructuras de hormigón. Madrid: Fundación MUSAAT, 2021. ISBN 9788409358786.

Complementary:

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