Course guide
310733 - 310733 - Budgets and Cost Control

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Unit in charge: Barcelona School of Building Construction
Teaching unit: 732 - OE - Department of Management.

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

Academic year: 2023 **ECTS Credits:** 7.5 **Languages:** Spanish

LECTURER

Coordinating lecturer: PEDRO BARINGO SABATER

Others: ESTELA DIAZ MEDIAVILLA
LAIA GÓMEZ XAUDIERA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

TEACHING METHODOLOGY

The directed learning hours consist on the one hand in teaching theoretical classes where the faculty does a brief exposition to introduce the general learning objectives related with the basic contents of the subject. Subsequently and by practical exercises the faculty tries to motivate and involve the students so that they can participate actively in their learning.
Once the basic knowledge is acquired, there will be done theoretical classes and practical exercises with specific computer software based on BIM methodology.
It is used support material in detailed teaching plan format: learning objectives by contents, concepts, examples, evaluation and directed learning activities schedule and bibliography.
On the other hand, the directed learning hours also consist on teaching practical classes, generally by means of the resolution by the students of exercises and problems, related with the specific learning objectives of each one of the subject contents.
Generally, after each session out of class tasks are proposed, which have to be worked and are the basis of the directed activities. There also have to be considered the other autonomous learning hours like the ones dedicated to the oriented readings, the resolution of the proposed problems or the questionnaires of the different contents with the virtual campus ATENEA.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the subject Pressupostos i Control de Costos, the students should be able to:
. Calculate the basic, auxiliary and split unitary prices of the construction units.
. Draft the documents of the Measurements and Budgets of work projects.
. Make the construction certificates and the end of the construction executed.
. Analyze and do the economic control of the construcion process.
. Use of price bases and computer programs with BIM methodology.

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	16.00
Hours medium group	30,0	16.00
Self study	112,5	60.00
Hours small group	15,0	8.00

Total learning time: 187.5 h

CONTENTS

Content 1: GENERAL CONCEPTS AND COST ANALYSIS

Description:
1.1 Basic principles.
1.2 Measurements and budgets.
1.3 Cost of the materials.
1.4 Cost of labour.
1.5 Cost of the equipment.
1.6 Indirect cost.
1.7 Cost of the general outlays and profit of the company.

Related activities:
Theoretical explanation class.
Activity 1. Practice of calculation of the labour cost.
Activity 2. Practice of calculation of the indirect costs of a construction.
Activity 5. Individual continous evaluation questionnaire in ATENEA.
Activity 16. Individual final exam.

Full-or-part-time: 25h
Theory classes: 5h
Practical classes: 5h
Self study : 15h

Content 2: CRITERIA OF MEASURING AND VALORATION

Description:
2.1 Demolitions.
2.2 Conditioning of the land.
2.3 Foundations.
2.4 Structures
2.5 Masonry.
2.6 Roofs and insulation.
2.7 Closings and glass.
2.8 Enclosures.
2.9 Facilities.
2.10 Urbanisation.
2.11 Restoration.

Related activities:
Theoretical explanation class.
Activity 3: Practice consisting on make the Budget of the matter Conditioning of the land.
Activity 4: Practice consisting on make the Budget of the matter Foundations.
Activity 5: Individual continous evaluation questionnaire in Atenea.
Activity 6: Practice consisting on make the Budget of the matter Structures.
Activity 7: Individual exam.
Activity 8: Practice consisting on make the Budget of the matter Masonry.
Activity 9: Individual continous evaluation questionnaire in Atenea.
Activity 10: Practice consisting on make the Budget of the matter Roofs
Activity 11: Practice consisting on make the Budget of the matter Enclosures.
Activity 15: Individual continous evaluation questionnaire in Atenea.
Activity 16: Individual final exam.

Full-or-part-time: 133h 45m
Theory classes: 26h 30m
Practical classes: 27h
Self study : 80h 15m

Content 3: MANAGEMENT AND ECONOMIC CONTROL OF THE CONSTRUCTION

Description:
3.1 Study and making of an offer comparative.
3.2 Offer negotiation and price contracting.
3.3 Executed construction assessment. Certifications.
3.4 Revision of prices.
3.5 Economic control of the production.
3.6 Cost control of the executed construction.
3.7 Liquidation of the construction.

Related activities:
Theoretical explanation class.
Activity 12. Practice of Certifications and Price Revisions.
Activity 13. Practice of calculation a production system with economic incentives.
Activity 14. Practice of calculation the economic control of a construction.
Activity 15. Individual continous evaluation questionnaire in Atenea.
Activity 16. Individual final exam.

Full-or-part-time: 28h 45m
Theory classes: 6h
Practical classes: 5h 30m
Self study : 17h 15m

ACTIVITIES

A1:PRACTICE OF CALCULATE THE LABOUR COST (CONTENT 1)

Description:
In this practice the student learns how to calculate the company cost of the labour.

Specific objectives:
At the end of the activity the students should be able to:
. Calculate the cost of the labour to the company.

Material:
Wording with the data of the Conveni Col·lectiu of the Barcelona province.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 12h 30m
Theory classes: 3h
Practical classes: 2h
Self study: 7h 30m

A2: PRACTICE OF CALCULATE THE INDIRECT COSTS OF A CONSTRUCTION (CONTENT 1)

Description:
In this practice the student studies and analyzes the indirect costs of a construction, solving a specific case, with a given planning. Besides, the student must do a new a planning reducing the execution time of the construction with the aim of reducing costs.

Specific objectives:
At the end of the activity the students should be able to:
. Calculate the indirect costs of a construction.
. Calculate which percentage represent the indirect costs relating to the direct costs of a specific construction.
. Reduce the budget of a construction optimizing the indirect costs.

Material:
Exercise wording.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 12h 30m
Theory classes: 3h
Practical classes: 2h
Self study: 7h 30m

A3: PRÀCTICE OF CARRY OUT THE BUDGET OF THE CHAPTER OF LAND RECONDITIONING (CONTENT 2)

Description:
Realisation of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wording with the plans, the report and the required data for making the budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 12h 30m
Theory classes: 3h
Practical classes: 2h
Self study: 7h 30m

A4: PRACTICE OF CARRY OUT THE BUDGET OF THE FOUNDATIONS (CONTENT 2)

Description:
Realization of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wording with the plans, the report and the necessary data for making the budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 27h 30m
Theory classes: 6h
Practical classes: 5h
Self study: 16h 30m

A5: INDIVIDUAL TESTS OF CONTINUOUS EVALUATION IN ATENEA

Description:
Realization of the proposed practices which contain the specific learning objectives of the content.
Individual fulfilment at class, by means of a questionnaire in ATENEA with auto-correction.
Time and number of attempts limited.
Subsequently, the faculty checks the qualifications and during the next session does a general reflection at class about the most common mistakes and the associated learning objectives which should be reinforced.

Specific objectives:
At the end of the questionnaire, the students shoul be able to:
Analyze the costs of a construction.
Apply the regulations and techniques of the measurements
Calculate the measurements and budgets of the different chapters which form a budget with the unitary prices divided.

Material:
Questionnaire, by ATENEA.

Delivery:
Questionnaire in ATENEA. It represents a part of the continous evaluation (all the practices worth a 30% of the final mark of the subject).

Full-or-part-time: 2h 30m
Practical classes: 1h
Self study: 1h 30m

A6: PRACTICE OF CARRY OUT THE BUDGET OF THE STRUCTURE (CONTENT 2)

Description:
Realization of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wordings with the plans, the report and the necessary data for making the budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 30h
Theory classes: 6h
Practical classes: 6h
Self study: 18h

A7: INDIVIDUAL TEST (CONTENT 1 AND 2)

Description:
Individual exam at class with a part of the minimum essential theoretical concepts of the subject and subsequently the resolution of 2 or 3 problems related with the learning objectives of the contents.

Specific objectives:
At the end of the exam, the students should be able to:
. Organize a budget following the basic and essential requirements.
. Describe the summary of the construction units of a budget.
. Calculate according to the measuring regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units of a budget.
. Calculate the contracting budget of a construction.

Material:
Wordings of the two parts, calculator, encoded guide for organizing a budget, efficiency tables of the workforce, tables of materials consumption and leaflets for making a budget.

Delivery:
Resolution of the exam. It represents the 20% of the final mark of the subject.

Full-or-part-time: 2h 30m
Practical classes: 1h
Self study: 1h 30m

A8: PRACTICE OF CARRY OUT THE BUDGET OF MASONRY (CONTENT 2)

Description:
Realization of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wordings with the plans, the report and the necessary data for making the budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 25h
Theory classes: 4h 30m
Practical classes: 5h 30m
Self study: 15h

A9: INDIVIDUAL TEST OF CONTINUOUS EVALUATION IN ATENEA (CONTENT 1 AND 2)

Description:
Realization of the proposed practices which contain the specific learning objectives of the content.
Individual fulfilment at class, by means of a questionnaire in ATENEA with auto-correction.
Time and number of attempts limited, the data changes depending on the attempt.
Subsequently, the teacher reviews the grades and during the following session carries out a general reflection in the classroom on the most common errors and the associated learning objectives to be reinforced.

Specific objectives:
At the end of the questionnaire, the students should be able to:
. Analyze the costs of a construction.
. Apply the regulations and techniques of the measurements
. Calculate the measurements and budgets of the different chapters which form a budget with the unitary prices divided.

Material:
Questionnaires, by ATENEA.

Delivery:
Questionnaires in ATENEA. It represents a part of the continous evaluation (all the practices worth a 30% of the final mark of the subject).

Full-or-part-time: 2h 30m
Practical classes: 1h
Self study: 1h 30m

A10: PRACTICE OF CARRY OUT THE BUDGET OF COVERS (CONTINGUT 2)

Description:
Realization of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wordings with the plans, the report and the necessary data for making the budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 12h 30m
Theory classes: 2h
Practical classes: 3h
Self study: 7h 30m

A11: PRACTICE OF MAKING THE BUDGET OF ENVELOPES AND LININGS (CONTINGUT 2)

Description:
Realization of the budget of this matter, with the making of the three states nº1 Measurements, nº2 Prices and nº3 Application of Prices.

Specific objectives:
At the end of this activity the students should be able to:
. Organise this construction chapter meeting the basic and essential requirements.
. Describe the summary of the construction units.
. Calculate according to the measurements regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units.
. Calculate the budget of this construction chapter.

Material:
Wordings with the plans, the report and the necessary data for making the Budget.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 17h 30m
Theory classes: 5h
Practical classes: 2h
Self study: 10h 30m

A12: PRACTICE OF CERTIFICATIONS AND PRICE REVISION (CONTENT 3)

Description:
With this practice the student studies and calculates the Certification and Inspection of prices of a construction.

Specific objectives:
At the end of the activity the students should be able to:
. Calculate the Certification of a construction.
. Calculate the Inspection of prices of a construction.

Material:
Wording of the exercise.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 6h 15m
Theory classes: 2h
Practical classes: 0h 30m
Self study: 3h 45m

A13: PRACTICE OF CALCULATE A PRODUCTION SYSTEM WITH ECONOMIC INCENTIVES (CONTENT 3)

Description:
With this practice the student studies and calculates a production system with incentives in a construction.

Specific objectives:
At the end of the activity, the students should be able to:
. List and calculate a production system with economic incentives.

Material:
Wording of the exercise.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 3h 45m
Theory classes: 1h
Practical classes: 0h 30m
Self study: 2h 15m

A14: PRACTICE OF CALCULATE THE ECONOMIC CONTROL OF A CONSTRUCTION (CONTENT 3)

Description:
With this practice the student studies and calculates the economic control of a part of the construction.

Specific objectives:
At the end of the practice the students should be able to:
. Calculate the economic control of a construction from the point of view of a building company.

Material:
Wording of the exercise.

Delivery:
Resolution of the exercise by the student. Following questionnaire in ATENEA about the topic. It represents a part of the continous evaluation (all the practices worth the 30% of the final mark of the subject).

Full-or-part-time: 10h
Theory classes: 3h
Practical classes: 1h
Self study: 6h

A15: INDIVIDUAL TESTS OF CONTINUOUS EVALUATION IN ATENEA (CONTENT 1,2,3)

Description:
Realization of the proposed practices which contain the specific learning objectives of the content.
Individual fulfilment at class, by means of a questionnaire in ATENEA with auto-correction.
Limited time and number of attempts, so that the data change randomly depending on the attempt.
Subsequently, the teacher reviews the grades and during the following session carries out a general reflection in the classroom on the most common errors and the associated learning objectives to be reinforced.

Specific objectives:
At the end of the questionnaire, the students should be able to:
. Make a Construction Certificate and the Liquidation of the executed construction.
. Make the analysis and economic control of the construction process.

Material:
Questionnaires, by ATENEA.

Delivery:
Questionnaires in ATENEA. It represents a part of the continous evaluation (all the practices worth a 30% of the final mark of the subject).

Full-or-part-time: 2h 30m
Practical classes: 1h
Self study: 1h 30m

A16: INDIVIDUAL FINAL TEST (CONTENT 1,2,3)

Description:
Individual exam at class with a part of the minimum essential theoretical concepts of the subject and resolution of 2 or 3 problems related to the learning objectives of all the contents of the subject.

Specific objectives:
At the end of the exam, the students should be able to:
. Organize a budget following the basic and essential requirements.
. Describe the summary of the construction units of a budget.
. Calculate according to the measuring regulations the quantifying of the construction units.
. Analyze, justify and divide the prices of the construction units of a budget.
. Calculate the contracting budget of a construction.
. Distinguish and compare the different offers presented by the construction contractors.
. Calculate certifications and inspections of prices.
. Enumerate and calculate a production system with economic incentives.
. Calculate the economic control of a construction from the point of view of a building company.
. Do the necessary documentation for the liquidation of a construction.

Material:
Wordings of the two parts, calculator, encoded guide for organizing a budget, efficiency tables of the workforce, tables of materials consumption and leaflets for making a budget.

Delivery:
Resolution of the exam. It represents the 50% of the final mark of the subject.

Full-or-part-time: 7h 30m
Practical classes: 3h
Self study: 4h 30m

GRADING SYSTEM

The practices will be evaluated through a questionnaire (20%) and a test with computer tools TCQ, BEDEC, BIM VISIÓN (30%)
1st Test: 20%
2nd final test: 30% (includes all the subject)
No re-evaluation exam will be carried out because it is considered a continuous evaluation subject.

EXAMINATION RULES.

. If some of the continous evaluation or practical teaching activities is not done, it will be considered as non-marked.
. In any case the students can bring formularies to the exams.

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