310029 - Projects I

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 752 - RA - Departamento de Representación Arquitectónica
Academic year: 2017
Degree: BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2015). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN BUILDING CONSTRUCTION SCIENCE AND TECHNOLOGY (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 4,5
Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: PEDRO SARRÓ GARCÍA
Others: JESUS ESQUINAS DESSY - BLANCA FIGUERAS QUESADA - PEDRO SARRÓ GARCÍA

Prior skills

The student must have these abilities:
Know the architectural graphic language.
Draw plans with informatic tools or traditional methods.
Determine the stresses diagrams of the structures.
Calculate reinforced concrete sections suppressed to different stresses.
Measure manifolds of rainwater and waste water.
Define and write construction units for its measuring.

Requirements

Expressió Grafica I, y II
Construcció I, II y III
Estructures I, II y III
Instal.lacions I
Topografia i replantejaments
Pressupostos i control de costos

Degree competences to which the subject contributes

Specific:
1. FE-27 Ability to apply the necessary advanced tools for the resolution of the parts which the technical project implies and its management.
2. FE-28 Aptitude to write technical projects of constructions, which don't require architectural projects, as well as projects of demolition and design.
3. FE-29 Aptitude to write documents which are part of execution projects made in a multidisciplinary form

4. FE-30 Ability of analysis of the execution projects and their transfer to the execution in constructions.
5. FE-31 Knowledge of the functions and responsibilities of the agents which intervene in the construction and their professional or managerial organisation, as well as the administrative, managerial and processing procedures.
6. FE-32 Knowledge of the professional organisation and the basic procedures in the construction field and the promotion.

Transversal:
7. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
Teaching methodology

The subject will be developed in three blocks, according to the schedule and the project of each four-month term. During the scheduled days there will be explained the specific objectives to develop in each block and a summary of the required theory for the technical and graphic resolution of the project. The rest of days will be assigned to the work of the students for achieve the specific objectives, in groups guided by a professor, keeping in mind the order of the scheduled works. Every practice day there will be done the activity 3. The groups will have a maximum of 5 members. In each session the team will discuss the exercise proposed as a monitoring of the work.

Learning objectives of the subject

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

. Determine the graphic content of a technical project.
. Explain the meaning of the construction components, details and systems graphically represented in a technical project.
. Connect the elements represented on the plan with its constructive execution.
. Define each one of the construction lots and the construction components represented in a technical project.
. Identify in each plan or project document, the essential technical data for the implementation in the construction.
. Use the graphic techniques as the common language in the construction and in a contractual document like the project.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 112h 30m</th>
<th>Hours large group: 9h</th>
<th>8.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group: 22h 30m</td>
<td>20.00%</td>
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<tr>
<td>Hours small group: 13h 30m</td>
<td>12.00%</td>
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<tr>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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</tr>
<tr>
<td>Self study: 67h 30m</td>
<td>60.00%</td>
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</table>
### Content

#### (ENG) BLOC 1 INTRODUCCIÓ AL PROJECTE TÈCNIC. DESCENS DE CÀRREGUES I FORJATS.

**Description:**
In this content the students work:
1. The execution project: Working agents, the organization. Administration processes, management and processing. Knowledge in professional organization and basic processing.
2. Analysis and study of the basic project.
3. Analyze the loads of a building, study its structure.
4. Solve the slabs (uni-directional or bi-directional).

**Related activities:**
- Activity 1. Deliverable Block 1, in group.
- Activity 2. Realisation of a questionnaire about the theory. Individually.

**Learning time:** 37h 30m
- Theory classes: 3h
- Practical classes: 12h
- Guided activities: 0h
- Self study: 22h 30m

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#### (ENG) BLOC 2 ESTRUCTURES PORTANTS. FORMIGÓ ARMAT I ESCALES

**Description:**
In this content the students work:
- BLOCK 2
  1. Solve the capacity structure Fe, HA, Fàbrica.
  2. Solve the vertical communication (Stairs, ramps, elevators).

**Related activities:**
- Activity 1. Deliverable Block 2, in groups.
- Activity 2. Realisation of a questionnaire about the theory. Individually.

**Learning time:** 37h 30m
- Theory classes: 3h
- Practical classes: 12h
- Guided activities: 0h
- Self study: 22h 30m
### (ENG) BLOC 3 FONAMENTACIONS I MURS DE CONTENCIÓ. SANEJAMENT

**Learning time:** 37h 30m
- Theory classes: 3h
- Practical classes: 12h
- Guided activities: 0h
- Self study: 22h 30m

**Description:**
In this content the students work:

**BLOCK 3**
1. Solve the foundations, the cantainment walls and the sanitation.
2. Replan the foundations, excavations and land movement.

**Related activities:**
- Activity 1. Deliverable Block 3 in groups.
- Activity 2. Realisation of a questionnaire about the theory. Individually.
### Planning of activities

<table>
<thead>
<tr>
<th>Description</th>
<th>Hours: 2h 30m</th>
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<tbody>
<tr>
<td>(ENG) PROVES EN GRUP D’AVALUACIÓ CONTÍNUA (BLOC 1) A REALITZAR LA SETMANA 4 O 5</td>
<td>Practical classes: 2h 30m</td>
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</tbody>
</table>

**Description:**
Realisation in groups of a technical project of the constructive part exposed in the corresponding block, presented the scheduled day and defended by the group members.

**Support materials:**
- Notes of the topic available (PowerPoint) in ATENEA.
- Wording available in ATENEA.
- Bibliography also available in ATENEA (Regulations, etc.).

**Descriptions of the assignments due and their relation to the assessment:**
Delivery and defense of the project corresponding to the designated construction phase. This activity will have a worth of 60% in the mark of the Block-1 (The Block-1 represents the 30% of the final mark).

**Specific objectives:**
At the end of the activity, the student should be able to:
- Understand the different graphic and technical elements which are necessary for the correct execution of an unidirectional slab.
- Analyze the structure of a building and do the corresponding load descent.
- Understand a building graphically projected by other technician for developing the corresponding execution project.

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<td>(ENG) PROVES EN GRUP D’AVALUACIÓ CONTÍNUA (BLOC 2) A REALITZAR LA SETMANA 8 O 9</td>
<td>Practical classes: 2h 30m</td>
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**Description:**
Realisation in groups of a technical project of the constructive part exposed in the corresponding block, presented the scheduled day and defended by the group members.

**Support materials:**
- Notes of the topic available (PowerPoint) in ATENEA.
- Wording available in ATENEA.
- Bibliography also available in ATENEA (Regulations, etc.).

**Descriptions of the assignments due and their relation to the assessment:**
Delivery and defense of the project corresponding to the designated construction phase. This activity will have a worth of 60% in the mark of the Block-2 (The Block-2 represents the 30% of the final mark).

**Specific objectives:**
At the end of the activity, the student should be able to:
- Understand the different graphic and technical elements which are necessary for the correct execution of the capacity structure of a building.
- Know the tools and the software necessary for the resolution of the calculation of stresses in a structure.
- Choose the most suitable solution for the chosen building.
### (ENG) PROVES EN GRUP D’AVALUACIÓ CONTÍNUA (BLOC 3) A REALITZAR LA SETMANA 12 O 13

**Hours:** 2h 30m  
**Practical classes:** 2h 30m

**Description:**  
Realisation in groups of a technical project of the constructive part exposed in the corresponding block, presented the scheduled day and defended by the group members.

**Support materials:**  
- Notes of the topic available (PowerPoint) in ATENEA.  
- Wording available in ATENEA.  
- Bibliography also available in ATENEA (Regulations, etc.).

**Descriptions of the assignments due and their relation to the assessment:**  
Delivery and defense of the project corresponding to the designated construction phase.  
This activity will have a worth of 60% in the mark of the Block-3 (The Block-3 represents the 40% of the final mark).

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### (ENG) PROVES INDIVIDUALS D’AVALUACIÓ CONTÍNUA (BLOC 1) A REALITZAR LA SETMANA 4 O 5

**Hours:** 0h 15m  
**Practical classes:** 0h 15m

**Description:**  
Individual realisation at class of an exercise of the topic related with the corresponding block.

**Support materials:**  
- Notes of the topic available (PowerPoint) in ATENEA.  
- Explanations received during the corrections of the different group works.  
- It can be a test or not, the student must be prepared to do freehand drawing.

**Descriptions of the assignments due and their relation to the assessment:**  
Resolution by the student of the exercise, which the professor will correct and will post the mark in ATENEA.  
This activity will have a value of 30% of the mark of the Block-1 and the Block-1 represents a 30% of the final mark.

**Specific objectives:**  
At the end of the activity, the students should be able to:  
- Understand the different questions of the exercise for distinguish the appropriate answer.  
- Have an agility in fast calculation of structural elements.  
- Have certainty of the knowledge acquired in the concepts defined as answers.

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### (ENG) PROVES INDIVIDUALS D’AVALUACIÓ CONTÍNUA (BLOC 2) A REALITZAR LA SETMANA 8 O 9

**Hours:** 0h 15m  
**Practical classes:** 0h 15m

**Description:**  
Individual realisation at class of an exercise of the topic related with the corresponding block.
### (ENG) PROVES INDIVIDUALS D’AVALUACIÓ CONTÍNUA (BLOC 3) A REALITZAR LA SETMANA 12 O 13

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### (ENG) EXERCICI GRAFIC INDIVIDUAL DIARI (BLOC 1)

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<td>Theory classes: 0h 15m</td>
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**Descriptions of the assignments due and their relation to the assessment:**
Resolution by the student of the exercise, which the professor will correct with them the same practice day. This activity will have a value of 10% of the mark of the Block-1 (The Block-1 represents a 30% of the final mark).

**Specific objectives:**
At the end of the activity, the students should be able to:
Understand the different questions of the exercise wording.
Be sure about the constructive elements and its working inside the construction.

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**(ENG) EXERCICI GRAFIC INDIVIDUAL DIARI (BLOC 2)**

*Description:*
Realisation at class each practice day of a graphic exercise of the topic related with the corresponding Block.

*Support materials:*
Notes of the topic available (PowerPoint) in ATENEA.
Explanations received during the corrections of the different group works.
The student must be prepared to do freehand drawing.

*Description of the assignments due and their relation to the assessment:*
Resolution by the student of the exercise, which the professor will correct with them the same practice day. This activity will have a value of 10% of the mark of the Block-2 (The Block-2 represents a 30% of the final mark).

*Specific objectives:*
At the end of the activity, the students should be able to:
Understand the different questions of the exercise wording.
Be sure about the constructive elements and its working inside the construction.

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**(ENG) EXERCICI GRAFIC INDIVIDUAL DIARI (BLOC 3)**

*Description:*
Realisation at class each practice day of a graphic exercise of the topic related with the corresponding Block.

*Support materials:*
Notes of the topic available (PowerPoint) in ATENEA.
Explanations received during the corrections of the different group works.
The student must be prepared to do freehand drawing.

*Description of the assignments due and their relation to the assessment:*
Resolution by the student of the exercise, which the professor will correct with them the same practice day. This activity will have a value of 10% of the mark of the Block-3 (The Block-3 represents a 40% of the final mark).

*Specific objectives:*
At the end of the activity, the students should be able to:
Understand the different questions of the exercise wording.
Be sure about the constructive elements and its working inside the construction.
Qualification system

Activity 1
\[ F = (0.3 \cdot N_1) + (0.3 \cdot N_2) + (0.4 \cdot N_3) \]
\[ F = \text{Final mark (10 points)} \]
\[ N_1 = \text{First mark (10 points)} \]
\[ N_2 = \text{Second mark (10 points)} \]
\[ N_3 = \text{Third mark (10 points)} \]

Each mark (N) consist on a 30% obtained in an individual evaluation (questionnaire), a 10% of the individual graphic exercise and a 60% corresponding to the correction of the group work (also valuated by the students).

For attending the questionnaire and the exposition it is essential that the team have corrected the daily works at class.

The student will pass the subject if he/she gets 5 points of a maximum of 10.

Activity 2
About 10:
10 questions about the given topics at class.
Correct answer: +1.0
Wrong answer: -0.5
NS/NC: 0.0

Activity 3
About 10 (each exercise)
A drawing of a construction detail.

Generic competences:
The generic competences of this subject are Type 3 and so that they will be evaluated: In this course the evaluation won't be numerical otherwise it will be ABC valuation being "A" the best qualification and "C" the worst.
The competence will be evaluated in each delivery (Block 1, 2 or 3) having finally three qualifications and being the last the only which will count. This evaluation can be seen by the students during the course in the qualifications section in Atenea.

Regulations for carrying out activities

Block delivery:
Printed or hand write topics, delivered in plans with the format ordered by each professor.
The Nº of plans and the calculation report will be the decided by the students according to the professor.
There will be given the corresponding CD with all the plans and the reports.
310029 - Projects I

Bibliography

Basic:


Complementary:


Others resources:

www.bibliotecina.upc.edu