Course guide  
**310721 - 310721 - Fluid Installations**

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: 2022  
ECTS Credits: 6.0  
Languages: Catalan, Spanish

**LECTURER**

Coordinating lecturer: NURIA FORCADA MATHEU

Others: ELENA SEDÓ  
DAVID DOLCET  
ADRIÁN GUERRERO

**PRIOR SKILLS**

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**REQUIREMENTS**

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**DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES**

Transversal:

1. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

2. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.

**TEACHING METHODOLOGY**

The teaching methodology is divided into three parts:

- Face-to-face for content presentation.
- Face-to-face for practical work (exercises and problems).
- Autonomous work.

In the content presentation sessions, the lecturer will present the theoretical bases of the subject, concepts, methods and illustrative results with examples to facilitate general understanding.

In the face-to-face practical work sessions, the lecturer will guide the student in the application of the theoretical concepts for problem solving, promoting at all times critical reasoning. Students will have to solve exercises during the face-to-face sessions and at home.

Students, must work autonomously the material provided by the lecturer and the result of the work-problem sessions to assimilate and fix the concepts. The lecturers will provide a study plan and follow-up of activities (through Atena).
LEARNING OBJECTIVES OF THE SUBJECT

The course aims at providing the capacity to design mechanical fluid systems for buildings, considering their use, the applicable regulations and the suitability and energy efficiency of their systems.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours medium group</td>
<td>24.0</td>
<td>16.00</td>
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<tr>
<td>Hours small group</td>
<td>6.0</td>
<td>4.00</td>
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<tr>
<td>Self study</td>
<td>90.0</td>
<td>60.00</td>
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<tr>
<td>Hours large group</td>
<td>30.0</td>
<td>20.00</td>
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Total learning time: 150 h

CONTENTs

<table>
<thead>
<tr>
<th>title english</th>
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<tbody>
<tr>
<td>Description:</td>
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<tr>
<td>• Introduction to Building systems.</td>
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<tr>
<td>• Regulations.</td>
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<tr>
<td>• Initial concepts.</td>
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<tr>
<td>• Cold water supply.</td>
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<tr>
<td>• Elements of cold-water systems.</td>
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<tr>
<td>• Cold water distribution.</td>
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<tr>
<td>• Materials for the piping network.</td>
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<tr>
<td>• Water treatment.</td>
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<tr>
<td>• Sizing cold water systems.</td>
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Related activities:
Fluid Systems project. Cold water part.
Practicum exercicis.

Full-or-part-time: 28h
Theory classes: 8h
Practical classes: 6h
Self study: 14h
Module 2: Fire Systems

Description:
• Regulations.
• Initial concepts.
• Elements of fire systems.
• Fire water supply and storage.
• Sizing fire systems.

Specific objectives:
Fluid Systems project. Fire systems part.
Practicum exercicis.

Full-or-part-time: 20h
Theory classes: 6h
Practical classes: 2h
Self study : 12h

Module 3: Hot water Systems.

Description:
• Regulations.
• Initial concepts.
• Hot water generation.
• Elements of hot water systems.
• Hot water distribution.
• Regulation of hot water systems.
• Energy efficiency of hot water systems.
• Sizing hot water systems.

Related activities:
Fluid Systems project. Hot water part.
Practicum exercicis.

Full-or-part-time: 20h
Theory classes: 6h
Practical classes: 4h
Self study : 10h


Description:
• Regulations.
• Initial concepts.
• Elements of solar energy systems.
• Energy efficiency of solar energy systems.
• Sizing solar energy systems.

Related activities:
Fluid Systems project. Solar energy systems part.
Practicum exercicis.

Full-or-part-time: 24h
Theory classes: 6h
Practical classes: 6h
Self study : 12h
Module 5: Sanitary and rainwater drainage Systems.

Description:
• Regulations.
• Initial concepts.
• Elements of sanitary and rainwater drainage systems.
• Ventilation systems.
• Pumping systems.
• Materials for sanitary and rainwater drainage network.
• Sizing sanitary and rainwater drainage systems.

Related activities:
Fluid Systems project. Sanitary and rainwater drainage systems part.
Practicum exercicis.

Full-or-part-time: 20h
Theory classes: 6h
Practical classes: 4h
Self study: 10h

Module 6: Gas systems

Description:
• Regulations.
• Initial concepts.
• Supply and Distribution.
• Elements of gas Systems.
• Sizing gas Systems.

Related activities:
Fluid Systems project. Gas systems part.
Practicum exercicis.

Full-or-part-time: 12h
Theory classes: 4h
Practical classes: 2h
Self study: 6h

GRADING SYSTEM

- Mid-term exam weight: 25 %
- Final exam weight: 25 %
- Group project weight: 40 %
- Class exercises and attendance weight: 10 %

EXAMINATION RULES.
BIBLIOGRAPHY

Basic:
- CTE-DB-HS (Codi Tècnic de l'Edificació - Document Bàsic - Salubritat).
- RIGLO (Reglament d’instal·lacions de gas en locals destinats a usos domèstics, col·lectius o comercials).
- RIPCI (Reglament d’instal·lacions de protecció contra incendis).
- CTE-DB-SI (Codi Tècnic de l'Edificació - Document Bàsic - Seguretat Contra Incendis).
- CTE-DB-HE (Codi Tècnic de l'Edificació - Document Bàsic - Estalvi d'Energia).

RESOURCES

Other resources:
Class handouts.