DEGREE CURRICULUM

BUILDING SERVICES 1

Coordination: PIQUE PALACIN, JOSÉ

Academic year 2021-22

BUILDING SERVICES 1 2021-22

Subject's general information

<table>
<tr><td>Subject name</td><td>BUILDING SERVICES 1</td></tr>
<tr><td>Code</td><td>101406</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
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<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Architectural Technology and Building Construction</td><td>1</td><td>COMMON</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
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<tr><th>Activity type</th><th>PRAULA</th><th>TEORIA</th></tr>
<tr><td>Number of credits</td><td>3</td><td>3</td></tr>
<tr><td>Number of groups</td><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>PIQUE PALACIN, JOSÉ</td></tr>
<tr><td>Department</td><td>COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>40% face-to-face, 60% autonomous work.
See the section "Development plan for the subject"</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Catalan</td></tr>
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BUILDING SERVICES 1 2021-22

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PIQUE PALACIN, JOSÉ	jose.pique@udl.cat	6	

Subject's extra information

Subject of practical nature that requires continuous work throughout the semester. It advises to work the concepts and amplitude of thought. Develop the regulatory scope and calculation of facilities.

Start the basic facilities of a building that are complemented in the second year, in this course works the water supply, sanitation, electricity and telecommunications.

The information of the subject is posted in the Virtual Campus space.

Subject that is taken in the 2nd semester of the 1st year of teaching. It belongs to the module "Compulsory Basic Training Materials".

SAFETY AND HEALTH RULES FOR VISITS

It is **COMPULSORY** that the students bring the following elements of individual protection (EPI) in the work visit .

- **Security helmet.** Acquire in ÚDELS, shop of the UdL, C / Jaume II, 67 bajos. Center of Cultures and Cross-Border Cooperation. https://www.publicacions.udl.cat/en/product-category/udels-udl-products/
- **Reflective vest.** Acquire in ÚDELS, shop of the UdL, C / Jaume II, 67 bajos. Center of Cultures and Cross-Border Cooperation. https://www.publicacions.udl.cat/en/product-category/udels-udl-products/
- **Safety footwear.** Acquire in any supplier of personal protective equipment, and must meet the requirements S1 + P (tip and anti-perforation template) in accordance with the provisions of EN ISO 20345.

Not bringing the EPI's described or not fulfilling the norms of general security that are detailed below imply that the student can not access the work or have to leave the same. The no realisation of the practices for this reason imply the **consequences in the evaluation** of the subject that are described in this course guide.

GENERAL NORMS OF SECURITY IN THE EXIT TO WORK

- Keep the visiting place clean and orderly.
- In the visit you can not go with shorts or short skirts.
- Wear safety shoes.
- Do not eat or drink inside the work.
- Smoking is prohibited inside the work.
- Wash your hands whenever you have contact with a chemical and before leaving the work.
- Follow the instructions of the teacher and the technicians of the work and consult any doubt about safety.

For further information, you can check the following document of the *Servei de Prevenció de Riscos Laborals de la UdL*: http://www.prevencio.udl.cat/export/sites/Sprl/ca/.galleries/Integracio-a-la-Docencia/manual-acollida-alumnes-udl.pdf

SPECIFIC SAFETY RULES ON THE EXIT TO WORK

- Previously, the responsible professor will contact the Safety Coordinator of the work, who will establish the specific conditions of the visit. These instructions, which will inform the teacher before the visit, must be assumed and fulfilled by all attendees.
- The visit will be made at all times accompanied by the technicians of the work and the teacher and in no time the established route will be abandoned.
- Always look where you walk. In case of stop at any point of the work, take into account the passage of trucks, trucks, cranes ...
- Pay attention to preventive signage

Learning objectives

- Be able to imagine the installation and its distribution, make sketches and their corresponding plans
- Apply the regulations in the facilities and the different verification processes before they are put into service
- Know the distribution and elements that make up the different facilities
- Describe the general parameters of the affected facilities.
- Relate the facilities of first and second year of teaching.
- Calculate facilities in a basic way.
- Analyze the results obtained and their magnitudes. Logical and coherent results.
- Promote group work (as in a professional office) and communication.
- Discover pros and cons in the design of the facilities.
- Know the field work of different professionals (technical architects ...) in the visit of a construction site.

Competences

Transversal competences EPS

- EPS5: Capacity of abstraction and of critical, logical and mathematical thinking.

Specific competences according to ORDER ECI/3855/2007:

- GEE5: Knowledge of the theoretical basics and basic principles applied to construction, to fluid mechanics, to hydraulics, to electricity and electromagnetism, calorimetry and hygrothermia, and to acustics.

Subject contents

Chapter 1: Water supply and distribution

- Water connection
- General installation
- Inner installation
- Materials
- Design and assembly
- Domestic hot water installation

Chapter 2: Sanitation

- Facilities evacuation tents
- Facilities structure
- Installation of inner drainage systems
- Materials
- Design and assembly of facilities
- Tests and regulatory compliance

Chapter 3: Electricity

- Introduction
- Connection installation
- Link installations
- Indoor installations

- Installation systems
- Protections

Chapter 4: Common infraestructures of telecomunication

- Vocabulary – elements
- Need of the CITs and field of application
- CITs elements
- Needs of the installation
- Diagrams of canalisations
- Regulation

COVID-19: The contents of the subject, do not see modified, by the situation caused by this pandemic.

Methodology

The methodological axes of the subject, see necessarily modified by this pandemic, developing of the following form:

- **Masterclasses P1 (affected by COVID-19).** Explanations and presentations in Power Point, made in support of online teaching (videoconferences).
- **Masterclasses P2 (affected by COVID-19).** Explanations and presentations in Power Point, made in support of online teaching (videoconferences).

- **Problems P1 (not affected by COVID-19).** Exercises will be solved in class during these practical sessions.
    - In case of pandemic impact, they will be held in online teaching support format (videoconferences).
- **Problems P2 (not affected by COVID-19).** Exercises will be solved in class during these practical sessions.
    - In case of pandemic impact, they will be held in online teaching support format (videoconferences).

- **Work in group (affected by COVID-19).** During the course of the course, students will have to carry out group work, which will be directed by the teacher so that the minimum content levels are achieved (depending on the situation of the pandemic, the defense of the work will not be carried out).

- **Examination (not affected by the pandemic).** They make two proofs written, theory (type test) and practical (resolution of exercise/s), during the quartere. Also there is a proof of final recovery (Without modifications).

Development plan

Week	Fear	Face-to-face hours	Hours work autonomous	COVID-19
1	Presentation subject	2	-	Theory (online teaching support) and face-to-face practice (exercises) (*)
2	T1. Drinkable water supply (theory)	2	3	
2	T1. Drinkable water supply (theory-exercises)	2	3	
3	T1. Drinkable water supply (theory)	2	3	
3	T1. Drinkable water supply (exercises)	2	3	
4	T1. Drinkable water supply (theory)	2	3	
4	T1. Drinkable water supply (exercises)	2	3	
5	T1. Drinkable water supply (theory)	2	3	
5	T1. Drinkable water supply (exercises)	2	3	
6	T2. Sanitation (Theory)	2	3	
6	T2. Sanitation (Theory - exercises)	2	3	

Week	Fear	Face-to-face hours	Hours work autonomous	COVID-19
7	T2. Sanitation (Theory)	2	3	
7	T2. Sanitation (Exercises)	2	3	
8	Presentations works in class: water supply and sanitation.	4	12	Sending jobs telematically
9	First evaluation	2		Face-to-face
10	T3. Electricity (theory)	2	3	(*)
10	T3. Electricity (theory - exercises)	2	3	
11	T3. Electricity (theory)	2	3	
11	T3. Electricity (exercises)	2	3	
12	It visits Installations	4	6	Depending on the situation of the pandemic
13	T3. Electricity (theory)	2	3	(*)
13	T3. Electricity (exercises)	2	3	
14	T4. ICT (Theory)	4	6	
15	Presentations works in class: electricity and ICT.	4	12	Sending jobs telematically
16-17	Second evaluation	2		Face-to-faceEvaluación
19	Recoveries	2		

Evaluation

Activities of evaluation	%	Observations	COVID-19
Proof of Theory 1 - PT1	15%	To take into account PT1 to do average, it is necessary to have a minimum of 4 (on 10)	Without modification by the pandemic
Proof of exercises - EX1	20%	To take into account EX1 to do average, it is necessary to have a minimum of 4 (on 10)	
Proof of Theory 2 - PT2	15%	To take into account PT2 to do average, it is necessary to have a minimum of 4 (on 10)	
Proof of exercises - EX2	20%	To take into account EX2 to do average, it is necessary to have a minimum of 4 (on 10)	

Activities of evaluation	%	Observations	COVID-19
Work s - T Visit - V	30%	Each of the 4 blocks (water, sanitation, electricity and telecommunications), has a weight of 7.5%. The minimum grade for T and visit works will be a minimum of 5 (out of 10). Note: If the visit is not carried out due to the situation of the pandemic, each of the 4 blocks (water, sanitation, electricity and telecommunications), has a weight of 7.5%.	Modified

Note:

- Failure to achieve the minimum grade of 4 in any of the four blocks PT1 - EX1 - PT2 - EX2 and not achieving the minimum grade of 5 in block T, implies not passing the course. In the rest of the situations, the final grade for the course comes out of the grade with its percentage assessment of each of the blocks and this overall is necessary, to pass the course, which is higher than 5.

- The groups of work will be of a number reduced of students, that will communicate the professor to the start of the course.

Bibliography

Recommended bibliography

- Reglamento Electrotécnico de Baja Tensión e Instrucciones técnicas complementarias. Real Decreto 842/2002, de 18 de Septiembre y guías técnicas de aplicación.
    - Descarga libre (https://industria.gob.es/Calidad-Industrial/seguridadindustrial/instalacionesindustriales/baja-tension/Paginas/reglamento-2002.aspx)
- El Código Técnico de la Edificación (CTE) es el marco normativo que establece las exigencias que deben cumplir los edificios en relación con los requisitos básicos de seguridad y habitabilidad establecidos en la Ley 38/1999 de 5 de noviembre, de Ordenación de la Edificación (LOE). REAL DECRETO 314/2006, de 17 de marzo, por el que se aprueba el Código Técnico de la Edificación.
    - CTE-DB-HS tiene por objeto establecer reglas y procedimientos que permiten cumplir las exigencias básicas de salubridad.
        - CTE-DB-HS4 Suministro de agua (fontaneria)
        - CTE-DB-HS5 Evacuación de aguas (saneamiento)
    - Descarga libre (https://www.codigotecnico.org/index.php/menu-salubridad.html)
- Reglamento regulador de las infraestructuras comunes de telecomunicaciones para el acceso a los servicios de telecomunicación en el interior de las edificaciones. Real Decreto 346/2011 de 11 de Marzo y Orden que desarrolla el Reglamento Orden ITC/1644/2011, de 10 de junio.
    - Descarga libre (https://avancedigital.gob.es/Infraestructuras/Paginas/normativa-sentencias.aspx
- **ICT** de Jose Manuel Huidobro Moya (Autor) y Pedro Pastor Lozano (Autor). Editorial:Creaciones Copyright. Idioma:Castellano. ISBN:9788415270393. Año de edición:2017
- Cuaderno de diseño de instalaciones [Notebook of the Design of Building Services]. César Martín Gómez (Autor), Patricia Lizaso Pimentel (Autor) y Lierni Virto Donazar (Autor). Colección: Apuntes. Materia: Arquitectura. Idioma: Castellano. EAN 9788431334246. ISBN 978-84-313-3424-6. Depósito legal NA 2352-2019. Fecha publicación 03-10-2019
- Instalaciones hidráulicas en el diseño de edificios - VV. AA. [Edición Bilingüe]. Roberto Alonso Gonzalez Lezcano (Autor), Juan Bautista Echeverria Trueba (Autor) y Caludia Morollón Ronda (Autor). Editor: Ediciones Asimétricas. Edición: 1 (15 de septiembre de 2015). Colección: ARQUITECTURA. Idioma: Español, Inglés. ISBN-10: 8494430041. ISBN-13: 978-8494430046
- Instalaciones eléctricas en el diseño de edificios - VV. AA. [Edición Bilingüe] Roberto Alonso Gonzalez Lezcano (Autor), José Manuel del Río Campos (Autor), Félix Aramburu Gaviola (Autor) y Sonia Cesteros Garcia (Autor). Editor: Ediciones Asimétricas; Edición: 1 (15 de enero de 2016). Colección: ARQUITECTURA. Idioma: Español, Inglés. ISBN-10: 8494474340. ISBN-13: 978-8494474347