



## Teaching Guide

| Identifying Data    |  |        |   |         | 2017/18 |
|---------------------|--|--------|---|---------|---------|
| Subject (*)         | Construction 1   | Code   | 630G02010   |         |         |
| Study programme     | Grao en Estudos de Arquitectura  |        |   |         |         |
| Descriptors         |  |        |   |         |         |
| Cycle               | Period   | Year   | Type  | Credits |         |
| Graduate            | 2nd four-month period  | First  | Obligatoria   | 6       |         |
| Language            | SpanishEnglish   |        |   |         |         |
| Teaching method     | Face-to-face   |        |   |         |         |
| Prerequisites       |  |        |   |         |         |
| Department          | Construcións e Estruturas Arquitectónicas, Cívís e Aeronáuticas  |        |   |         |         |
| Coordinador         | Souto Garcia, Valentin Balbino   | E-mail | valentin.souto@udc.es   |         |         |
| Lecturers           | Carreira Montes, José Ángel<br>Fernandez Cobian, Esteban<br>Seoane González, José Carlos<br>Souto Garcia, Valentin Balbino   | E-mail | j.cmontes@udc.es<br>esteban.fcobian@udc.es<br>carlos.seoane@udc.es<br>valentin.souto@udc.es |         |         |
| Web                 | moodle.udc.es/course/view.php?id=29486   |        |   |         |         |
| General description | <p>This course aims to provide the student with a frame of reference which let him locate and understand the knowledge in the subjects of construction of further courses. In other words, at the end of the course, the student should be able of:</p> <ul style="list-style-type: none"> <li>- Locate correctly the contents of subjects in the area of architectural constructions which will be taught throughout their studies in the University.</li> <li>-Recognize the materials, elements and construction systems, as well as its characteristics, grasp and general requirements -represent accurately the elements and building systems</li> <li>-Rating accuracy and clarity in the discipline of the construction</li> <li>-Mastering the vocabulary of the Construction.</li> </ul> <p>All of this inside the frame of the Spanish regulations.</p> |        |   |         |         |

## Study programme competences / results

| Code | Study programme competences / results   |
|------|---|
| A12  | Ability to conceive, calculate, design, integrate in buildings and urban units and execute building structures (T)  |
| A13  | Ability to conceive, calculate, design, integrate in buildings and urban units and execute interior partition walls, carpentry, stairs and other finished work (T)  |
| A14  | Ability to conceive, calculate, design, integrate in buildings and urban units and execute exterior walls and cladding, roofing and other structural work (T)   |
| A15  | Ability to conceive, calculate, design, integrate in buildings and urban units and execute foundation solutions (T)   |
| A17  | Ability to apply technical and construction standards and regulations   |
| A25  | Adequate knowledge of conventional construction systems and pathology   |
| A26  | Adequate knowledge of the physical and chemical characteristics, production procedures, pathology and use of building materials   |
| A27  | Adequate knowledge of industrialized building systems   |
| A39  | Ability to remove architectural barriers (T)  |
| A41  | Ability to solve the passive environmental conditioning, including thermal and acoustic insulation, climate control, energy efficiency and natural lighting (T)   |
| A63  | Development, presentation and public review before a university jury of an original academic work individually elaborated and linked to any of the subjects previously studied  |
| B1   | Students have demonstrated knowledge and understanding in a field of study that is based on the general secondary education, and is usually at a level which, although it is supported by advanced textbooks, includes some aspects that imply knowledge of the forefront of their field of study |
| B2   | Students can apply their knowledge to their work or vocation in a professional way and have competences that can be displayed by means of elaborating and sustaining arguments and solving problems in their field of study   |



|     |  |
|-----|--|
| B3  | Students have the ability to gather and interpret relevant data (usually within their field of study) to inform judgements that include reflection on relevant social, scientific or ethical issues                          |
| B4  | Students can communicate information, ideas, problems and solutions to both specialist and non-specialist public   |
| B5  | Students have developed those learning skills necessary to undertake further studies with a high level of autonomy   |
| B6  | Knowing the history and theories of architecture and the arts, technologies and human sciences related to architecture   |
| B7  | Knowing the role of the fine arts as a factor that influences the quality of architectural design  |
| B9  | Understanding the problems of the structural design, construction and engineering associated with building design and technical solutions  |
| B10 | Knowing the physical problems, various technologies and function of buildings so as to provide them with internal conditions of comfort and protection against the climate factors in the context of sustainable development |
| B11 | “Knowing the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into planning”   |
| B12 | Understanding the relationship between people and buildings and between these and their environment, and the need to relate buildings and the spaces between them according to the needs and human scale                     |
| C1  | Expressing themselves correctly, both orally and in writing, in the official languages of the autonomous region  |
| C2  | Mastering the expression and comprehension of a foreign language both orally and in writing  |
| C3  | Using basic tools of information technology and communications (ICT) necessary for the exercise of the profession and for lifelong learning  |
| C4  | Exercising an open, educated, critical, committed, democratic and caring citizenship, being able to analyse facts, diagnose problems, formulate and implement solutions based on knowledge and solutions for the common good |
| C5  | Understanding the importance of entrepreneurship and knowing the means available to the entrepreneur   |
| C6  | Critically evaluate the knowledge, technology and information available to solve the problems they must face   |
| C7  | Assuming as professionals and citizens the importance of learning throughout life  |
| C8  | Assessing the importance of research, innovation and technological development in the socio-economic advance of society and culture  |

| Learning outcomes |                                       |
|-------------------|---------------------------------------|
| Learning outcomes | Study programme competences / results |
|                   |                                       |



|  |     |     |    |
|--|-----|-----|----|
| Become aware of the correlation between architectural design and construction solutions, the constraints imposed by the physical, chemical and mechanical properties of building materials and construction systems for the execution of works features.   | A12 | B1  | C1 |
|  | A13 | B2  | C2 |
|  | A14 | B3  | C3 |
|  | A15 | B4  | C4 |
| Acquiring the basic vocabulary of the construction which permits identification of members of the major building systems and structural foundations, vertical walls, roofs, vertical communications, partitions and window and door joinery elements.  | A17 | B5  | C5 |
|  | A25 | B6  | C6 |
|  | A26 | B7  | C7 |
| Knowing the basics of building structural systems with load-bearing walls and arcaded factory with metal and concrete elements in correspondence with constructive solutions to cover the vain systems: systems of wood and stone lintels, vaulted systems and horizontal slabs, floor slabs, plates. Industrialized slabs, nerves and joists. | A27 | B9  | C8 |
|  | A39 | B10 |    |
|  | A41 | B11 |    |
|  | A63 | B12 |    |
| Know the elements of building systems of surface and deep foundations and retaining walls and understand the logic of its operation and implementation procedures.   |     |     |    |
| Know the basic building design conditions of vertical communications, stairs and ramps, the escape routes of the buildings and of the barriers to protect slopes.  |     |     |    |
| Knowing elementary level the construction and design of the vertical walls to fulfill thermal conditions, hygrothermal, acoustic, fire protection and stability and resistance to mechanical conditions.   |     |     |    |
| Knowing elementary constructive elements design conditions lighting and ventilation of buildings.  |     |     |    |
| Knowing elementary level the construction and design of slanted and flat for the fulfillment of the conditions of waterproof, thermal, hygrothermal, acoustic and fire protection overcast conditions.   |     |     |    |
| Knowing elementary level the construction and design of the elements of heavy or lightweight partitions.   |     |     |    |

| Contents                      |   |
|-------------------------------|---|
| Topic                         | Sub-topic   |
| Architecture and construction | 1. Architecture and construction<br>2. Physical environment and materials   |
| Building and structure        | 3. Introduction to structure<br>4. Compression<br>5. Traction<br>6. Flexion<br>7. Reinforced concrete as a structural material<br>8. Steel as a structural material<br>9. Foundations and retaining walls |
| Envelope                      | 10. Anatomy of buildings<br>11. Vertical enclosures<br>12. Sloping roofs<br>13. Flat roofs  |
| Climate and use control       | 14. Vertical communications<br>15. Internal partitions<br>16. Coatings<br>17. Installations   |

**Planning**



| Methodologies / tests          | Competencies / Results   | Teaching hours (in-person & virtual) | Student's personal work hours | Total hours |
|--------------------------------|--|--------------------------------------|-------------------------------|-------------|
| Workshop                       | B1 B2 B3 B4 B5 B6<br>B7 B9 B10 B11 B12<br>C1 C2 C3 C4 C5 C6<br>C7 C8         | 1.5                                  | 60                            | 61.5        |
| Student portfolio              | B1 B2 B3 B4 B5 B6<br>B7 B9 B10 B11 B12<br>C1 C2 C3 C4 C5 C6<br>C7 C8         | 25.5                                 | 0                             | 25.5        |
| Objective test                 | A12 A13 A14 A15<br>A17 A25 A26 A27<br>A39 A41 A63                            | 4                                    | 30                            | 34          |
| Guest lecture / keynote speech | A12 A13 A14 A15<br>A17 A25 A26 A27<br>A39 A41 A63 C1 C2<br>C3 C4 C5 C6 C7 C8 | 28                                   | 0                             | 28          |
| Personalized attention         |  | 1                                    | 0                             | 1           |

(\*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

| Methodologies                  |   |
|--------------------------------|---|
| Methodologies                  | Description   |
| Workshop                       | Face non-performing individual exercises.<br>The exercises will be presented and supervised by teachers in the classroom.   |
| Student portfolio              | Individual realization of a sketchbook to collect building systems studied in the course.<br>The sketchbook will be performed in the classroom.   |
| Objective test                 | Written exam in which the student must individually resolve issues related to topics covered in the course.   |
| Guest lecture / keynote speech | Development and explanation of the topics of the course by the teacher.<br>Realization of a booklet of notes taken by the students, in which they collect the explanations given by the teachers.<br>The notebook will be presented on the day of the exam. It will be valued the effort to add additional information to the provided by professors. |

| Personalized attention        |  |
|-------------------------------|--|
| Methodologies                 | Description  |
| Student portfolio<br>Workshop | Personal attention will be developed during the practical classes in which teachers advise students about their evolving work in progress. |

| Assessment        |  |   |               |
|-------------------|--|---|---------------|
| Methodologies     | Competencies / Results   | Description   | Qualification |
| Student portfolio | B1 B2 B3 B4 B5 B6<br>B7 B9 B10 B11 B12<br>C1 C2 C3 C4 C5 C6<br>C7 C8 | Student portfolio assessment will be made only if presented bound, full and neat.                                       | 15            |
| Objective test    | A12 A13 A14 A15<br>A17 A25 A26 A27<br>A39 A41 A63                    | The score for each of the theoretical and practical exercises will be indicated in the statement of the Objective test. | 50            |



|                                |  |  |    |
|--------------------------------|--|--|----|
| Guest lecture / keynote speech | A12 A13 A14 A15<br>A17 A25 A26 A27<br>A39 A41 A63 C1 C2<br>C3 C4 C5 C6 C7 C8 | Notes of the subject taken in the classroom will be evaluated.   | 5  |
| Workshop                       | B1 B2 B3 B4 B5 B6<br>B7 B9 B10 B11 B12<br>C1 C2 C3 C4 C5 C6<br>C7 C8         | This qualification could be distributed by the teacher in the form 25+5, 25% corresponding to the evaluation of current practices and 5% of the marks obtained in the follow-up checks carried out in the classroom. | 30 |

### Assessment comments

To make an overall assessment of the course in each of the two occasions -first and second-, the student will need:

1. Perform Objective test, obtaining at least 40% of the maximum possible score.
2. Present all practices at the Workshop, obtaining at least in each, 40% of the maximum possible score.
3. Attend in person, at least 80% of the Sessions lectures and the Workshop, except for duly justified reason.
4. Deliver full Portfolio.
5. Deliver notes of Sessions taken in the classroom.

If no comply with these requirements, the student will appear in the minutes of the opportunity as 'Not submitted'.

### Sources of information

|                      |   |
|----------------------|---|
| <b>Basic</b>         | - Fernández Madrid, J., Esteban Fernández-Cobián (1984/2008). Construcción 1. Apuntes (2 vol.). A Coruña: Reprografía del Noroeste<br>----  |
| <b>Complementary</b> | - Paricio Ansuategui, I. (1999). Vocabulario de arquitectura y construcción. Barcelona: Bisagra<br>- Souto García, V. (2016). 1450 preguntas sobre construcción arquitectónica. A Coruña: Reprografía del Noroeste<br>- Gordon, J.E. (1999). Estructuras o por qué las cosas no se caen. Madrid: Celeste<br>- Schmitt, H. (1998). Tratado de construcción. Barcelona: Gustavo Gili<br>- González Moreno-Navarro, J.L. et al. (1997). Claves del construir arquitectónico. Tomo 1. Principios. Barcelona: Gustavo Gili<br>- Ching, F.D.K. (1997). Diccionario visual de arquitectura. Barcelona: Gustavo Gili<br>- Torroja Miret, E. (1996). Razón y ser de los tipos estructurales. Madrid: CSIC<br>- Regalado Tesoro, F. (2001). Breve introducción a las estructuras y sus mecanismos resistentes. Alicante: Cype Ingenieros S.A. |



## Recommendations

### Subjects that it is recommended to have taken before

Introduction to Architecture/630G02005

### Subjects that are recommended to be taken simultaneously

Physics for Architecture 1/630G02008

### Subjects that continue the syllabus

Construction 2/630G02020

### Other comments

&lt;p&gt;The teaching of this subject, as well as testing and assessment tests will be adapted to the learning conditions of students performing mobility programs.&nbsp;&lt;/p&gt;

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.