Teaching Guide				
Identifying Data				2015/16
Subject (*)	Construción I		Code	670G01009
Study programme	Grao en Arquitectura Técnica			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	First	Obligatoria	6
Language	SpanishGalicianEnglish			
Teaching method	Face-to-face			
Prerequisites				
Department	Construcións Arquitectónicas			
Coordinador	Martín López, Manuel	E-mail	manuel.martin1@udc.es	
Lecturers	Martín López, Manuel Pintos Pena, Santiago	E-mail	manuel.martin1@udc.es santiago.pintos.pena@udc.es	
Web				
General description	Al tratarse de una asignatura del primer curso y una de las específicas de la titulación, el alumno debe revisar y prestar atención a los conocimientos previos adquiridos durante la etapa anterior a su acceso; en especial a las materias de física, matemáticas, geometría y dibujo. En el desarrollo de la materia, se impartirán los conocimientos básicos y generales, de los elementos fundamentales que forman parte de los procesos constructivos de los edificios. El aprendizaje completo de la asignatura, va ligado a otras materias del propio primer curso de la carrera como: materiales de construcción, física, geometría descriptiva y dibujo.			

Study programme competences / results	
Code	Study programme competences / results
A2	Adquirir os coñecementos fundamentais sobre os sistemas e aplicacións informáticas específicos e xerais utilizados no ámbito da edificación.
A3	Coñecer os materiais, tecnoloxías, equipos, sistemas e procesos construtivos propios da edificación en xeral e en particular aqueles específicos de Galicia.
A5	Coñecer a evolución histórica dos materiais, tecnoloxías, procedementos, métodos, sistemas e elementos construtivos.
A6	Coñecer e aplicar os distintos sistemas de representación así como as técnicas e procedementos de expresión gráfica aplicados á edificación e ás construcións arquitectónicas.
B1	Capacidade de análise e síntese.
B3	Capacidade para a procura, análise, selección, utilización e xestión da información.
B4	Coñecementos de informática relativos ao ámbito de estudo.
B5	Capacidade para a resolución de problemas.
B6	Capacidade para a toma de decisións.
B7	Capacidade de traballo en equipo.
B8	Capacidade para traballar nun equipo de carácter interdisciplinario.
B12	Razoamento crítico.
B14	Aprendizaxe autónomo.
B16	Capacidade de aplicar os coñecementos na práctica.
B22	Sensibilidade cara a temas de seguridade laboral, accesibilidade, sustentabilidade e medioambiente.
B25	Hábito de estudo e método de traballo.
B26	Capacidade de razoamento, discusión e exposición de ideas propias.
B27	Capacidade de comunicación a través da palabra e da imaxe.
B30	Sensibilidade cara a temas relacionados coa protección, conservación e posta en valor do patrimonio cultural e arquitectónico.
C1	Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.
C3	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.

C4	Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C5	Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C6	Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C7	Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

Learning outcomes			
Learning outcomes	Study programme competences / results		
Coñecer os materiais, tecnoloxías, equipos, sistemas e procesos construtivos propios da edificación en xeral e en particular aqueles específicos de Galicia.	A2 A3 A5 A6	B1 B3 B4 B5 B6 B7 B8 B12 B14 B16 B25 B26 B27 B30	C3 C6 C7 C8
Capacidade para a resolución de problemas.		B5	C1 C4 C5
Capacidade de traballo en equipo.		B7 B22	
Hábito de estudo e método de traballo.		B25	
Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.			C7

Contents	
Topic	Sub-topic
LESSON 01 .- BUILDING CONSTRUCTION	General concepts and historical overview: Definitions. Construction. Background of the Engineering Building. Engineering Education Building General analysis of the construction process: Key elements of a building. Complementary elements. Equipment. Auxiliaries. The building in the history The Law of Construction Planning The Technical Building Code

LESSON 02 .- THE LAND ISSUE AND EARTHMOVING	Introduction to the nature and origin of soils. Degrees of weathering of rocks. Soils. Spanish classification of land according to the CTE. Elementary properties. General. Geotechnical study. The CTE and the geotechnical study. Earthworks: Definition. Previous actions. Preparatory operations. Complementary works. Remove. Pouring. Ditches. Wells. Fillings. Embankments. Unstable slopes. Building on the works of earth fills and embankments compaction. SpongeBob and settlement of land. Digs ground. Drains. Geotextiles. Support facilities in earthworks: Shoring. Shoring. Other methods of shoring and restraint. Auxiliary buildings on the waterfront.
LESSON 03 .- STRUCTURE	Structure: Requirements for the structures. Shares in the building. Types of operations or loads. Structural parts. Loads and stresses. Safety factors. Crack deformation. Types of structures: Types of structures by component.
LESSON 04 .- THE FOUNDATION	The foundation: Names of terrain features and the shoe. Behavior field. Pressures on the ground. Propagation of stress. Seating area. Constraints of design and construction of a foundation. Classification of foundations: According to their construction materials. According to its depth. Stable foundation on land: Types. Foundations on unstable ground: Types.
LESSON 05 .- CONTAINMENT STRUCTURES	Retaining walls: Nomenclature. Types of retaining walls. Construction conditions of the retaining walls. Basement walls, basement walls typologies. Construction conditions. Earth pressure: Pressure and thrust. Types. Actions on the wall. Equilibrium conditions of the wall. Screens foundations: Types of retaining walls. Slurry wall construction process. Brackets supporting pillars. Excavation bracing walls and screen. Other systems display bracing walls
LESSON 06 .- STONE PLANTS	Factories masonry: Definitions. Running factories masonry. Types of masonry. Factories quarrying: Classes stones used in factories. Nomenclature used in stone mills. Levels in the stonework. The stone work. Transport of blocks. Running stalls factories. Masonry manufacturing gear. Ashlar gear factories. Provision for the coronation of enclosure walls. Durability of the stones. Protection of the stones. Word of the blocks
LESSON 07 .- THE ARCH AND VAULT	The arc: Components of the arc. Materials from the arc. Structural behavior of the arc. Classification of arches form. The arc discharge. The spontaneous discharge arc. Classification defined surfaces. Union of arcs with the factory. Construction of the arches. Calculation and verification of the arc. Absorption of effort in support. Broken arches. New technologies. The Vault: Vaults simple. Domes. Vaults made??. Timbrel vaults. Construction and materials. Structural behavior. Other construction elements.
LESSON 08 .- THE STRUCTURAL FLOORS AND STAIRS	Horizontal structural elements: Forged. Definition. Functions performed by the cast. Types of floor: concrete slab. Forged metal. Composite floors. Wooden floors. Historical development of the slabs. Reinforcement in slabs. Metal sections. Ribbed plates. Spans. Separators. Types of Forged: Forged flat slab. Ribbed floor. Floor joists military. Prestressed slabs. Forged prelates. Forged hollow core. Special Forgings. Slabs without beams of reinforced concrete. Stairs: Conditions that must comply with the stairs as the CTE. Parts of a ladder. Geometric layout of the ladder: Proportion of the steps. Classification of the stairs. Wood stairs. Compensation curved staircases. Provision of railings.

TEMA 09.- LA ESCALERA	09.01.- Definiciones. 09.02.-Tipologías. 09.03.-Normativa.
LESSON 09 .- COVER	Cover: Names of a cover. Classification and covers general concepts: Because of its shape. By its use. From the position of the elements. For their hygrothermal behavior. The flat roof: modern flat roof solutions. Components of the inverted roof. Other types of flat roof. The sloped roof: Components. Cover materials: asphalt plates. Texas. Slate. Slate. Metal.
LESSON 11 .- THE LAYOUT	The Stakeout: Preliminary considerations. Rethinking processes and methods. The practice of setting out on site. Rethinking building: Rethinking the earthworks. Staking out the foundation and structure. Staking vertical walls. Tools stake.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A2 A3 A5 A6 B1 B3 B4 B5 B6 B7 B8	30	35	65
Supervised projects	B12 B14 B16 B22 B25 B26 B27 B30 C1 C3 C4 C5 C6 C7 C8	30	48	78
Objective test	B26 B27 B30 C7	4	0	4
Personalized attention		3	0	3
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	EXHIBITION SESSION There will be exposure for each of the topics of matter, exposing real cases, with the help of photos via powerpoint. The student must have read the topic before and have done the test recommended for the best aprobechamiento for the session.
Supervised projects	PRACTICAS DE CLASE Se aplicarán los conocimientos adquiridos en la sesión expositiva para la realización de las prácticas, con una breve exposición por parte del profesor. La nota mínima a obtener para ser considerada en la calificación final será de 3,0 (tres) sobre 10,0 (diez)
Objective test	REVIEW Will be held on the dates specified for that purpose by the Board of the Centre. No tests will be biased. There will be a first opportunity for a second in June and July. The minimum that must be obtained in the test pair to make half the course work is 3.5 out of 10.

Personalized attention	
Methodologies	Description

Guest lecture / keynote speech Supervised projects	The consultations of the work shall be supervised by the teacher in the classroom during the class of supervised work. In general, all the doubts that arise from reading the notes of the subject, which will be available to students in the Moodle page, the teacher will meet the students' questions via email from Moodle page. Nevertheless, if the profesior creates the desirable, what the student considers it necessary to ask the teacher rotten su customized upon request via email virtual college. By mutual agreement be set day and time for personal attention to students. If teachers predicted by the personal attention of two hours per student / course.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Objective test	B26 B27 B30 C7	EXAMINATION It will value the solution of the questions, the accuracy in the result, the quality of graphics and sketchs and drawins. To be able to combinate with other works must obtain a minimum grade of 4 over 10.	85
Supervised projects	B12 B14 B16 B22 B25 B26 B27 B30 C1 C3 C4 C5 C6 C7 C8	PRACTICAS DE CLASE Serán revisadas y calificadas en el aula, según el programa de la asignatura. La nota mínima a obtener para ser considerada en la calificación final será de 3,0 (tres) sobre 10,0 (diez)	15
Others			

Assessment comments
Dont exists part-exams.These criterials evaluation are valid if it complies to the maximum number of students per group approved by Rectorate, otherwise, the teachers will adopt a criterion for evaluating the execution of a exam that he counted 100% of the note course, for all the oportunities corresponding to the subject.

Sources of information	
Basic	- E. Gonzalez Velayos (2000). Aparejadores. Breve historia de una larga profesión . Madrid. CGCOAAT - J. Ferri y otros (2001). Apuntes de iniciación a la Construcción . Alicante. Club Universitario - Marta Suárez Baldonedo (2006). Construcción con tierra . Consello Galego de Colexios de Aparelladores e Arquitectos Técnicos - Manuel Méndez LLoret (2002). Diccionario básico de la construcción . Barcelona. CEAC - Carles Broto (2001). Diccionario Técnico Arquitectura y Construcción . Instituto Monsa de Ediciones S.A. - A. Gonzalez Rodriguez y otros (2004). Diccionario visual da construcción . Santiago. COAG - J. Vazquez Castro y otros (2001). El Aparejador y su profesión en Galicia. De los Maestros de Obras a los Arquitectos . Santiago. CGCOAAT - Félix L. Suárez Riestra (2009). Estudio Geotécnico y Mecánica de Suelos . Consello Galego de Colexios de Aparelladores e Arquitectos Técnicos e Enxeñeiros de Edifica - Francisco Arquero (2004). Práctica constructiva . Ediciones CEAC - Nueva Enciclopedia del encargado de obras (2001). Tecnología de la construcción . Grupo CEAC - G. Baud (1994). Tecnología de la Construcción . Blume - Naturat S.A. - Luis Ferre de Merlo (2003). Tecnología de la construcción básica . Alicante. Club Universitario - Alberto Serra Hamilton (1997). Términos ilustrados de arquitectura, construcción y otras artes y oficios . Madrid. COAAT - Luis Jimenez Soto (2003). Trabajos de albañilería. Práctica constructiva . Ediciones CEAC
Complementary	

Recommendations

Subjects that it is recommended to have taken before
Matemáticas I/670G01001
Fisica Aplicada I/670G01002
Materiais I/670G01003
Expresión Gráfica Arquitectónica I/670G01008
Xeometría da Representación/670G01018
Subjects that are recommended to be taken simultaneously
Xeometría Descritiva/670G01004
Subjects that continue the syllabus
Construción II/670G01011
Materiais II/670G01012
Equipos. medios auxiliares e de seguridade/670G01026
Construción III/670G01017
Topografía/670G01020
Organización. programación e control/670G01021
Construción IV/670G01022
Proxectos Técnicos I/670G01023
Proxectos Técnicos II/670G01027
Dirección. Xefatura e Xestión de Obras/670G01028
Patoloxía e Rehabilitación/670G01029
Medicions, Orzamentos e Control Económico/670G01030
Seguridade e prevención/670G01031
Patrimonio Arquitectónico galego/670G01041
Other comments
For any discrepancy in the teaching guides in any language will be valid the Spanish one.