



Teaching Guide

Identifying Data				2019/20
Subject (*)	Security and Prevention	Code	670G01031	
Study programme	Grao en Arquitectura Técnica			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Fourth	Obligatory	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Construcións e Estruturas Arquitectónicas, Cívicas e AeronáuticasExpresión Gráfica Arquitectónica			
Coordinador	Iglesias Maceiras, Álvaro José	E-mail	alvaro.iglesias@udc.es	
Lecturers	Iglesias Maceiras, Álvaro José	E-mail	alvaro.iglesias@udc.es	
Web				
General description	Management of the prevention of risks and of security in works of Construction of buildings, as well as in processes of manufacture of materials and constructive systems, evaluating the risks and scheduling the preventive action. Editorial of Projects, Studies And Plans of Security and labour Health. Coordination of Security and Health in the Construction. Editorial of Projects of security in utilisation of buildings, as well as Plans of Emergency and Evacuation.			

Study programme competences / results

Code	Study programme competences / results
A3	Coñecer os materiais, tecnoloxías, equipos, sistemas e procesos construtivos propios da edificación en xeral e en particular aqueles específicos de Galicia.
A4	Coñecer as técnicas e procesos de restauración, rehabilitación, acondicionamento, patoloxía, mantemento e conservación dos edificios en xeral e en particular aqueles específicos do patrimonio cultural constituído pola arquitectura popular e histórica galega.
A15	Redactar proxectos técnicos no ámbito da edificación.
A16	Coñecer e aplicar as técnicas de avaliación e prevención de riscos, deseño de estudos e planes, así como dos procesos de coordinación da seguridade e saúde laboral na edificación.
A23	Implementar os planes de seguridade e o seu control en obra.
A25	Deseñar e redactar estudos e planes de evacuación e seguridade dos edificios.
B2	Capacidade de organización e planificación.
B3	Capacidade para a procura, análise, selección, utilización e xestión da información.
B6	Capacidade para a toma de decisións.
B8	Capacidade para traballar nun equipo de carácter interdisciplinario.
B12	Razoamento crítico.
B13	Compromiso ético.
B16	Capacidade de aplicar os coñecementos na práctica.
B22	Sensibilidade cara a temas de seguridade laboral, accesibilidade, sustentabilidade e medioambiente.
B30	Sensibilidade cara a temas relacionados coa protección, conservación e posta en valor do patrimonio cultural e arquitectónico.
C1	Adequate oral and written expression in the official languages.
C2	Mastering oral and written expression in a foreign language.
C3	Using ICT in working contexts and lifelong learning.
C4	Acting as a respectful citizen according to democratic cultures and human rights and with a gender perspective.
C5	Understanding the importance of entrepreneurial culture and the useful means for enterprising people.
C6	Acquiring skills for healthy lifestyles, and healthy habits and routines.
C7	Developing the ability to work in interdisciplinary or transdisciplinary teams in order to offer proposals that can contribute to a sustainable environmental, economic, political and social development.
C8	Valuing the importance of research, innovation and technological development for the socioeconomic and cultural progress of society.

Learning outcomes



Learning outcomes	Study programme competences / results		
Draft technical projects in the field of the construction of buildings.	A3 A4 A15 A16 A23 A25	B2 B3 B6 B8 B12 B13 B16 B30	
Know and apply the technicians of evaluation and prevention of risks, design of studies and plans, as well as of the processes of coordination of the security and labour health in the construction of buildings.	A15 A16 A23 A25		
Implement the plans of security and his control in works of construction.	A15 A16 A23 A25		
Design and draft studies and plans of evacuation and security of the buildings.	A15 A16 A23 A25		
Sensitivity to subjects of labour security, accessibility, sustainability and environment.	A3 A4 A15 A23 A25	B2 B3 B6 B8 B12 B13 B16 B22 B30	C1 C2 C3 C4 C5 C6 C7 C8
Value críticamente the knowledge, the technology and the available information to resolve the problems with which have to confront.			C1 C3 C4 C5 C6 C7 C8

Contents	
Topic	Sub-topic
Subject 01.-	Work and health. Basic concepts. Danger and risk. The professional risks. Working conditions and risk factors. Damages and pathologies derived from work. Work accidents, occupational diseases and other associated pathologies. Surveillance and control of workers' health. Occupational accidents in the construction sector.



Subject 02.-	Prevention of occupational hazards. Preventive measures for the elimination, reduction and control of risks. Definition of general and specific risks. Risks linked to safety conditions and the work environment. The burden of work, fatigue and job dissatisfaction.
Subject 03.-	Regulatory framework on the prevention of occupational risks. Obligations of preventive management of construction companies. Duties and obligations of employers and workers. Management of prevention of occupational hazards. Prevention services. Representation bodies: Prevention delegates, health and safety committee, designated and assigned workers. Public bodies related to health and safety at work. Collection of documentation, preparation and archiving.
Subject 04.-	The plan for the prevention of occupational risks in companies. Organization and planning of industrial construction activities. Preventive action measures: technical, organizational and procedural. Collective protections and individual protection equipment. Other complementary measures: training and information for workers. Security signage. Preventive resources.
Subject 05.-	Hygienic risks. Industrial hygiene in construction. Physical, chemical and biological products. Construction and demolition waste. Contaminants in cements, mortar and concrete additives, release agents, polyurethanes, asphalts, cleaners, resins, paints, creosotes and asbestos.
Subject 06.-	Ergonomic risks. Work ergonomics. Risk factors at work. Physical and mental workload. Manual manipulation of loads. Preventive measures focused on the worker. Ergonomic requirements of machines and tools. Centers, places and work spaces. Environmental conditions in works and workshops.
Subject 07.-	General organization of the work. Implementation of work. Enclosure, fencing and access to the work. Provisional installations. Deployment of equipment. Offices and booths, hygienic-sanitary facilities, meeting and rest, and dining rooms. Collections and workshops on site. Order and cleanliness in the work.
Subject 08.-	Work equipment, installations, hand tools and machines. Security in the design. Risks in operation, storage and transport. Authorization of use and instruction manuals. Common machinery used on site. Common auxiliary means of work. Scaffolding and work platforms.
Subject 09.-	General and specific risks in construction. Phases of work and production activities. Minimum health and safety provisions according to the general collective agreement of the construction sector.
Subject 10.-	Works with special risks in construction. Works with asbestos. Electric risk. Electric and oxyacetylene welding. Confined spaces.
Subject 11.-	Planning and organization of occupational safety prior to the start of construction activities. Analysis, identification and evaluation of occupational risks. Drafting of Health and Safety Studies and Plans. The foreseeable later works. Maintenance works.
Subject 12.-	Planning and organization of occupational safety during the execution of construction activities. Health and safety coordination in project phases and execution of works. Safety and prevention of occupational risks in works without a project. Safety and prevention of occupational hazards in factories and workshops in the construction industry.
Subject 13.-	Fire safety in buildings, industrial facilities and works. Dynamics of fire. Types of fire and extinction systems. Fire extinguishing equipment. General rules of action for fire prevention. Action plans.



Subject 14.-	Rescue actions in work places. Cases of serious and imminent risk, general emergency and accident occurrence. General procedures and action plans in an emergency situation: Protect, warn, rescue (P.A.S.). First aid. Survival chain. Basic principles of action.
Subject 15.-	Emergencies and evacuation of the buildings in use and exploitation. Basic norm of self-protection of centers, establishments and dependencies, dedicated to activities that may give rise to emergency situations. Self-protection plans.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student's personal work hours	Total hours
Case study	A3 A4 A16 B30 B22 B16 B13 B12 B8 B6 B3 B2 C4 C6 C8	1	2	3
Collaborative learning	A15 A23 A25 C1 C2 C3 C5 C7	30	30	60
Oral presentation	A15 A23 A25	3	6	9
Objective test	A15 A16 A23 A25 B22 C6	2	6	8
Guest lecture / keynote speech	A16 B22 C6	23	46	69
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
Case study	Methodology where the subject confronts in front of the description of a specific situation that arouses a problem that has to be comprised, valued and resolved by a group of people, through a process of discussion. The student situa in front of a concrete problem (case), that describes him a real situation of the professional life, and has to be able to analyse a series of facts, referents to a particular area of the knowledge or of the action, to arrive to a decision reasoned through a process of discussion in small groups of work.
Collaborative learning	Group of procedures of education-learning guided of face-to-face form and/or supported with technologies of the information and the communications, that base in the organisation of the class in small groups in what the alumnado works jointly in the resolution of tasks assigned by the profesorado to optimise his own learning and the one of the others members of the group.
Oral presentation	Presentation of oral form with brief explanation of the aims of the course, in relation with each one of the subjects and lessons that will treat in class.
Objective test	It treats of the final examination of the asignatura. It will propose a series of exercises, similar to the developed in class during the course. Also they will be able to propose short questions of índole theoretical to evaluate the understanding of the different concepts treated in the asignatura. It is an individual proof and by writing, that will be able to consist in the integration of open questions of development type fear (program of contents), so much of theory as of solution of problems and/or practical cases.
Guest lecture / keynote speech	The profesorado will realise the oral exhibition of each subject or lesson, complemented with the use of audiovisual means and the introduction of some questions headed to the students, with the purpose to transmit knowledges and facilitate the learning. In the lessons magistrales the professor will present the theoretical and practical contents of the asignatura, helping of illustrative examples with the end to motivate to the students and to help to the understanding and assimilation of the contents. The professor will support in dynamic presentations.

Personalized attention	
Methodologies	Description



<p>Guest lecture / keynote speech</p> <p>Case study</p> <p>Collaborative learning</p> <p>Oral presentation</p> <p>Objective test</p>	<p>It treats of the time that the professor reserves to attend and resolve doubts to the alumnado in relation with the matter.</p> <p>Academic activity developed by the profesorado, individual or in small group, that has like purpose attend to the needs and queries of the alumnado related with the study and/or subjects linked with the matter, providing him orientation, support and motivation in the process of learning. This activity can develop of face-to-face form (directly in the classroom or in the moments that the professor has assigned to tutorías of dispatch) or of form no face-to-face (through email, of moodle or of the virtual campus).</p> <p>During the development of the practical classes (interactive) the professor will go resolving the doubts that the students pose in relation with the matt5ria and with the realisation of the problomas and/or practical cases that are developing .</p> <p>During the ,schedule of turorías will attend all those doubts that the alumnado, of personal form and individualizada, go consulting.</p>
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Assessment			
Methodologies	Competencies / Results	Description	Qualification
Guest lecture / keynote speech	A16 B22 C6	The professor will realise the oral exhibition of each subject or lesson, complemented with the use of audiovisual means and the introduction of some questions headed to the students, with the purpose to transmit knowledges and facilitate the learning. The mere face-to-face assistance to the classes (basic duty of the student), that is to say, without a parcitipación proactiva in the same, will not suppose any note in the final qualification of the asignatura.	1
Case study	A3 A4 A16 B30 B22 B16 B13 B12 B8 B6 B3 B2 C4 C6 C8	Resolution of cases that describe a real situation of the professional life, contributing solutions reasoned through a process of discussion in small groups of work.	10
Collaborative learning	A15 A23 A25 C1 C2 C3 C5 C7	Resolution of tasks assigned by the professor, for the study of concrete problems, with the end to optimise the learning of the matter presented in masterclasses.	10
Oral presentation	A15 A23 A25	Exhibition of oral form and participation proactiva, with brief explanation of the aims of the course, in relqación with each one of the subjects and lessons that treat in class.	9



Objective test	A15 A16 A23 A25 B22 C6	<p>The note obtained by the works realised in the interactive classes, as well as the participation proactiva of the student to the asignatura, will be able to suppose 30% of the final note.</p> <p>The note obtained in the final examination (objective proof) will suppose 70% of the final qualification.</p> <p>To be able to take final exams of the subject, you must have a minimum attendance of 80% of all the classes (Expository and interactive) and also have 80% of the practices carried out in class presented and approved.</p> <p>The mere face-to-face assistance to the classes (basic duty of the student), that is to say, without a participación proactiva in the same, will not suppose any note in the final qualification of the asignatura.</p> <p>THE FINAL QUALIFICATION OF THE ASIGNATURA will CALCULATE OF THE FOLLOWING WAY:</p> <ul style="list-style-type: none">- In the case that the note of the final examination (objective proof, that supposes 70%) was equal or elder that 4 (on 10) him añadirá the note obtained in the interactive classes (30%), for the calculation of the total qualification of the asignatura (100%).- In the case that the student obtain a lower note that 4 (on 10) in the final examination (objective proof) the final qualification of the asignatura will be equal to this note obtained in the examination.	70
Others			

Assessment comments



The exposed norms will apply along all the course.

They do not exist partial examinations.

Each one of the methodologies of evaluation will be independent regarding qualification.

So that the student can present to the objective proofs (official examinations of May-June and of Julio) has to have assisted like minimum to 80% of the interactive classes and have approved the practical works of the interactive classes.

Both objective proofs, the one of May-June and the one of July, will have the same value and the same requirements for his qualification, constituting the two opportunities to surpass the * asignatura in the course.

It DISPENSES ACADEMIC:

According to "NORMA QUE REGULA O RÉXIME DE DEDICACIÓN AO ESTUDO E A PERMANENCIA E A PROGRESIÓN DOS ESTUDANTES DE GRAO E MÁSTER UNIVERSITARIO NA UNIVERSIDADE DA CORUÑA aprobada no Consello de Goberno de 28 de xuño de 2016", And specifically in the article 7.5, says the following:

"Os estudantes a tempo parcial poderán solicitar aos Decanos e Directores dos centros responsables da súa titulación, ou aos Coordinadores dos Másters, no seu caso, a dispensa académica que lles exima da asistencia a clase daquelas materias, ou partes de materias, nas que se admita a citada dispensa na súa guía docente; porén en todo caso serán avaliados polo sistema de avaliación continua. A solicitude de dispensa poderá realizarse no momento de remitir a documentación xustificativa mencionada no apartado 1 deste artigo"

Therefore, although the Centre concede Dispenses it Academician to the students that fulfil the necessary requirements for this, of the agreement of the group of professors of the * asignatura, with the one of the Coordinator in command, gives off the admit or no that a student have it in the * asignatura concrete. And like this it will have to be recorded in the educational guide.

In the present "Seguridad and Prevention" admits Dispenses it Academic but the practices that do in interactive classes (that the students of dispenses will not do of face-to-face form) will be substituted by works proposed by the * profesorado to the effect, that the student affected will realise for being fundamental for the complete understanding of the matter and the just evaluation of all the * alumnado according to a system of continuous evaluation (since the note of practices contributes in 30% to the final qualification).

In consequence, those students to which the Centre concede Dispenses it Academic, to principle of the course will put in contact with the professors of the * asignatura, those who will communicate him the works to realise substitutive of the practices of interactive classes.

IMPORTANT NOTE:

How norm of "honestidad académica exigible", the professors of this matter, in what you approve of evaluation refers will not admit fraudulent behaviour some neither neither the presentation of fraudulent works, understanding by such thing the following:

«Considerarase fraudulenta, entre outras, a realización de traballos plaxiados ou obtidos de fontes accesibles ao público sen reelaboración ou reinterpretación e sen citas aos autores das fontes».

And, besides, they establish the consequences to try realise proofs of evaluation of fraudulent form in this matter:

«A realización fraudulenta dalgún exercicio ou proba exixida na avaliación dunha materia implicará a cualificación de suspenso na convocatoria correspondente, con independencia do proceso disciplinario que se poida seguir contra o alumno infractor».

That is to say, that in the case that a present student a work copied:

«Na realización de traballos, o plaxio e a utilización de material non orixinal, incluído aquel obtido a través da Internet, sen indicación expresa da súa procedencia e, se é o caso, o permiso do seu autor/a, poderá ser considerada causa de cualificación de suspenso», siempre sin perjuicio de las responsabilidades disciplinarias que se pudiesen derivar».





Sources of information

Basic	<ul style="list-style-type: none"> - Pérez Merlos, Ramón y Sanz Miguélez, José Antonio (2019). SEGURIDAD Y SALUD EN CONSTRUCCIÓN.ANÁLISIS NORMATIVO Y SOLUCIONES PRÁCTICAS. Tomos I y II.. Thomson Reuters ARANZADI - Martínez Cuevas, Alfredo J. (Coord.) (2003). MANUAL PRÁCTICO PARA LA ELABORACIÓN DE ESTUDIOS DE SEGURIDAD Y SALUD EN OBRAS DE CONSTRUCCIÓN. COAAT de Sevilla; Sevilla. - Espeso Santiago, José Avelino, y otros (2012). COORDINADORES DE SEGURIDAD Y SALUD EN EL SECTOR DE LA CONSTRUCCIÓN. Lex Nova; Valladolid.
Complementary	<ul style="list-style-type: none"> - Gómez Etxebarria, Genaro (2010). MANUAL PARA LA FORMACIÓN EN PREVENCIÓN DE RIESGOS LABORALES. ESPECIALIDAD EN SEGURIDAD EN EL TRABAJO. CISS Grupo Wolters Kluwer; Valencia - Rodríguez Gómez, Francisco de Asís (2008). MEMORIA Y PLIEGO DE CONDICIONES PARA CONFECCIONAR UN ESTUDIO DE SEGURIDAD Y SALUD. Fundación del Coaat de Alicante; Alicante. - Gómez Etxebarria, Genaro (2012). MANUAL PARA LA FORMACIÓN EN PREVENCIÓN DE RIESGOS LABORALES. CURSO SUPERIOR. CISS Grupo Wolters Kluwer; Valencia - Xunta de Galicia (1997). GUÍA DE AVALIACIÓN DE RISCOS LABORAIS. Xunta de Galicia, Santiago de Compostela. - Fundación Laboral de la Construcción (2011). COORDINADOR EN MATERIA DE SEGURIDAD Y SALUD EN LAS OBRAS DE CONSTRUCCIÓN (Volúmenes I, II y III). FLC; Madrid. - Sanvicente Callejo, Evaristo (1996). PREVENCIÓN, PROTECCIÓN Y LUCHA CONTRA EL FUEGO. Paraninfo; Madrid - Azcuénaga Linaza, Luís Mª (2007). MANEJO DE CARGAS. RIESGOS Y MEDIDAS PREVENTIVAS. FC Editorial; Madrid - Gómez Etxebarria, Genaro (2009). 1000 SOLUCIONES EN PREVENCIÓN DE RIESGOS LABORALES. CISS Grupo Wolters Kluwer; Valencia. - Cassinói Gómez de Cádiz, J. y de la Fuente Moreno, M.A. (2015). ANUARIO DE PREVENCIÓN DE RIESGOS LABORALES 2015. Thomson Reuters <p>O primeiro día de clase farase unha PRESENTACIÓN DA MATERIA tratando os seguintes puntos: Introducción á materia de SEGURIDAD E PREVENCIÓN. Presentación do profesorado e do coordinador da materia. Coñecementos previos necesarios. Formación de grupos. Horarios de clases e tutorías. Campus virtual (Moodle). Tutorías. Avaliación. Datas de exames. Estatísticas de calificacións en cursos anteriores. As Tutorías do Profesor: realizaranse no horario oficial aprobado e publicado respecto do Centro.</p>

Recommendations

Subjects that it is recommended to have taken before

Construction I/670G01009
 Construction II/670G01011
 Facilities I/670G01014
 Auxiliary and Security Equipment/670G01026
 Construction III/670G01017
 Technical Projects I/670G01023
 Facilities II/670G01024
 Technical Projects II/670G01027

Subjects that are recommended to be taken simultaneously

Organisation, Programming and Control/670G01021
 Construction IV/670G01022
 Administration, Leadership and Management of Construction/670G01028

Subjects that continue the syllabus

Final Dissertation/670G01036

Other comments



Recommendations for the study of the matter:

- it treats of a matter with an estructura theoretical basic and a big quantity of legal rule, needing a big practical development that involves a continuous follow-up along all the academic course by part of the student.
- It is indispensable the continuous query of the virtual platform Moodle, where will publish contents, practical, exercises, norms, examinations, etc.
- previous Knowledges: the contents of the asignaturas indicated.

IMPORTANT NOTE:

As a standard of "academic honesty" required, the faculty of this subject, in what you approve of the evaluation, will not admit any fraudulent conduct nor the presentation of fraudulent works, understanding the following thing:

«Considerarase fraudulenta, entre outras, a realización de traballos plaxiados ou obtidos de fontes accesibles ao público sen reelaboración ou reinterpretación e sen citas aos autores das fontes».

And, in addition, the consequences of trying to perform evaluation tests in a fraudulent way in this subject are established:

«A realización fraudulenta dalgún exercicio ou proba exixida na avaliación dunha materia implicará a cualificación de suspenso na convocatoria correspondente, con independencia do proceso disciplinario que se poida seguir contra o alumno infractor».

That is, in the event that a student presents a plagiarized work:

«Na realización de traballos, o plaxio e a utilización de material non orixinal, incluído aquel obtido a través da Internet, sen indicación expresa da súa procedencia e, se é o caso, o permiso do seu autor/a, poderá ser considerada causa de cualificación de suspenso», sempre sin perjuicio de las responsabilidades disciplinarias que se pudiesen derivar».

(*)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.