Teaching Guide				
Identifying Data				2019/20
Subject (*)	Architectural Graphic Expression I		Code	670G01008
Study programme	Grao en Arquitectura Técnica			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	First	Basic training	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Expresión Gráfica Arquitectónica			
Coordinador	Gonzalez Sarceda, Manuel	E-mail	manuel.gsarceda@udc.es	
Lecturers	Gonzalez Sarceda, Manuel	E-mail	manuel.gsarceda@udc.es	
Web				
General description	The drawing of croquis, as all the technical drawings, has to fulfil with two fundamental aims: The expression and the communication of ideas, indispensable conditions for the correct follow-up of the that this capacitado to read it or interpret it. The student purchases the necessary knowledges to be able to communicate with other professionals related with the constructive process. It is the tool or instrument by means of which go to express the knowledges purchased in the rest of disciplines given in this degree. On the other hand, the analysis and the knowledge of the different systems of representation will allow to select the most convenient to resolve the problem of the step of the three dimensions of the space to the two dimensions of the paper, and vice versa, deepening in the representative pragmatism of the technical architect. When being an asignatura essentially practical, based in the acquisition of skills and skills, is necessary that the student work of way continued along the course. Thus, it is recommended the realisation of all the works proposed by the professor.			

Study programme competences / results	
Code	Study programme competences / results
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.
B2	Capacidade de organización e planificación.
B3	Capacidade para a procura, análise, selección, utilización e xestión da información.
B5	Capacidade para a resolución de problemas.
B6	Capacidade para a toma de decisións.
B7	Capacidade de traballo en equipo.
B14	Aprendizaxe autónomo.
B15	Adaptación a novas situacións.
B25	Hábito de estudo e método de traballo.
B27	Capacidade de comunicación a través da palabra e da imaxe.
B28	Capacidade de improvisación e adaptación para enfrontarse a novas situacións.
C1	Adequate oral and written expression in the official languages.
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.
C9	Ability to manage times and resources: developing plans, prioritizing activities, identifying critical points, establishing goals and accomplishing them.

Learning outcomes			
Learning outcomes	Study programme competences / results		
Capacity to apply the development of the croquis, the proporcionalidad, the language and the technicians of the graphic representation of the elements and constructive processes.	A6		
Interpretation, preparation, normative and normalisation of the graphic document.	A6		
Capacity to realise taking of data, lifting of planes and the verification of measures that can be of interest for the project, the direction and materialisation of the edificación, as well as, the conception, design, definition and technical and technological solution of elements, processes and constructive systems.	A6		
Basic rule of application.	A6		
Capacity of organisation and planning.		B2	
Capacity of research, analysis and selection of information.		B3	
Resolution of problems.		B5	
Taking of decisions.		B6	
Work in team.		B7	
Autonomous learning.		B14	
Adaptation to new situations.		B15	
Habit and method of work.		B25	
Capacity of communication through the word and the image.		B27	
Capacity of adaptation and improvisation to confront with new situations		B28	
Express properly, so much of oral form as written, in the official tongues of the autonomous community.			C1
Use the basic tools of the technologies of the information and the communications (TIC) necessary for the exercise of his profession and for the learning along his life			C3
Develop for the exercise of an open citizenship, literate, critical, committed, democratic and solidaria, able to analyse the reality, diagnose problems, formulate and implant solutions based in the knowledge and oriented to the very common.			C4
Understand the importance of the culture emprendedora and know the means near at hand of the people emprendedoras.			C5
Value criticamente the knowledge, the technology and the available information to resolve the problems with which have to confront.			C6
Assume like professional and citizen the importance of the learning along the life.			C7
Value the importance that has the investigation, the innovation and the technological development in the socioeconomic and cultural advance of the society.			C8
Ability to manage times and resources: developing plans, prioritizing activities, identifying critical points, establishing goals and accomplishing them.			C9

Contents	
Topic	Sub-topic
Systems of representation. Application.	Analyse and learn to perceive simple three-dimensional objects and represent them, already was by his seen in the system diédrico as in volume in the axonometric. - Learn to use the system of representation more adapted for each case. - Capacitar To the student with the end to transmit and define objectively the volumetry of an object, as well as his constructive sequence (despieces) by means of the systems perspectivos isometric, military, cavalier or conical. - Know the procedures to represent curves in the distinct systems. - Learn to use the system of representation adapted to define a constructive detail.
Concept of architectural drawing. Graphic language.	Learn to communicate through the architectural graphic language - Learn, practising, the processes of graphic representation in the architecture and his materialisation, so much to general level as in his details - Learn to interpret by means of the thought and the geometrical syntax-constructive. - Learn the codes of architectural graphic representation.

Instruments of drawing.	Achieve that the student develop in the handle of the instrumental and in the knowledge and use of the material of support for the graphic representation
Normalisation. Formats, cajetín.	Know, learn and use the different formats of paper normalised and the election of the most adapted for the graphic product to realise. - Identify the element represented, as well as the author and other data of interest of an architectural drawing by means of a cajetín normalised.
Systems of presentation: grafismo, rotulación.	Know and learn to trace and value the lines with quality, incidiendo in the tone and the weight according to the intentionality. - Know the classification of the lines and his correct utilisation in each case. - Purchase skills and skills by means of a synchronisation psico-manual that conclude in a precision and a rigour in the traced. - Know the conventional symbols of the architectural representation. - Purchase a discipline and some habits by means of the traced of the form of the letters and know and use his normalisation. The rotulación, letters and figures.
The geometry in the classical orders.	Know and learn to trace and value the classical orders. - Geometry and modulation. - Graphic and geometrical precision. - Geometrical study of the forms. - Geometrical constructions of the molduras.
Analysis of the form. Geometrical analysis. Proportional analysis. Concept of module.	Learn to perceive the architectural fact by means of the geometrical analysis - Learn to perceive the form and the proportion of the objects - Reach a fast perception of the volume of the object to represent. - Learn to read the diagram of traced of an architectural fact controlling the process of preparation. - Learn to decompose geometrically each one of the seen diédricas. Establish modules of comparison to determine the proportional laws that determine a sight diédrica.
Concept of croquis. Methodology.	- Establish the complete definition of an object by means of his seen diédricas. - Comprise and practise the orthogonal cylindrical projection (the plant, the heaved and the profile) and the oblicua - Learn the codes of architectural graphic representation. - Learn to deliver the seen in the paper so that the drawing maintain a balance between spaces graficados and spaces in white.
Concept of section. Types. Criteria of election.	Learn to represent the unseen parts in the objects with complex internal composition realising ace necessary sections to define them. - Differentiate the multiple types of sections that can employ in the definition of the object. - Use the number of necessary sections to define an object situating them in the appropriate place. - Represent properly the sections differentiating the lines of section of the lines of projection.
Concept of detail. Criteria of selection and seen minimum.	Learn to perceive an object in all his details, transmitting the exact form and his dimensions - Learn to classify the different types of details and represent them properly. - Learn to use the system of representation adapted to define a constructive detail.

Acotación. Types. Rule. Utensilios Of measure. Taking of measures. Methodology. Errors.	Learn to perceive the dimensions of the object by means of the taking of data - Differentiate between taking of measures and acotación. - Learn to choose the most adapted sights to have the distinct heights. - Learn to have the heights in the distinct seen, according to these find or no contained in the parallel planes to the ones of projection. - Apply the general principles of the acotación. - Learn to choose the elements that define the origin for referenciar objects and parts to measure and limit. - Learn to have determinate types of height that, by singularity, require a particular attention. - Learn to situate points by the systems of coordinates and triangulation to determine angles and radios.
The drawing by heart.	Learn to represent, trace and value the drawing of implicit ideas in the mind of the author. - The virtual drawing like a half to discover and express the creative or constructive intentions. - The drawing like a basic element of the representation and the reinterpretación of the architectural work-constructive.
The put to scale. Types	Learn to comprise and establish the length of the segment drawn and the length of the object represented. - Learn to decide the size of the object to represent, in function of the intentions that govern the traced of the drawing: the far surroundings (vision of group) and the immediate surroundings (the details) with the complete definition of the form. - Learn to make graphic scales.
Concept of lifting of planes. The taking of data. Methodology. Systems of measurement. The drawing of cabinet.	Learn to perceive and characterise the different materials that take part in the construction of the object - Learn to value the rigour in the procedure and the accuracy in the work of lifting of planes. - Analyse an architectural group, splitting of the globalidad and developing it through the detail. - Learn to decompose in spaces more reduced a building of some complexity. - Learn to use instruments advanced of taking of data based in the photographic restitution. - Learn to establish methods of work in accordance with the architecture that goes to be raised gráficamente.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Introductory activities	A6 B2 B3 B5 B6 B14 B15 B25 B28 C3 C7	0	40	40
Document analysis	A6 B2 B3 B7 B14 B15 B25 C1 C3 C4 C5 C6 C7 C8	0	5	5
Laboratory practice	A6 B2 B5 B6 B7 B15 B25 B27 B28 C1 C4 C6 C7 C9	40	5	45
Field trip	A6 B2 B3 B5 B6 B7 B15 B25 B27 B28 C1 C4 C6 C7 C9	0	40	40

Objective test	A6 B2 B3 B5 B6 B15 B25 B27 B28 C1 C4 C6 C7 C9	4	0	4
Student portfolio	A6 B2 B7 B15 B27 C1 C4 C7 C8	4	0	4
Guest lecture / keynote speech	A6 B3 B7 B15 B27 B28 C1 C3 C4 C5 C6 C7 C8	8	0	8
Personalized attention		4	0	4
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	**Description**
Introductory activities	Weekly realisation of drawings manually heaved, in plates DIN A-3, on board, copying and expanding leaves with graphic outlines, facilitated in DIN A-4, using hours no face-to-face in classroom. Weekly realisation of a practice of rotulación in leaf DIN A-4, using hours no face-to-face in classroom.
Document analysis	Utilisation of the corresponding bibliography, basic and complementary, facilitated.
Laboratory practice	Weekly realisation, using the face-to-face hours in classroom, of croquis manually heaved, in direct, of the university academic surroundings, specifically centred in diverse zones of the interior of the E.U. Of Technical Architecture and his external outline, square, parkings etc.
Field trip	Weekly realisation of croquis manually heaved, in direct, in an external context to the university academic surroundings, sobretodo in the urban zones of Widen, Fishmonger and Ancient Helmet, using hours no face-to-face in classroom, in where they developed the capacities related with the direct and systematic observation, collected of information and desarrolo of outlines, etc.
Objective test	Group of practical proofs, and works: Croquizaciones of architectural elements, of the natural, manually height; Used in the evaluation and progress, of the student, of his learning of knowledges, capacities, skills, performances, aptitudes, attitudes, etc.
Student portfolio	In the folder or archivador of the student iran classifying his practical works: Plates of croquizaciones and rotulaciones, by dates. And regularly they will have personal sessions, tutorias personalised, with each one for realisations of autoevaluación and comments of the professor on his progress.
Guest lecture / keynote speech	Weekly, before or at the same time that they expose the practical exercises, will realise a presentation or oral explanation and in blackboard of contents by part of a professor, that will treat the subjects that tackle the practice.

Personalized attention	
Methodologies	**Description**
Student portfolio	In the folder or archivador of the student iran classifying his practical works: Plates of croquizaciones and rotulaciones, by dates. And regularly they will have personal sessions, tutorias personalised, with each one for realisations of autoevaluación and comments of the professor on his progress. The "Alumnado with recognition of dedication part time and dispenses academician of exemption of assistance", will have to put in knowledge of the corresponding professor, said circumstance, to be able to concretise the development of this activity as it consider more suitable.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Guest lecture / keynote speech	A6 B3 B7 B15 B27 B28 C1 C3 C4 C5 C6 C7 C8	Weekly, before or at the same time that they expose the practical exercises, will realise a presentation or oral explanation and in blackboard of contents by part of a professor, that will treat the subjects that tackle the practice.	2

Student portfolio	A6 B2 B7 B15 B27 C1 C4 C7 C8	In the folder or archivador of the student iran classifying his practical works: Plates of croquizaciones and rotulaciones, by dates. And regularly they will have personal sessions, tutorias personalised, with each one for realisations of autoevaluación and comments of the professor on his progress.	2
Objective test	A6 B2 B3 B5 B6 B15 B25 B27 B28 C1 C4 C6 C7 C9	Group of practical proofs, and works: Croquizaciones of architectural elements, of the natural, manually height; Used in the evaluation and progress, of the student, of his learning of knowledges, capacities, skills, performances, aptitudes, attitudes, etc.	15
Field trip	A6 B2 B3 B5 B6 B7 B15 B25 B27 B28 C1 C4 C6 C7 C9	Weekly realisation of croquis manually heaved, in direct, in an external context to the university academic surroundings, sobretodo in the urban zones of Widen, Fishmonger and Ancient Helmet, using hours no face-to-face in classroom, in where they developed the capacities related with the direct and systematic observation, collected of information and desarrolo of outlines, etc.	15
Document analysis	A6 B2 B3 B7 B14 B15 B25 C1 C3 C4 C5 C6 C7 C8	Utilisation of the corresponding bibliography, basic and complementary, facilitated.	2
Laboratory practice	A6 B2 B5 B6 B7 B15 B25 B27 B28 C1 C4 C6 C7 C9	Weekly realisation, using the face-to-face hours in classroom, of croquis manually heaved, in direct, of the university academic surroundings, specifically centred in diverse zones of the interior of the E.U. Of Technical Architecture and his external outline, square, parkings etc.	51
Introductory activities	A6 B2 B3 B5 B6 B14 B15 B25 B28 C3 C7	Realisation of drawings manually heaved, in plates DIN A-3, on board, copying and expanding leaves with graphic outlines, facilitated in DIN A-4, using hours no face-to-face in classroom. Weekly realisation of a practice of rotulación in leaf DIN A-4, using hours no face-to-face in classroom.	13
Others			

Assessment comments

The students will have to show, to be evaluated positively, that have reached the necessary knowledges in the contents, mentioned previously, to dominate this matter, and that they would be the following:

1 -Analyse and learn to perceive simple three-dimensional objects and represent them, already was by his seen in the system diédrico as in volume in the axonometric. -Learn to use the system of representation more adapted for each case. -Capacitar To the student with the end to transmit and define objectively the volumetry of an object, as well as his constructive sequence (despieces) by means of the systems perspectivos isometric, military, cavalier or conical. -Know the procedures to represent curves in the distinct systems. -Learn to use the system of representation adapted to define a constructive detail.

2 -Learn to communicate through the architectural graphic language. -Learn, practising, the processes of graphic representation in the architecture and his materialisation, so much to general level as in his details. -Learn to interpret by means of the thought and the geometrical syntax-constructive. -Learn the codes of architectural graphic representation.

3 -Achieve that the student develop in the handle of the instrumental and in the knowledge and use of the material of support for the graphic representation.

4 -Know, learn and use the different formats of paper normalised and the election of the most adapted for the graphic product to realise. -Identify the element represented, as well as the author and other data of interest of an architectural drawing by means of a cajetín normalised.

5 -Know and learn to trace and value the lines with quality, incidiendo in the tone and the weight according to the intentionality. -Know the classification of the lines and his correct utilisation in each case. -Purchase skills and skills by means of a synchronisation psico-manual that conclude in a precision and a rigour in the traced. -Know the conventional symbols of the architectural representation. -Purchase a discipline and some habits by means of the traced of the form of the letters and know and use his normalisation. The rotulación, letters and figures.

6 -Know and learn to trace and value the classical orders. -Geometry and modulation. -Graphic and geometrical precision. -Geometrical study of the forms. -Geometrical constructions of the molduras.

7 -Learn to perceive the architectural fact by means of the geometrical analysis. -Learn to perceive the form and the proportion of the objects. -Reach a fast perception of the volume of the object to represent. -Learn to read the diagram of traced of an architectural fact controlling the process of preparation. -Learn to decompose geometrically each one of the seen diédricas. Establish modules of comparison to determine the proportional laws that determine a sight diédrica.

8 -Establish the complete definition of an object by means of his seen diédricas. -Comprise and practise the orthogonal cylindrical projection (the plant, the heaved and the profile) and the oblicua. -Learn the codes of architectural graphic representation. -Learn to deliver the seen in the paper so that the drawing maintain a balance between spaces graficados and spaces in white.

9 -Learn to represent the unseen parts in the objects with complex internal composition realising ace necessary sections to define them. -Differentiate the multiple types of sections that can employ in the definition of the object. -Use the number of necessary sections to define an object situating them in the appropriate place. -Represent properly the sections differentiating the lines of section of the lines of projection.

10 -Learn to perceive an object in all his details, transmitting the exact form and his dimensions. -Learn to classify the different types of details and represent them properly. -Learn to use the system of representation adapted to define a constructive detail.

11 -Learn to perceive the dimensions of the object by means of the taking of data. -Differentiate between taking of measures and acotación. -Learn to choose the most adapted sights to have the distinct heights. -Learn to have the heights in the distinct seen, according to these find or no contained in the parallel planes to the ones of projection. -Apply the general principles of the acotación. -Learn to choose the elements that define the origin for referenciar objects and parts to measure and limit. -Learn to have determinate types of height that, by singularity, require a particular attention. -Learn to situate points by the systems of coordinates and triangulation to determine angles and radios.

12 -Learn to represent, trace and value the drawing of implicit ideas in the mind of the author. -The virtual drawing like a half to discover and express

the creative or constructive intentions. -The drawing like a basic element of the representation and the reinterpretación of the architectural work-constructive.

13 -Learn to comprise and establish the length of the segment drawn and the length of the object represented. -Learn to decide the size of the object to represent, in function of the intentions that govern the traced of the drawing: the far surroundings (vision of group) and the immediate surroundings (the details) with the complete definition of the form. -Learn to make graphic scales.

14 -Learn to perceive and characterise the different materials that take part in the construction of the object. -Learn to value the rigour in the procedure and the accuracy in the work of lifting of planes. -Analyse an architectural group, splitting of the globalidad and developing it through the detail. -Learn to decompose in spaces more reduced a building of some complexity. -Learn to use instruments advanced of taking of data based in the photographic restitution. -Learn to establish methods of work in accordance with the architecture that goes to be raised gráficamente.

IMPORTANT NOTE:

For the evaluation of the asignatura demands an assistance regulate so much to the classes expositivas as to the interactive, with a minimum of 80% of assistance in each one of them.

The teaching of the asignatura of Graphic Expression I bases in a methodology of learning, subject to a system of continuous evaluation.

To surpass the asignatura, by course will owe to fulfil the following condition:

1.-Have been delivered all the practices and individual works and each one/or of them/will have to have you been considered/or how apt/or.

The students that do not surpass the asignatura by course will have to present to the examination, in the date fixed for the First Opportunity of evaluation (MAY/JUNE) or, in his case, in the date fixed for the Second Opportunity of evaluation (JUNE/JULIO)

IMPORTANT: it will have the condition of NO PRESENTED (BY COURSE) the student that find in any of the following circumstances:

- Not fulfilling with the minimum of assistance demanded.
- Not delivering any of the works proposed.

It will not allow complete or modify the works out of the dates of distinguished delivery.

Sources of information	
Basic	- Llorens, S. (1989). Iniciación al croquis arquitectónico. Madrid. Escuela Universitaria Arquitectura Técnica - Iranzo, A (1992). Croquización arquitectónica. Barcelona. Ediciones Rey - Rodríguez de Abajo, F.J.; Álvarez Bengoa, V. (1992). Curso de dibujo geométrico y de croquización. San Sebastián. Ed. Donostiarra - Laprada, A. (). Croquis de arquitectura. Barcelona. Ed. Gustavo Gili - Marin Hote, Llerie, J.L. (1982). Introducción al dibujo técnico arquitectónico. México. Ed. Trillas - Revilla Blanco, A. (1993). Acotación. San Sebastián. Ed. Donostiarra - Sainz, J. (1990). El dibujo de arquitectura teoría e historia de un lenguaje gráfico. Madrid. Ed. Nerea - Porter, T.; Goodman, S (1986). Manual de técnicas gráficas para arquitectos, diseñadores y artistas (4 volumenes). Barcelona. Ed. Gustavo Gili
Complementary	- Ching, F. (2002). Arquitectura: forma, espacio y orden. Barcelona. Ed. Gustavo Gili - Panero, J. (1983). Las dimensiones humanas en los espacios interiores estándares antropométricos. Barcelona. Ed. Gustavo Gili - Chithan, R. (1982). La arquitectura histórica acotada y dibujada. Barcelona. Ed. Gustavo Gili - Hansmann, Christine-Ruth (1994). Las escaleras en la arquitectura. Barcelona. Ed. Gustavo Gili - Ching, F. (1995). Diccionario visual de arquitectura. México. Ed. Gustavo Gili - Ching, F. (1977). Manual de dibujo arquitectónico . Barcelona. Ed. Gustavo Gili - Giacomo Barozzio de VIGNOLA (1981). El vignolas de los propietarios. Regla de los cinco ordenes de arquitectura. Murcia. C.O.A. Y A.T. - Ghyka Matila, C. (1992). El número de oro ritos y ritmos pitagóricos en el desarrollo de la civilización occidental. Barcelona. Ed. Poseidón - Ghyka Matila, C. (1983). Estética de las proporciones en la naturaleza y en las artes. Barcelona. Ed. Poseidón

Recommendations
Subjects that it is recommended to have taken before
Descriptive Geometry/670G01004
Subjects that are recommended to be taken simultaneously
Descriptive Geometry/670G01004
Subjects that continue the syllabus
Architectural Graphic Expression II/670G01013 Geometry of Illustrations/670G01018 Technical Projects I/670G01023 Technical Projects II/670G01027 Interior, Garden and Landscape Design/670G01042
Other comments
It could be convenient, but no necessary, have approved the asignatura of descriptive geometry. It could also be recommended to have realised some course/you of graphic design. Necessary knowledges: -flat Geometry. -System diédrico to basic level: plant, heaved and profile/section. -Normalisation: rotulación and acotación. -Scales