Universitat Autònoma de Barcelona

2020/2021

Graphic Design

Code: 102439
ECTS Credits: 6

Degree	Type	Year	Semester
2500897 Chemical Engineering	FB	1	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Prerequisites

There are no official requirements for this course but basic knowledge of technical drawing and descriptive geometry is recommended.

Objectives and Contextualisation

The objective of the Graphic Expression subject is to prepare students so they can compose and interpret the necessary graphic documents to carry out their professional activity.

The description of mechanical parts, laboratory facilities schemes and industrial plants, etc.

For this purpose, the intention is to give you the knowledge about the systems and techniques of representation most appropriate to each case.

Special attention will be given to the application of computer-assisted representation techniques, with a parallel development of spatial interpretation capabilities.

Competences

- Analyse, evaluate, design and operate the systems or processes, equipment and installations used in chemical engineering in accordance with certain requirements, standards and specifications following the principles of sustainable development.
- Apply the acquired knowledge and skills to develop a chemical engineering project.
- Communication
- Demonstrate basic knowledge of the use and programming of computers, and apply the applicable IT resources to chemical engineering.
- Develop personal attitude.

Learning Outcomes

1. Apply basic IT resources to computer assisted design.

2. Define the basic concepts of standardisation and presentation methods.
3. Describe the processes and fundaments of industrial design.
4. Develop curiosity and creativity.
5. Efficiently use ICT for the communication and transmission of ideas and results.
6. Identify the different expression techniques and representation systems.
7. Interpret the concept of space.
8. Select the suitable graphic expression techniques and systems for each particular case in the practical preparation of a project.
9. Use applicable computer assisted design techniques.

Content

Initiation to work in Autocad 2D.

Autocad 2D basics.

General concepts. Menus. Commands. Entities. Screen display commands. Program help. Exchange of files.

Drawing and construction orders.

Drawing orders and construction orders of entities. Preparation of drawing. Work with layers. Reference to entities. Work with absolute and relative magnitudes.

Edition orders of entities.

Editing entities. Utilities and additional orders.

Tools and functions to advance in the knowledge of Autocad 2D.

Texts, hatch patterns, dimension and blocks.

Definition of text style and text creation. Hatch patterns. Definition of the dimension style. Drawings dimensioning. Creation and management of blocks.

Presentation of drawings. Paper space.

Creation of presentations. Paper space - model space. Paper output

Initiation to work on Autocad 3D.

Autocad 3D basics.

Points of view, windows, display modes, coordinate systems.

Work with 3D solids and 3D tools.

Elemental solids. Extrusion, revolution. Boolean operations and solids edition. 3D operations.

Basic Concepts of Drawing and Descriptive Geometry.

Basic Geometry concepts

Structure of space basics, tangencies. Standardization and presentation criteria.

Representation systems.

Types of projection Representation of solids in different systems.

Basic conceptsof the Dihedral system

Representation of solids in dihedral system.

Basic concepts for the development of spatial vision and representation in perspective.

Construction of 3D volumes from multiple views. Development of spatial vision. Presentation in perspective form.

Methodology

Students are trained through mostly practical exercises to be able to find the solution to specific problems that the comprehension and the representation of graphic elements may present.

The training is reinforced with master classes to guide and keep the students on the right path with continuous monitoring carried out by the teachers in both their workshop and their autonomous work.

Outside the academic hours, the communication between the students and the teaching staff will be through the UAB Virtual Campus.

All communications from the teaching body to a student or group of students, whether they are of general interest to all students or a single one, will be made through the virtual Campus or the corporate email of the UAB.

The methodology is foreseen 100% face-to-face both for the master classes and for the practices that will be organized by groups.

The proposed teaching methodology and assessment may undergo some modification depending on the attendance restrictions imposed by the health authorities.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Master Classes	15	0.6	6, 8
Workshop	30	1.2	1, 6, 8
Type: Autonomous			
Documentation research	7.5	0.3	
Reading books and tutorials	10	0.4	1, 6, 8
Resolution of practices	60	2.4	1, 6, 8
Study	17	0.68	1, 6, 8
Tutorials class and Virtual Campus	7.5	0.3	1, 6, 8

Assessment

In order to pass the course, students must be able to demonstrate that they have acquired enough skills to efficiently use the computer program required (AutoCAD), as well as having acquired sufficient skills to interpret and perform basic plans and diagrams in both dihedral representation and three-dimensional volumes and be able to make the presentations in an appropriate way according to the required specifications,

The practices carried out in the workshop and those done by the students at home will be valued so that the continued work and the punctual follow-up of the classes, workshops and practices will be rewarded.

Process and Scheduled evaluation activities

The subject consists of the following evaluation activities:
Activity 1: Practices of Topic 1. 20% on the final grade
Activity 2: Individual test of Topic 1. 20% of the final grade
Activity 3: Practices of Topic 2. 15% on the final grade
Activity 4: Individual test of Topic 2. 15% on the final grade
Activity 5: Practices of Topic 3. 15% on the final grade
Activity 6: Individual test of Topic 3. 15% of the final grade

Once the average of the practices of the course and the individual tests are made, a minimum qualification of 5 out of 10 is required to pass.

The minimum grade for each of these topics must reach 3.5 in order to count towards the average of the 3 topics.

If a partial grade is below 3.5, this will be the awarded score for the total of that subject.

A grade lower than 3.5 in one of the three topics of the course implies that it will not be able to count towards the average and therefore this will be the final grade applied to the course.

To be able to pass the course in the continuous evaluation it will be necessary to obtain a minimum grade of 5 in the average of the three topics and to have passed at least two of the three. If the average of the three topics is passed but two of the topics were failed, the final grade of the course will be the highest of

the failed topics.

The calendar of the evaluation activities will be given on the first day of the subject and will be made public through the Virtual Campus and in the exams section on the Engineering School website. Expected calendar:

Activity 1: Weeks 1 to 7 of the subject
Activity 2: Week 8 of the subject
Activity 3: Weeks 8 to 10 of the subject
Activity 4: Week 11 of the subject
Activity 5: Weeks 11 to 14 of the subject
Activity 6: Week 15 of the subject

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Recovery process

If a student does not pass the subject with the continuous assessment by the described system above, he/she will have an option for a global recovery exam in which he/she will have to take a test on the three topics of the course regardless of the partial grades they had on each topic before - since these, under no circumstances, will be taken into account.

In this case, obtaining a minimum grade of 5 out of 10 in the global recovery test, the student would pass.

The student can apply for the recovery test only if he/she accomplished a set of activities that represent at least two thirds of the total grade of the subject.

Review of qualifications Procedure

A place, date and time of revision will be set for each evaluation activity in which the students will be able to review the activity along with the teacher. In this context, claims may be made on the activity grade. Those claims will be evaluated by the teacher responsible for that subject. If the student does not show up for this revision, his/her activity will not be reviewed later.

Qualifications

With Honours: Granting an honours degree is the decision of the faculty responsible forthe subject. The regulations of the UAB indicate that Hons can only be granted to students who have obtained a final grade equal to or greater than 9.00. The number of students granted "with honours" cannot exceed 5% of the total number of students enrolled.

The non-delivery of at least 90% of the practices will imply the qualification of "Not evaluated".

The non-attendance to any of the individual tests will imply the qualification of "Not evaluated".

The given grade to not delivered practices will be 0.

Irregularities by the student, copy and plagiarism

Without prejudice to other disciplinary measures deemed appropriate and in accordance with the current academic regulations, any irregularities committed by the student that may lead to a variation of the rating of an evaluation act, copying or allowing to copy a practice or any other evaluation activity, will mean failing with a zero grade. In the event that this grade was necessary to pass, the whole subject will be failed. The evaluation activities qualified this way and by this procedure will not be recoverable and therefore the subject will be failed directly with no opportunity to recover it in the same academic year.

Evaluation of repeating students

The system of evaluation of the subject for students from the second enrollment will be the same as for the rest of the students, except they will be required to present a set of activities that represent a minimum of two thirds of the total grade of the student. subject to be able toaccess the recovery test.
Therefore, students from the second registration can make the recovery test even if they have not done any of the activities provided in the continuous evaluation.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Delivery of practices performed and proposed at the workshop throughout the course.	40% to 60 %	0	0	1, 2, 3, 4, 5, 6, 7, 8, 9
Partial tests consisting of the resolution of individual practices carried out throughout the course.	40% to 60%	3	0.12	1, 6, 8

Bibliography

Any other manuals and guides existing on the market published about the latest version of the program, comprising 2D and 3D teaching, can be good as a help to the student to support the explanations given in class.

Bibliografia de AUTOCAD:

REYES RODRIGUEZ, Antonio Manuel. Autocad 2015. Manual imprescindible. Anaya Multimedia.

Any other manuals and guides on the market published on the latest version of the program, comprising 2D and 3D teaching can be good and enough as a help to the student to support the explanations given in class.

Bibliography of Descriptive Geometry:

RODRÍGUEZ DE ABAJO, F. Javier; GALARRAGA ASTIBIA, Roberto. Normalización del dibujo industrial. Ed. Donostiarra, Sant Sebastià 1993.

RODRÍGUEZ DE ABAJO, F. Javier; ALVAREZ BENGOA, VICTOR. Curso de dibujo geométrico y de croquización. Ed. Donostiarra, Sant Sebastià 1992.

CALVO MONTORO, Sofia ; DÍAZ JURADO, Elena. Cuaderno de dibujo Técnico. Ed. Mc Graw-Hill, Madrid 1995.

CODINA MUÑOZ, Xavier; GARCÍA ALMIRALL, Ignasi. Geometría descriptiva para dibujo técnico. Ediciones Media, Barcelona 1995.

PUIG ADAM, Pedro. Geometría métrica. Ed. Gómez Puig, 1981.

SÁNCHEZ GALLEGO, J.A.; VILLANUEVA BARTRINA, L. Temes clau de dibuix tècnic. Edicions UPC, Barcelona 1991.