

## SUBJECT TEACHING GUIDE

### G420 - Graphic Representation Techniques

#### First Degree in Industrial Technologies Engineering

Academic year 2025-2026

1. IDENTIFYING DATA					
Degree	First Degree in Industrial Technologies Engineering			Type and Year	Core. Year 1
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Graphical Expression Basic Training Module				
Course unit title and code	G420 - Graphic Representation Techniques				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Knowledge Field	Industrial engineering, mechanical engineering, automation engineering, industrial organization engineering and navigation engineering				
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA GEOGRAFICA Y TECNICAS DE EXPRESION GRAFICA
Name of lecturer	FERNANDO FADON SALAZAR
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Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO (S2004)
Other lecturers	LUIS ANGEL SAIZ SAIZ ANGEL RIOZ CRESPO CRISTINA MANCHADO DEL VAL

#### 4. OBJECTIVES

- Be able to represent an object in a graphic document, by means of applying representation systems and technical drawing standards, so that it is properly defined and can be interpreted by another.
- Give clear and justified graphically, oral and written design ideas and interpretation of engineering drawings.

6. SUBJECT PROGRAM	
CONTENTS	
1	1: Metric geometry and descriptive geometry. Representation systems. General knowledge representation systems metric General notions of representation. Visualization. Perspective Isometric and perspective cavalier.
2	2: Metric geometry and descriptive. Multiview orthographic projection system. (Spatial resolution of DAO exercises ) Point, line and plane. Representation of objects. DAO. True magnitudes of flat shapes. DAO. Intersections. DAO. Minimum distances. DAO. Angles. DAO. Curves and surfaces. Polyhedra. DAO. The pyramid and the cone. The prism and the cylinder. DAO. Intersection and development of surfaces. DAO. Volume of objects.
3	3: Technical Drawing. Plane generation. Standard representations. Views auxiliaries. Cortes, sections and breaks Dimensioning. Scales. Representation of threaded elements. Sketches. Generation and interpretation of planes. Getting DAO planes.
4	4: Metric geometry and descriptive geometry. System dimension drawings. Digital terrain models. Point, line and plane. Intersections. Roof. Minimum distances. True magnitudes. Topographical drawing. Representation of the terrain. Digital Terrain Models. Profiles. Explanaciones.MDT.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Classroom works and projects.	Work	No	Yes	10,00
22,50 % Orthographic Projection (descriptive geometry)	Written exam	No	Yes	22,50
22,50 % Topographical Representation	Written exam	No	Yes	22,50
45,00 % Technical Drawing	Written exam	No	Yes	45,00
TOTAL				100,00
Observations				
Students who do not pass the continuous assessment (average of 5 in the partial tests), may make the final test, similar to the three subtests in the extraordinary call. Note: Given the current uncertain health situation, in case the competent health and educational authorities so indicate, not allowing any evaluation activity to be carried out in person in the classroom, a distance evaluation modality will be adopted using telematic means.				
Observations for part-time students				
Follows the same dynamics as presential students				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

#### OCW

<http://ocw.unican.es/enseanzas-tecnicas/tecnicas-de-representacion-grafica-g420>

#### Sist. de representación:

GEOMETRÍA DESCRIPTIVA. F. Izquierdo Asensi

GEOMETRÍA DESCRIPTIVA. (Tomo 1 - 2) F.J. Rodríguez de Abajo.

EJERCICIOS DE ... J.I.Alvaro

EXPRESIÓN GRÁFICA Y DAO. EJERCICIOS. F. Fadón

#### Dibujo técnico:

Dibujo Técnico. Ediciones BACHMANN – FORBERG

NORMALIZACIÓN DEL DIBUJO INDUSTRIAL. R. Villar del Fresno, R. García, J.L. Caro.

MANUAL DE NORMAS UNE SOBRE DIBUJO. Ed. AENOR

DIBUJO TÉCNICO. R. de Abajo y Alvarez. Ed. Donostiarra

#### D.A.O.

GRÁFICAS POR COMPUTADORA. Hearn y Baker.

<http://personales.unican.es/saizl>