



## GENERAL INFORMATION

Data of the subject	
Subject name	Manufacturing Engineering
Subject code	DIM-GITI-447
Main program	<a href="#">Bachelor's Degree in Engineering for Industrial Technologies</a>
Involved programs	Grado en Ingeniería en Tecnologías Industriales [Fourth year]
Credits	4,5 ECTS
Type	Optativa (Grado)
Department	Department of Mechanical Engineering

Teacher Information	
<b>Teacher</b>	
Name	Raquel María Lorente Pedreille
Department	Department of Mechanical Engineering
E-Mail	rmlorente@icai.comillas.edu
<b>Teacher</b>	
Name	Mariano Jiménez Calzado
Department	Department of Mechanical Engineering
Office	Alberto Aguilera 25 [D-007]
E-Mail	mjimenez@icai.comillas.edu
Phone	2358
<b>Teacher</b>	
Name	Xavier Soldani
Department	Department of Mechanical Engineering
E-Mail	xsoldani@icai.comillas.edu
<b>Teacher</b>	
Name	Javier Manini Gumz
Department	Department of Mechanical Engineering
E-Mail	jmanini@icai.comillas.edu
<b>Teacher</b>	
Name	Luis Rayado Guerrero
Department	Department of Mechanical Engineering
E-Mail	lrayado@icai.comillas.edu

## DESCRIPTION OF THE SUBJECT



## Contextualization of the subject

### Prerequisites

- Previous knowledge of Graphic Expression and use of CAD tools, as well as knowledge of Materials Science

## Course contents

### Contents

- Introduction. Manufacturing Cycle. Information to establish a manufacturing cycle. Organization of production areas and resources. Technical and functional considerations in the electrical and mechanical field.
- Dimensional verification techniques. Metrological vocabulary (VIM). Causes of measurement error. Dimensional measuring instruments and their metrological properties.
- Casting processes. Classification. Manufacture of models, cores and molds. molding materials. Design and defectology. Finishing and control of cast parts.
- Sheet metal processes. Cold deformation: punching, bending, drawing. Hot deformation: forging, rolling, drawing and extrusion.
- Welding processes. Types of welding: soft, strong, oxyacetylene, arc with covered electrode, TIG, MIG, resistance, friction, laser. Welding process. Defectology.
- Machining processes. Variables and precision. Chip formation. Conventional machine tools. Holding tools. Cutting tools. Post-machining processes.
- Advanced transformation processes: additive manufacturing, technologies and application.

## EVALUATION AND CRITERIA

Evaluation activities	Evaluation criteria	Weight
<ul style="list-style-type: none"><li>• Tests carried out at the end of class in the form of a test or short exercise</li></ul>	<ul style="list-style-type: none"><li>• Understanding of concepts.</li><li>• Theoretical justification of the practical results.</li></ul>	10
<ul style="list-style-type: none"><li>• Individual practical work.</li><li>• Group work</li></ul>	<ul style="list-style-type: none"><li>• Compression of concepts.</li><li>• Selection of manufacturing processes.</li><li>• Application of verification techniques.</li></ul>	15
<ul style="list-style-type: none"><li>• Laboratory reports.</li></ul>	<ul style="list-style-type: none"><li>• Understanding of concepts.</li><li>• Laboratory expertise.</li><li>• Justification of practical results.</li></ul>	25
<ul style="list-style-type: none"><li>• Final exam</li></ul>	<ul style="list-style-type: none"><li>• Differentiation and application of different manufacturing and verification processes.</li></ul>	50

## BIBLIOGRAPHY AND RESOURCES



# COMILLAS

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

**Syllabus**  
**2023 - 2024**

## Basic References

- Mariano Jiménez Calzado. APUNTES-PRESENTACIONES MOODLE - ICAI DE INGENIERÍA DE FABRICACIÓN. Fichas técnicas de procesos industriales.
- Mikell Groover. FUNDAMENTOS DE MANUFACTURA MODERNA: MATERIALES, PROCESOS Y SISTEMAS (3ª edición). PRENTICE HALL HISPANOAMERICANA S.A. ISBN 9789688808467

In compliance with current regulations on the **protection of personal data**, we would like to inform you that you may consult the aspects related to privacy and data that you have accepted on your registration form by entering this website and clicking on "download"

<https://servicios.upcomillas.es/sedelectronica/inicio.aspx?csv=02E4557CAA66F4A81663AD10CED66792>