



GENERAL INFORMATION

Data of the subject	
Subject name	Manufacturing Engineering
Subject code	DIM-GITI-441
Main program	Bachelor's Degree in Engineering for Industrial Technologies
Involved programs	Grado en Ingeniería en Tecnologías Industriales [Fourth year]
Credits	6,0 ECTS
Type	Optativa (Grado)
Department	Department of Mechanical Engineering
Coordinator	Mariano Jiménez Calzado

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



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Syllabus
2024 - 2025

BIBLIOGRAPHY AND RESOURCES

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

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