GENERAL INFORMATION

Data of the subject	
Subject name	Manufacturing Engineering
Subject code	DIM-GITI-447
Mainprogram	Bachelor's Degree in Engineering for Industrial Technologies
Involved programs	Grado en Ingeniería en Tecnologías Industriales [Fourth year]
Credits	4,5 ECTS
Type	Optativa (Grado)
Department	Department of Mechanical Engineering

Teacher Information	
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DESCRIPTION OF THE SUBJECT

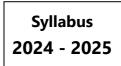| Contextualization of the subject |
|---|
| **Prerequisites** |
| • Previous knowledge of Graphic Expression and use of CAD tools, as well as knowledge of Materials Science |

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
• Tests carried out at the end of class in the form of a test or short exercise	• Understanding of concepts. • Theoretical justification of the practical results.	10
• Individual practical work. • Group work	• Compression of concepts. • Selection of manufacturing processes. • Application of verification techniques.	15
• Laboratory reports.	• Understanding of concepts. • Laboratory expertise. • Justification of practical results.	25

• Final exam	• Differentiation and application of different manufacturing and verification processes.	50

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