COMILLAS
UNIVERSIDAD PONTIFICIA
ICAI ICADE CIHS

Syllabus
2025 - 2026

GENERAL INFORMATION

Data of the subject	
Subject name	Manufacturing Engineering
Subject code	DIM-GITI-449
Mainprogram	Bachelor's Degree in Engineering for Industrial Technologies
Involved programs	Grado en Ingeniería en Tecnologías Industriales [Fourth year]
Quarter	Semestral
Credits	3,0 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.
- Welding processes. Types of welding: soft, strong, oxyacetylene, arc with covered electrode, TIG, MIG, resistance, friction, laser. Welding process. Defectology.
- Advanced transformation processes: additive manufacturing, technologies and application.

EVALUATION AND CRITERIA

The use of AI to produce full assignments or substantial parts thereof, without proper citation of the source or tool used, or without explicit permission in the assignment instructions, will be considered plagiarism and therefore subject to the University's General Regulations.

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