



GENERAL INFORMATION

Data of the subject	
Subject name	Manufacturing and Production Technologies
Subject code	DIM-GITI-439
Main program	Bachelor's Degree in Engineering for Industrial Technologies
Involved programs	Grado en Ingeniería en Tecnologías Industriales y Grado en Administración y Dirección de Empresas [Fourth year]
Quarter	Semestral
Credits	6,0 ECTS
Type	Optativa (Grado)
Department	Department of Mechanical Engineering
Coordinator	Mariano Jiménez Calzado
Schedule	Email
Office hours	Email
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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 to manufacturing technologies. Manufacturing Cycle. Information to establish a manufacturing cycle. Organization of production areas and resources. Technical and functional considerations in the electromechanical area.
- Design and selection of production processes. Types of production processes. Tools for the design and analysis of processes. Production technologies in automated manufacturing environments.
- 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 that affect precision. Chip formation. Conventional machine tools and MHCN. Holding tools. Cutting tools. Post-machining processes.
- Advanced transformation processes: Additive manufacturing, technologies and application.
- Process quality control. Analysis tools and quality improvement. Statistical processes control. Processing capacity.
- Job design. Components of the design and study of methods. Work measurement.

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

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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