

## DIM-GITI-449 MANUFACTURING FUNDAMENTALS

**SEMESTER:** Spring

**CREDITS:** 3 ECTS (30 hours: 18 hours Theory + 12 hours Laboratory)

**LANGUAGE:** Spanish

**DEGREES:** GITI

### Course overview

This course provides students ability to implement systems and manufacturing processes, metrology and quality control of industrial equipment about electronical specialty.

### Prerequisites

There are no formal prerequisites to prevent this course. However is recommended concepts about mechanical drawing and tolerances.

### Course contents

#### Theory:

1. Principles of transformation processes I. Conformation of parts by forming processes.
2. Principles of transformation processes II. Conformation of parts by welding processes.
3. Principles of transformation processes II. Conformation of parts by casting processes.
4. Principles of transformation complementary and metrology and control of components.

#### Laboratory:

There will be three 2-hour sessions between the third and the last lecture week, including the lab exam.

**P1.** Forming: press, blender, etc.

**P2.** Welding: TIG, MIG, SMAW, etc.

**P3.** Casting: sand, lost wax.

**P4.** Metrology: 2D and 3D.

## Textbook

- Mariano Jiménez Calzado. APUNTES 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

## Grading

The following conditions must be accomplished to pass the course:

- A minimum overall grade of at least 5 over 10.
- A minimum grade in the final exam of 4 over 10.

The overall grade is obtained as follows:

- Final exam 60%.
- Homework 5%.
- Other exams 10%. Typically there is 1 mid-term exam (2-hour long) and 2 additional short exams (1-hour long). They are weighted according to their duration.
- Lab technical reports 25%, including performance during the lab sessions.

Attendance: minimum 85% to be allowed to take the exam.