# Manufacturing and prototyping oriented design

**Academic Year: ( 2023 / 2024 )** **Review date: 26/04/2023 13:18:33**

**Department assigned to the subject: Mechanical Engineering Department**

**Coordinating teacher: DIAZ ALVAREZ, ANTONIO**

**Type: Compulsory ECTS Credits : 3.0**

**Year : 1 Semester : 1**

## REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Students who wish to take this subject must have a good theoretical and practical foundation based on manufacturing, mechanics and mathematics, among others. It is also considered positive to have passed some of the following subjects:

- Production and Manufacturing Systems.
- Production Systems and Manufacturing Technologies.
- Graphic Expression in Engineering.
- Mechanical Technology.

## OBJECTIVES

-Students will develop skills and acquire the necessary knowledge for the correct definition and selection of the production systems and processes necessary to obtain especially critical components.
- They will develop their communication skills to communicate results and conclusions.
- They will increase their ability to analytically and numerically address advanced problems inherent to new processes and production systems.
- They will enhance their ability to lead, plan and supervise multidisciplinary teams.
- The student will be provided with the necessary knowledge to carry out optimal designs according to the process and production system used for its manufacture.

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Design Oriented to manufacturing by molding.
2. Design Oriented to the manufacture by forming by deformation.
3. Design Oriented to manufacturing by machining.
4. Numerical simulation applied to manufacturing-oriented design.
5. Prototyping: application of additive manufacturing technologies.

## LEARNING ACTIVITIES AND METHODOLOGY

FORMATION ACTIVITIES
Theoretical classes
Practical classes
Practices in computer room
Laboratory practices
Individual student work
Work in groups
TEACHING METHODOLOGIES
Presentations in class by the teacher with the support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the learning of the students.
Resolution of practical cases, problems, etc. raised by the teacher individually or in groups.
Preparation of work and reports individually or in groups.

## ASSESSMENT SYSTEM

| | |
|---|---|
| **% end-of-term-examination/test:** | 60 |
| **% of continuous assessment (assigments, laboratory, practicals…):** | 40 |

To pass the subject, the student must:
1) Obtain a minimum of 4.0/10 in the final exam
2) Obtain a minimum of 5.0/10 as the average of 60% in the final exam and 40% of the continuous evaluation

## BASIC BIBLIOGRAPHY


- Hwaiyu Geng Manufacturing Engineering Handbook., McGraw-Hill.

- M. M. Espinosa Introducción a los Procesos de Fabricación. , Universidad Nacional de Educación a Distancia..

- Serope Kalpakjian Manufacturing Processes for Engineering Materials, Addison-Wesley Pub..