

Academic Year: ( 2020 / 2021 )

Review date: 12-07-2020

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: CANTERO GUISANDEZ, JOSE LUIS

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

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

Subjects where they get basic knowledge about manufacturing and production systems and processes (subject Production and Manufacturing Systems).

## OBJECTIVES

Skills that will get by the student

- Knowledge and ability to apply strategies of integrated manufacturing CIM, (Computer Integrated Manufacturing) to the design of manufacturing systems.
- Reinforce knowledge of systems and mechanical manufacturing processes. Know relationships between process design, functionality of the piece and features of advanced materials. Integration of the aspects that include production systems. Learn advanced modeling techniques of forming processes.

Learning outcomes get by the student:

- Get enough approach for developing tasks about component design taking into account the manufacturing process thereof.
- Understanding of the fundamental aspects presents in the manufacturing systems based on integrated manufacturing strategies.

## DESCRIPTION OF CONTENTS: PROGRAMME

Introduction and general concepts:

- Components of an integrated manufacturing system.
- Design Engineering. CAD-CAM-CAE.
- Concurrent Engineering.
- Production and planning control.

Integration of manufacturing systems.

- Automated manufacturing systems.
- Computer integrated systems (CIM).
- Accomplishing of a CIM system.
- CIM models.

Design oriented to manufacturing:

- Materials.
- Limitations of the process.
- Considerations relating to service conditions of the component.

Design, engineering and computer aided manufacturing:

- Product Modeling and forming processes.
- Computer aided manufacturing (CAD-CAM).

4.0 Industry - Digitalization.

## LEARNING ACTIVITIES AND METHODOLOGY

Training activities will include:

- Lectures with theoretical content primarily.
- Practical classes in classroom in which will be made problems, practical cases and students group exhibitions about issues related to systems and strategies of integrated manufacturing.
- Practical classes in Virtual Classrooms (synchronous virtual sessions) for applying tools of CAD-CAM-CAE to the resolution of specific problems proposed.

## ASSESSMENT SYSTEM

The continuous evaluation system may allow pass the subject obtaining the highest qualification without having to make final exam.

THE NOTE FOR THE CONTINUOUS EVALUATION WILL BE OBTAINED:

- Note of the two practices (20%).
- Note of the practical case performed during the course (40%).
- Note of the students group exhibitions (20%).
- Nota of the partial exam (20%).

It may also be the final exam in both calls. The final subject qualification will be based on the following system:

ORDINARY CALL:

Option 1: Evaluation without final exam (continuous evaluation note = 100%).

Option 2: Evaluation through the final exam. The note will be the maximum of the two following:

- Note of the final exam (60%) and note of the continuous evaluation (40%).
- Note of the continuous evaluation (100%).

EXTRAORDINARY CALL:

The note will be the maximum of the two following:

- Note of the final exam (60%) and note of the continuous evaluation (40%).
- Not of the final exam (100%).

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

## BASIC BIBLIOGRAPHY

- Benhabib, Beno Manufacturing: Design, Production, Automation and Integration, Marcel Dekker, 2003
- Rehg, James A Computer-integrated manufacturing, Prentice Hall, 2005