Advanced machine design

Academic Year: (2019 / 2020) **Review date: 03-09-2019**

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: MUÑOZ ABELLA, MARIA BELEN

Type: Electives ECTS Credits : 6.0

Year : 4 Semester : 1

OBJECTIVES

1. To know the Computer Aided Design and Finite Element Method in Mechanical Design

DESCRIPTION OF CONTENTS: PROGRAMME

1. INTRODUCTION TO MECHANICAL DESIGN
2. COMPUTER AIDED DESIGN
3. SOLIDS MODELING
4. ASSEMBLY MODELING
5. FINITE ELEMENT METHOD
6. OPTIMAL DESIGN OF MECHANICAL COMPONENTS
7. CAD DESIGN

LEARNING ACTIVITIES AND METHODOLOGY

Classroom exercises and personal work.

ASSESSMENT SYSTEM

The subject will be evaluated according to the following criteria:

1- Continuous evaluation (Up to 4 points)
- Continuous evaluation of the first part of the subject (EC1): Up to 1,5 points
- Continuous evaluation of the second part of the subject (EC2): Up to 1,5 points
- Classroom performance (P): Up to 1 point

2- Ordinary Final Exam, with two parts (Up to 6 points):
- Final exam of the first part of the subject (EF1): Up to 3 points
- Final exam of the second part of the subject (EF2): Up to 3 points

Total: Up to 10 points

If the student passes any of the parts of the continuous evaluation, he (she) is released to attend the corresponding part of the final exam.

- If the student passes the two continuous evaluations (EC1 >= 5 and EC2 >= 5), the final grade is calculated:

FINAL GRADE = 0.1P + 0.45 EC1 + 0.45 EC2

- If the student passes one of the two continuous evaluations but fails the other, the final grade is calculated as follows:

If EC1 >= 5 and EC2 <5 then FINAL GRADE = 0.1 P + 0.45 EC1 + 0.15 EC2 + 0.3 EF2

If EC1 <5 and EC2 >= 5 then FINAL GRADE = 0.1 P + 0.45 EC2 + 0.15 EC1 + 0.3 EF1

- If the student does not pass either of the two continuous evaluations (EC1 <5 and EC2 <5), the final grade is calculated as follows:

FINAL GRADE = 0.1 P + 0.15 EC1 + 0.15 EC2 +0.3 EF1 + 0.3 EF2

To pass it is necessary to obtain a minimum of 3.5 points out of 10 in the total final exam

3- Extraordinary final call:

The highest grade of the two cases will be computed

- Case A: Extraordinary Final Exam, with two parts, computes the 100% of the grade for the extraordinary call
- Case B: Extraordinary Final Exam, with two parts computes the 60% of the grade for the extraordinary call and the continuous evaluation computes the 40% of the grade.

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

BASIC BIBLIOGRAPHY

- G. Boothroyd et al. PRODUCT DESIGN FOR MANUFACTURE AND ASSEMBLY. 2nd Ed, Marcel Dekker Inc, 2001

- M. S. Sanders, E. J. McCormick HUMAN FACTORS IN ENGINEERING AND DESIGN, McGraw-Hill, 1993