

Academic Year: (2020 / 2021)

Review date: 09-07-2020

Department assigned to the subject: Department of Mechanical Engineering

Coordinating teacher: MUÑOZ ABELLA, MARIA BELEN

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

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 ($EC1 \geq 5$ and $EC2 \geq 5$), the final grade is calculated:

$$\text{FINAL GRADE} = 0.1P + 0.45 EC1 + 0.45 EC2$$

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

$$\text{If } EC1 \geq 5 \text{ and } EC2 < 5 \text{ then } \text{FINAL GRADE} = 0.1 P + 0.45 EC1 + 0.15 EC2 + 0.3 EF2$$

$$\text{If } EC1 < 5 \text{ and } EC2 \geq 5 \text{ then } \text{FINAL GRADE} = 0.1 P + 0.45 EC2 + 0.15 EC1 + 0.3 EF1$$

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

as follows:

$$\text{FINAL GRADE} = 0.1 P + 0.15 EC1 + 0.15 EC2 + 0.3 EF1 + 0.3 EF2$$

- 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 (assignments, laboratory, practicals...): 40

BASIC BIBLIOGRAPHY

- Jesús Meneses, Carolina Álvarez, Santiago Rodríguez Introducción al Solid Edge, Thomson, 2006
- Nam H. Kim et al. Introduction to finite element analysis and design, John Wiley & Sons, 2018
- Rafael Gutiérrez, Lidia Esteban, Esther Pascual Solid Edge ST . Tradicional y síncrono, RA-MA, 2010

BASIC ELECTRONIC RESOURCES

- . Recursos gratuitos de Solid Edge para estudiantes.: <https://solidedge.siemens.com/es/solutions/users/students/>
- . Abaqus Student edition: <https://academy.3ds.com/en/software/abaqus-student-edition>
- . Abaqus documentation: <https://abaqus-docs.mit.edu/2017/English/SIMACAEEXCRefMap/simaexc-c-docproc.htm>