28837 - Computer-Assisted Design for Engineering

Syllabus Information

Academic Year: 2019/20
Subject: 28837 - Computer-Assisted Design for Engineering
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 424 - Bachelor's Degree in Mechatronic Engineering
ECTS: 6.0
Year: 4
Semester: Second semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

The subject raises several objectives:

Knowledge and application of CAD / CAM / CAE programs and their use as a representation tool

Knowledge of software for design, simulation analysis and fabrication-assembly.

Making of and printing of blueprints in accordance with the standards in the industrial sector

Development of autonomous work and decision making based on technical criteria applied throug

1.2.Context and importance of this course in the degree

CAD systems are used in product design engineering to obtain a precise geometric model.

These systems allow to validate the solution from the dimensional and assembly point of view.

CAE systems consist in the use of software to evaluate the geometric model obtained as a numer

CAD / CAE systems are essential in any industrial sector in the field of engineering.

1.3.Recommendations to take this course

For the acquisition of knowledge and procedures in a sequenced and adequate way of this Subject, it is recommended to have passed the subject of Graphic Expression (Course 1)

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process that is designed for this subject is based on the following:

- Theoretical-Practice sessions: Theoretical activities conducted by the teacher, so that the theoretical support of the subject is given, highlighting the major issues, structuring them on chapters and/or sections and connecting them to each other. Theoretical discussion activities or practice work preferably performed in the classroom and requiring high student participation
- Individual and/or group tutorials: These are made on a one-to-one basis, at the department. They aim to help to solve problems that are the students might have, particularly those which for several reasons cannot attend group tutorials or need more personalized attention. These tutorials may be face-to-face or virtual (Moodle or e-mail) in a timetable published on the EUPLA website

4.2.Learning tasks

The program that the students are offered to help them achieve the expected results involves the following activities which involve the active participation of the students, so that, to achieve the learning outcomes, the following activities will be developed

- Theoretical-Practice sessions (60h): The concepts and procedures of the subject will be developed and practical examples as support will be developed. Also, problems and case studies will be done to complement the theoretical concepts studied. Students will develop the concepts and procedures, particularly those of CAD-CAE
- Tutorials: Monitored autonomous activities: Although they will rather have a mixed nature between face-to-face and non-class tuition they have been considered separately and will be focused mainly on seminars and tutorials under the supervision of the teacher.

4.3.Syllabus

The course will address the following topics:

Essential Contents of the subject for the achievement of learning outcomes

INTRODUCTION

- Program and presentation of the course
- Digital prototypes
- CAD Modeling
- Blueprints generation

ELEMENTS AND SETS

- Assembly restrictions
- Special mechanical elements
- Welded sets
- Metal sheet and metal sheet generator

ANALYSIS

- preprocessor
- boundary conditions
- load hypothesis
- solve and post-processing of the solution
- documentation

4.4.Course planning and calendar

The Theory and Problem-Solving Lectures and the practical sessions in the laboratory are given according to the schedule set up by the School and it is published, prior to the start date of the course, on the EUPLA website, as well as the tutorial schedule.

The most significant dates -Planning of the Subject- (initial test, work proposals, and presentations ...) will be explained in the classroom, at the beginning of the course and in the Moodle Virtual Classroom.

The weekly schedule of the subject will be published at http://www.eupla.unizar.es/asuntos-academicos/calendario-y-horarios

The dates of the global evaluation test (official calls) will be published at http://www.eupla.unizar.es/asuntos-academicos/examenes

4.5.Bibliography and recommended resources

RESOURCES:

- Access to the subject documentation using the Moodle platform
- http://biblos.unizar.es/br/br_citas.php?codigo=28837&year=2019