Universidad Zaragoza

Year : 2020/21

28803 - Graphic expression

Syllabus Information

Academic Year: 2020/21
Subject: 28803 - Graphic expression
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 424 - Bachelor's Degree in Mechatronic Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Basic Education
Module: ---

1.General information

1.1.Aims of the course

The course and its expected results respond to the following approaches and goals:

Introduce the future Engineer into the spatial representation of graphic drawing, based on the different Representation Systems.

Make the relevance of the course understood as a ?Communication Language? at all levels of industry.

Know how to apply, in graphic documents, geometric drawing processes and major standards of Technical Drawing concerning the industrial world

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

2D and 3D representation.

To be able to explain, through the solving of practical cases published for this purpose, all procedures and theoretical knowledge acquired, reinforcing their independent work, given the relevance of non-classroom credits in the new EHEA (European Higher Education Area) framework.

Producing and printing technical documents-blueprints

1.2.Context and importance of this course in the degree

The course aims at training students for the design and graphic representation of diagrams, geometric figures, industrial parts-components and different objects.

It belongs to one of the basic disciplines common to other Engineering Degrees. In particular, through knowledge of the different graphic representation techniques, both by traditional methods and by the use of computer aided design, the student will be able to communicate in an international language with other people.

1.3.Recommendations to take this course

To take this course it is advisable to have a general prior knowledge of Technical Drawing.

2.Learning goals

2.1.Competences

Upon passing the subject, the student will be more competent to ...

GI03: Knowledge of basic and technological subjects, enabling them to learn new methods and theories, and provide them with versatility to adapt to new situations.

GI04: Ability to solve problems with initiative, decision making, creativity, critical thinking and to communicate and convey knowledge, abilities and skills in the field of Industrial Engineering

GC02: Interpret experimental data, contrast them with the theoretical ones and draw conclusions.

GC03: Ability for abstraction and logical thinking.

GC04: Ability lifelong, self-directed and independent learning

GC05: Ability to evaluate alternatives.

GC07.- Leading a team or being a committed member of it.

GC08: Ability to locate technical information, as well as its understanding and evaluation.

GC10.- Produce technical documentation and present it with the help of appropriate computer tools.

GC11.- Communicate their thinking and design clearly.

EB05.- Get space vision and knowledge of graphic representation techniques, both by metric and descriptive geometry traditional methods, such as CAD-CAE applications

2.2.Learning goals

The student, to pass this subject, must demonstrate the following results ...

1. Interprets and prepares multidisciplinary plans.

2. Identifies the most appropriate techniques for the representation of parts, diagrams and industrial assemblies or functional units.

3. Applies the corresponding regulations in the graphic representation of plans and diagrams typical to their Degree

4. Has a good command in the solving of graphic problems that may arise in engineering

5. Acquires the abstraction ability to view objects from different positions in space.

6. Collects information from different sources and formats, and understands, globally, that information.

7. Manages the necessary CAD / CAE tools, making the diagrams and exploded views of the components-parts that make up a set or functional unit, using the computer tools, in accordance with standardization, both in 2 and 3 dimensions.

2.3.Importance of learning goals

This subject has a clear engineering and communication language nature, that is, it offers

training with application content and immediate development, necessary for the production of reports or technical documents in different subjects of the degree, as well as in the labor and professional market. Therefore, it has a cross-curricular nature, of particular relevance, in those subjects with content of graphic design and, more specifically, those concerning Technical Office and Degree Projects.

Through the achievement of the relevant learning outcomes, the necessary skills to learn about and understand the rules and techniques of graphic representation, either through traditional methods, or through DAO applications.

3.Assessment (1st and 2nd call)

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

CONTINUOUS ASSESSMENT.

Participation (20%): Activities and work posed in class; Attitude and direct observation of skills and abilities in the subject.

Individual / Group Work -CAD-CAE- (40%): Posed work

Assessment test (40%): Test of practical application of concepts and procedures.

All the sections will have a summative value as long as the lowest mark in each one is 4

Students who have not passed any of the sections in the continuous assessment must go in for the respective calls of that part not passed or, where appropriate, make suitable corrections.

FINAL ASSESSMENT GLOBAL TEST

The student must opt ??for this modality when, due to their personal situation, they cannot adapt to the learning-teaching pace required in the continuous assessment system, they have failed their or they would like to improve their grade having participated in that assessment system.

Individual Work -CAD-CAE- (50%): Posed work

Assessment test (50%): Test of practical application of concepts and procedures.

All the sections will have a sum value as long as the value in each one is> 4

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process that has been designed for this course is based on:

1. Lectures: Theory explained by the teacher, dealing with the theoretical principles of the subject, highlighting major concepts and framing them into topics and / or sections and relating them to each other. In the non-classroom mode, adapted audio-visual teaching material and specific software will be used for independent monitoring of the course.

2. Classroom practice activities / seminars / lab tasks: Practical CAD-CAE application activities in the appropriate laboratory, and theoretical discussion activities that require high participation of the student will be carried out In the non-classroom mode, adapted audio-visual teaching material and specific software will be used for independent monitoring of the course.

3. Tutorials: Concerning any issues of the course, face-to-face mode, in the scheduled timetable or via the Moodle platform messaging and forum.

"If classroom teaching were not possible due to health reasons, it would be carried out on-line."

4.2.Learning tasks

Lectures and laboratory practice activities. They will take place four hours per week, until the completion of 60 hours necessary to cover the agenda.

Laboratory practice activities . They will be carried out in subgroups adapted to the room of the laboratory.

Study and personal work. This non-classroom part is worth about 90 hours, necessary for the study of theory, problem solving and note review

Non-classroom generic activities and tutorials. Each teacher will announce a timetable of student assistance

throughout the semester

4.3.Syllabus

Contents of the subject essential to produce the learning outcomes.

1.- Technical Drawing and Representation Systems

1-1.- Geometric Plotting. Basic standardization

Metrics and Geometric Plotting

Sketching

Dimensioned drawing

Cross-Cuts and Sections

Thread Representation

Conicity, Convergence, Tilt and Slope

1-2.- Industrial Technical Drawing. Advanced Standardization

Detachable and fixed connecting elements.

Surface Signs and Tolerances

Toothed wheels

Bearings

Clusters and Detail views. Materials. List of ...

2.- Knowledge and Application in the Development of CAD-CAE

2-1 Knowledge and Application in the Development of CAD-CAE (I)

Introduction to the Modeling Process

Working with sketches

Introduction to Operations

Assemblies (Clusters, Groups, U.F.)

Documentation

Exploded Views

2-2 Knowledge and Application in the Development of CAD-CAE (II)

Diagram Development Software

4.4.Course planning and calendar

Theory and problem lectures are given at the time scheduled by the School, as well as the periods assigned to practice activities.

The most significant dates (work posing, delivery-presentation assessment test) will be announced in class, and in the Moodle Virtual Platform.

The timetable of the classes will be found on the EUPLA website http://www.eupla.unizar.es/

In addition, students will have, at the beginning of the course, the dates and places of the examinations.

4.5.Bibliography and recommended resources

RESOURCES:

- Access to the subject documentation using the Moodle platform
- Freehand drawing tools and Pendrive

http://biblos.unizar.es/br/br_citas.php?codigo=28803&year=2020