Computer-Aided Design

ECTS: 6 ECTS

COORDINATOR: Abraham Segade Robleda (asegade@uvigo.es)

UNIVERSITY WHERE THE COORDINATOR IS: UVigo

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? No

LECTURER 1: Pablo Izquierdo Belmonte (pabloizquierdob@uvigo.es)

UNIVERSITY WHERE THE LECTURER 1 IS: UVigo

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? No

LECTURER 2: Pablo Izquierdo Belmonte (pabloizquierdob@uvigo.es)

UNIVERSITY WHERE THE LECTURER 2 IS: UVigo

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? No

SUBJECT CONTENTS

1. Introduction: applications of computer-aided design, process of computer-aided design (compared to classic procedure), introduction to CAD: CAD 2D, 3D and 3D parametric.

2. Introduction to 3D modeling: introduction to the generation of the 3D model: tools for 2D sketching and basic 3D, 3D advanced tools, modeling of assemblies or sets from 3D models, generation of drawings. Dimensioning basis, assembly drawings, lists of materials, standard elements.

3. Introduction to FEM analysis: simulation of parts, and assemblies, study of stresses, deformations, geometry optimization.

METHODOLOGY

There will be one or two hours of exposition of theoretical contents at the introduction and dimensioning basis. The rest of the lessons will have practical content, with personal work of the students with their own computer consisting of the execution of exercises of 3D modeling, assembly, drawings, etc.

At the same time of the lessons, a whole project will be conducted. It will consist in the modeling of a complete set, obtaining the manufacturing plans for the construction of the same.

Attendance to all the sessions, delivery of the exercises and fullfillment of the whole project can suppose the continuous-assesment approval of the subject without final exam.

The devolpment of the project supports CG1 where the student must apply his own solutions to the proposal. In this context also CS1 ans CS2 are supported because the handle software tools to solve the proposed project.

CG4, CE4 and CE5 are developed with the exercises proposed at the practical lessons because the student must write a report and compare analytical results with obtained ones using simulation tecniques.

LANGUAGE USED IN CLASS: Spanish

IS IT COMPULSORY TO ATTEND CLASS? Yes, at the university where the teacher is. In this case, at the LD09 laboratory, Telecommunication Engineering School, Campus de Vigo.

BIBLIOGRAPHY

Jose M. Auria Apilluelo, P. Ibañez Carabantes y P. Ubieto Artur. Dibujo Industrial - Conjuntos y Despieces

Mariano Hernández Alvadalejo, Introducción al diseño asistido por computador

Lombard, Matt, Solidworks 2013 Bible, Wiley Ed.

Alejandro Reyes, “Beginner's guide to SolidWorks 2013. Level I”, SDC Publications.

Alejandro Reyes, “Beginner's guide to SolidWorks 2013. Level II”, SDC Publications.

SKILLS

Basic:

CG1: To have knowledge that provide a basis or opportunity for originality in developing and / or applying ideas, often within a research context, knowing how to translate industrial needs in terms of R & D in the field of mathematics Industrial.

CG4: To have the ability to communicate the findings to specialist and non-specialist audiences in a clear and unambiguous way.

Specific:

CE4: To be able to select a set of numerical techniques, languages and tools, appropriate to solve a mathematical model.

CE5: To be able to validate and interpret the results, comparing them with visualizations, experimental measurements and functional requirements of the physical engineering system.

Numerical specialization:

CS1: To know, be able to select or use how to handle most suitable professional software tools (both commercial and free) for the simulation of processes in the industrial and business sector.

CS2: To adapt, modify and implement software tools for numerical simulation.

WILL YOU BE USING A VIRTUAL PLATFORM? Yes, faitic.

WILL YOU BE USING ANY SPECIFIC SOFTWARE? Yes. Solidworks (2010).

CRITERIA FOR THE 1ST ASSESSMENT OPPORTUNITY

1. Continuous Assessment: lectures, exercises proposed during lectures (evaluate CG1, CS1 and CS2) and a project developed along the course (evaluates CG4, CE4 and CE5).

2. Failure to pass the subject by means of continuous assessment a final examination evaluated over 10 can be taken. It is necessary to score at least 5 to pass the subject. In this exam skills CG1, CG4, CS1, CS2, CE4 and CE5 are evaluated.

CRITERIA FOR THE 2ND ASSESSMENT OPPORTUNITY

Final exam. It is necessary to score at least 5 over 10 to pass the subject. In this exam skills CG1, CG4, CS1, CS2, CE4 and CE5 are evaluated.

COMMENTS

It is compulsory to attend class due to the high practical content.