



Course guide

820058 - ACAD - Advanced Computer-Aided Design

Last modified: 08/08/2024

Unit in charge: Barcelona East School of Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.

Degree: BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** English

LECTURER

Coordinating lecturer: JORDI TORNER RIBE

Others: Primer quadrimestre:
JORDI TORNER RIBE - Grup: M1

PRIOR SKILLS

Must have completed successfully EG

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:

1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

TEACHING METHODOLOGY

This course uses narrative method by 50%, individual work 25% and project-based learning by 50%.
No reassessment test is performed.

LEARNING OBJECTIVES OF THE SUBJECT

Acquire fundamentals and knowledge in order to use different CAD Systems according to the drawing, design or project to produce.

STUDY LOAD

| Type | Hours | Percentage |
|-------------------|-------|------------|
| Hours small group | 45,0 | 30.00 |
| Self study | 90,0 | 60.00 |
| Guided activities | 15,0 | 10.00 |

Total learning time: 150 h

CONTENTS

(ENG) Giving a general knowledge of features and characteristics in CAD systems.

Description:

CAD software
Project management

Full-or-part-time: 30h

Practical classes: 7h 12m

Guided activities: 3h

Self study : 19h 48m

(ENG) Getting knowledge on how to use 2D layer CAD systems

Description:

Introduction
2D plots
Modification and Editing
Blocks, dimensioning and layers
2D to 3D
Layouts
Solids

Full-or-part-time: 30h

Practical classes: 7h 12m

Guided activities: 3h

Self study : 19h 48m

(ENG) Using tools on CAD software: Drawings. Animation. Simulation. Analysis. Assembly Visualization. Configurations. Exploded assemblies

Description:

Drawings
Animation
Simulation
Analysis
Assembly Visualization
Configurations
Exploded assemblies

Full-or-part-time: 30h

Practical classes: 7h 12m

Guided activities: 3h

Self study : 19h 48m



(ENG) Introducing concepts on Advanced Surface Modeling (Bezier, B-Spline i NURBS)

Description:

Introduction
Precision modeling
Creating surfaces
NURBS basics
Editing objects
3-D
Modeling and editing
Importing and exporting

Full-or-part-time: 30h
Practical classes: 7h 12m
Guided activities: 3h
Self study : 19h 48m

(ENG) Using visualization and rendering solutions

Description:

Animator
Photoview
Events
Simulation

Full-or-part-time: 30h
Practical classes: 7h 12m
Guided activities: 3h
Self study : 19h 48m

GRADING SYSTEM

Exam 1: 20%
Exam 2: 20%
Final Project: 55%
Competence: 5%

BIBLIOGRAPHY

Basic:

- Omura, George. Introducing AutoCAD 2010 : and AutoCAD LT 2010 [on line]. Hoboken: Sybex, 2012 [Consultation: 14/04/2020]. Available on: <https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=469774>. ISBN 9780470561423.
- Gu, Ning [ed]; Wang, Xiangyu [ed]. Computational design methods and technologies : applications in CAD, CAM and CAE education [on line]. Hershey PA: IGI Global, 2012 [Consultation: 14/04/2020]. Available on: <https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=3311562>. ISBN 9781613501801.
- Gómez González, Sergio; Torner Ribé, Jordi. Grasshopper para Rhinoceros e impresión 3D. Barcelona: Marcombo, 2016. ISBN 9788426722751.