

## Course guide

# 820058 - ACAD - Advanced Computer-Aided Design

Last modified: 27/05/2024

**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 RIBÉ

**Others:** Primer quadrimestre:  
JORDI TORNER RIBE - M11

### 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.