

Course guide

205222 - UAVDG - Uav Generative Design

Last modified: 02/04/2024

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
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 TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).

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

LECTURER

Coordinating lecturer: Lordan Gonzalez, Oriol

Others:

PRIOR SKILLS

Students must have a good knowledge of CAD.

TEACHING METHODOLOGY

The course is divided into four parts:

- *Theory sessions
- *Activity sessions
- *Self-study

In the theory sessions (in the classroom), lecturers will introduce the theoretical basis of the concepts and methods behind generative design and UAVs and illustrate them with examples appropriate to facilitate their understanding.

In the activity sessions (in the classroom), lecturers will guide students in applying theoretical concepts to develop a UAV.

In the project sessions (in the classroom), students will apply the theoretical concepts to the project.

The course is hands on orientated through the activity and project sessions.

Students, independently, will need to work on the materials provided by lecturers in order to develop the project. The lecturers provide the syllabus and monitoring of activities (by ATENEA).

LEARNING OBJECTIVES OF THE SUBJECT

This course introduces the concepts, principles and fundamentals for designing and manufacturing drones. We will explore both traditional and generative design for covering the present and future of drone manufacturing.

STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	60,0	40.00

Total learning time: 150 h

CONTENTS

Module 1: Traditional design for CNC cutting

Description:

- Drone layout
- CNC cut frames
- Traditional CAD design

Related activities:

Assignment 1
Assignment 2
Assignment 3

Full-or-part-time: 75h

Theory classes: 30h
Self study : 45h

Module 2: Generative design for 3D printing

Description:

- Drone forces
- 3D printed frames
- Generative design

Related activities:

Assignment 4
Assignment 5
Assignment 6

Full-or-part-time: 75h

Theory classes: 30h
Self study : 45h

GRADING SYSTEM

The final grade depends on the following assessment criteria:

Assignment 1: 5%
Assignment 2: 15%
Assignment 3: 30%
Assignment 4: 5%
Assignment 5: 30%
Assignment 6: 15%

As there are no written tests, there won't be any exam to retake.

RESOURCES

Other resources:

The lecturers provide the syllabus and monitoring of activities (by ATENEA).