

Course guide

220146 - UAVPID - Uav Research & Development Project

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:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Lordan Gonzalez, Oriol

Others:

TEACHING METHODOLOGY

The course is divided into four parts:

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

In the theory sessions (in the classroom), lecturers will introduce the theoretical basis of the concepts and methods behind 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 R&D UAV projects based on quadcopters.

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

The main objective of the course is to design, build and implement a launcher parachute for a 1 kg drone. During the course we will work on the different parts to get a functional solution that will finally be put to the test. Therefore, the course has a great hands on approach.

STUDY LOAD

Type	Hours	Percentage
Self study	45,0	60.00
Hours large group	30,0	40.00

Total learning time: 75 h

CONTENTS

Module 1: Design and building of a parachute for drones

Description:

Design and building of a 1 kg drone parachute with a launcher that can be activated with a servo

Related activities:

Assignment 1: Parachute launch attached to a 1 kg bottle

Assignment 2: Launcher with parachute launch attached to a 1 kg bottle

Full-or-part-time: 35h

Theory classes: 15h

Self study : 20h

Module 2: Implementation of the parachute in the drone

Description:

Install the necessary elements adapting the current frame of a drone and testing all the parts

Related activities:

Assignment 3: Servo installation to launcher with parachute attached to the drone frame

Assignment 4: Drone launch (it will only be carried out with safe parachutes)

Full-or-part-time: 40h

Theory classes: 15h

Self study : 25h

GRADING SYSTEM

The final grade depends on the following assessment criteria:

Assignment 1: 25%

Assignment 2: 25%

Assignment 3: 25%

Assignment 4: 25%

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

RESOURCES

Other resources:

Notes available at Atenea.