

## Course guides

# 220142 - 220142 - Uav Research & Development

Last modified: 08/06/2020

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

**Degree:** 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 TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Optional subject).

**Academic year:** 2020    **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 program mini-drones.

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 understand how individual or multiple drones can be programmed to perform a flight.

### STUDY LOAD

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

**Total learning time:** 75 h



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### Module 1: Programming a single dron

**Description:**

Learn how to program a single mini-drone

**Related activities:**

Assignment 1

**Full-or-part-time:** 25h

Theory classes: 15h

Self study : 10h

### Module 2: Programming multiple drones

**Description:**

Learn how to program multiple mini-drones

**Related activities:**

Assignment 2

**Full-or-part-time:** 20h

Theory classes: 10h

Self study : 10h

### Module 3: Advance programming

**Description:**

Learn how to use new libraries and implement advanced functions

**Related activities:**

Assignment 3

Assignment 4

Assignment 5

Project

**Full-or-part-time:** 30h

Theory classes: 5h

Self study : 25h

## GRADING SYSTEM

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The final grade depends on the following assessment criteria:

Assignment 1: 10%

Assignment 2: 10%

Assignment 3: 10%

Assignment 4: 20%

Assignment 5: 20%

Project: 30 %

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