

220142 - Uav Research & Development

Coordinating unit:	205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit:	732 - OE - Department of Management
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN TEXTILE TECHNOLOGY AND DESIGN ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits:	3
Teaching languages:	English

Teaching staff

Coordinator: Oriol Lordan

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 a foldable quadcopter.

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 drones are designed and manufactured. In order to do so students will develop a project that consists on designing and 3D printing a foldable drone. This project integrates knowledge of multiple areas of engineering with a hands on approach. This course can be complemented by the Bachelor's Thesis.

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Study load

Total learning time: 75h	Hours large group:	30h	40.00%
	Self study:	45h	60.00%

Content

Module 1: UAV Basics	Learning time: 10h Theory classes: 5h Self study : 5h
<p>Description: Introduction to different type of UAVs</p> <p>Related activities: Activity 1 Project, part 1</p>	
Module 2: UAVs manufacture	Learning time: 15h Theory classes: 5h Self study : 10h
<p>Description: Describe the UAVs manufacture methods, in particular 3D printing</p> <p>Related activities: Activity 2 Project, part 2</p>	
Module 3: UAV building	Learning time: 50h Theory classes: 20h Self study : 30h
<p>Description: Design, 3D print and assemble a foldable drone</p> <p>Related activities: Project, part 3</p>	

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Qualification system

The final grade depends on the following assessment criteria:

Activity 1, weight: 20 %

Activity 2, weight: 20 %

Project, part 1: weight: 20 %

Project, part 2: weight: 20 %

Project, part 3: weight: 20 %

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

Bibliography