Course guides
205061 - 205061 - Introduction to Active Flow Control

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 729 - MF - Department of Fluid Mechanics.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Optional subject).
MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Optional subject).

Academic year: 2021 ECTS Credits: 3.0 Languages: English

LECTURER

Coordinating lecturer: Josep M Bergadà

Others:

TEACHING METHODOLOGY

Classes will be done via using power point or similar, the class will be active therefore the students will need to participate

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>48,0</td>
<td>64.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>27,0</td>
<td>36.00</td>
</tr>
</tbody>
</table>

Total learning time: 75 h

CONTENTS

Module 1

Description: Active versus passive flow control.

Related activities: Search information regarding actual applications of each control.

Full-or-part-time: 4h
Theory classes: 2h
Self study: 2h
## Module 2

**Description:**
Fluidic oscillators. Evaluation of all existing devices an the field of its possible application.

**Related activities:**
The students will simulate the performance of one of these devices.

**Full-or-part-time:** 24h
- Theory classes: 8h
- Self study: 16h

## Module 3

**Description:**
Boundary layer theory

**Related activities:**
Students will learn the boundary layer main equations and how the boundary layer modification is affecting the forces acting on the body.

**Full-or-part-time:** 12h
- Theory classes: 6h
- Self study: 6h

## Module 4

**Description:**
Different applications of Active Flow control

**Related activities:**
In this module it will be analized the different applications of AFC, the ones existing, the ones expected and other possible future applications. The idea is to simulate a given case to observe the benefits and drawbacks of AFC

**Full-or-part-time:** 35h
- Theory classes: 11h
- Self study: 24h

## GRADING SYSTEM

The evaluation will be performed based on the assignmends the students will undertake. two or three assignmends will be done in groups of 3 people