



Course guides

205061 - 205061 - Introduction to Active Flow Control

Last modified: 29/05/2020

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: 2020 **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

Type	Hours	Percentage
Self study	48,0	64.00
Hours large group	27,0	36.00

Total learning time: 75 h

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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 analyzed 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 assignments the students will undertake. two or three assignments will be done in groups of 3 people