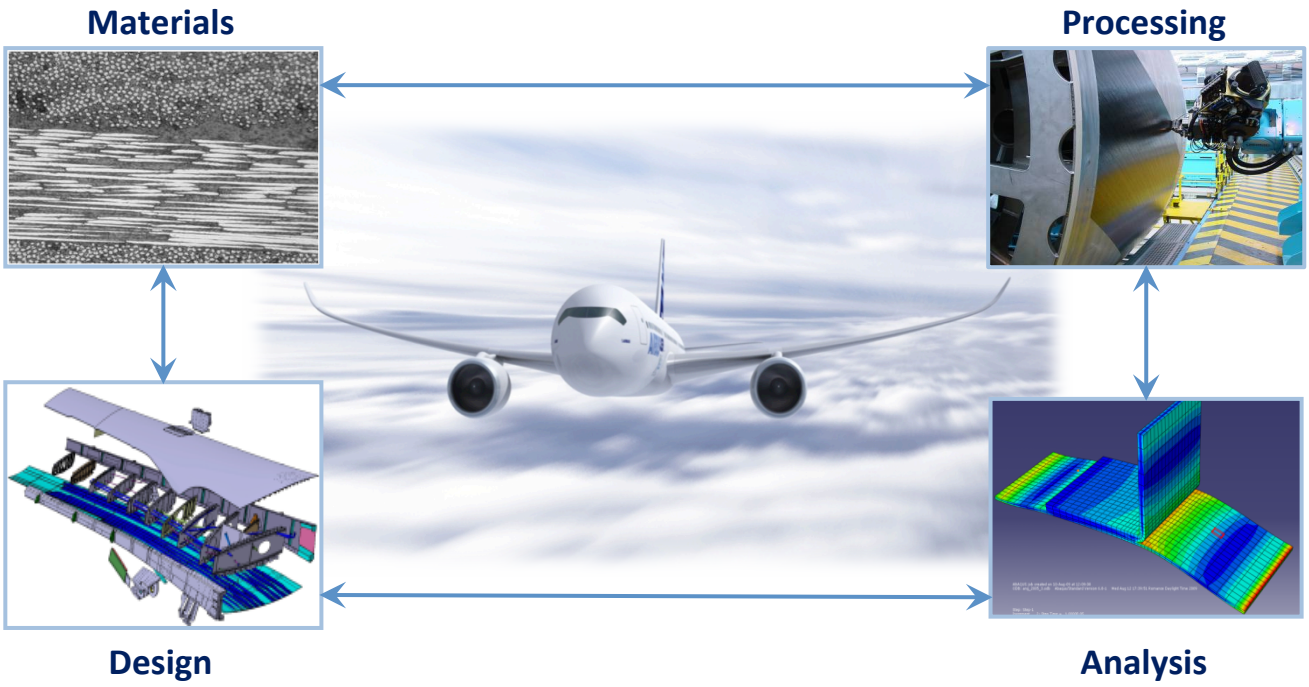
# Master on Composite Materials
# 10th Edition (Oct 2019 to Dec 2020)

https://mmtc.etsiae.upm.es/

Jointly organized by the
Polytechnic University of Madrid and AIRBUS Group




## Objective

- Prepare high quality trained postgraduates with skills to work efficiently on the **research, design and development of composite structures**
- The Master's content has been chosen to give a sound understanding of **all aspects of composites**

## Industries

- The Master focuses on the **aerospace industry** although the contents and processes are also applicable to other **high tech industrial sectors**
- The course is oriented to graduates in engineering, materials science, physics or chemistry

## Teaching Staff

- Since the 80's, employees of different AIRBUS business units located near Madrid have accumulated a vast amount of practical experience in Composites and their **expertise is internationally recognized**
- Teaching staff with an average of **15 years of experience on design, analysis and manufacturing** of composite aircraft structures (e.g. A320, EFA, A380, A350, A400, etc):
  - Experts from University
  - AIRBUS business units
  - FIDAMC
  - GAMESA
  - IMDEA Materials Institute
  - Other aerospace industries

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## Master's Structure

- The Master may be completed in 1 or 2 years
- The Master is organized in **Modules** that last from 2 to 4 weeks
- Each Module is divided into several **lectures taught intensively** Monday thru Thursday in the afternoon (17:00 to 21:00)
- **Lectures** will be given mostly in Spanish, some in English.
- **Handouts** and other course materials are written in English
- Registration for independent modules is only accepted under special circumstances

## Group discussion and evaluations

- One of our main concerns is to promote the **active participation** of the students, not only for them to collect information
- After each module is finished, a **practical exercise** is proposed to the students, which has to be solved individually or in groups and then discussed in the classroom
- This approach requires the students to revise their notes, think about, get involved and to learn how to face **real problems**. More than 10% of the time is allocated to this activity

## Master Thesis

- To be done after the lectures completion, from June to December 2020
- Agreements have been reached with AIRBUS and other industries and research centres, to do the Thesis at their facilities. Acceptance is done by the industry on a case by case basis.

## Modules

Modules are taught **sequentially**, the exact dates can be found at our website

- Constituents materials: Fibre, matrices, prepregs, cores
- Manufacture of Polymer Matrix Composites
- Design of Composite structures
- Analysis of Composites structures
- Simulation techniques and Virtual testing
- Health and environment issues. Green composites
- Certification of composite aerostructures
- In-service behaviour
- Production management. Lean manufacturing
- Project management
- Smart Composites
- Non conventional composites CMC, MMC
- Nanocomposites and natural composites
- Concurrent engineering
- Special considerations for Composites in Space applications

## Entry requirements and fees

- Candidates must have by mid-October 2019:
  - a degree in engineering, technical engineering, chemistry or physics
  - High level of English and Spanish.

- This Master Course is offered as a **Diploma of the Universidad Politécnica de Madrid**

- Total fees for the Master are 9.900 **€**

- **There is an offer of scholarships from AIRBUS, FIDAMC and other companies, which offer practical training during the morning, and economic incomes equivalent to the Master fees. Consult website.**

Registration from **02/06/2019 to 15/09/2019** via website

**Further information**
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