

Composite Materials and Maintenance

Module of Master E.P.M.A
European Postgraduate Master
in Aerospace



Objectives

This module intended to train to the present inspection and reparation procedures for composite structures. Courses and practical works are essentially based on Structural Repair Manual supplied by aircraft manufacturers.

On completion of this module, delegates will know:

- The inspection procedures of composite structures
- The different reparation procedures recommended by aircraft manufacturers
- The constraints due to in-situ reparations

On completion of this module, delegates will be able to:

- Recognize various types of damage in composite materials
- Define a reparation procedure or a part replacement according to damage tolerances and damage reparability
- Define an assessment method after reparation

Target Delegates

This module is intended for professionals - engineers or assistant engineers and/or managers- interested in a carrer on aeronautical maintenance engineering.

Number of Delegates

16 maximum

Prerequisite of the module

Basic knowledge of various types of composite materials and of composite manufacturing processes.

Lecturers

Lecturers come from University Bordeaux1, LGM²B and from composites analysis consultant.

The conferences session will be given by industrials partners from aerospace sector.

Learning Methods

Courses : 6H00

Course applications : 4H00

Practical Works: 16H00

Conferences: 4H00

Program taught in English.

Learning Tools

Courses, application and practical works proceedings will be given in paper and CDROM format.

Equipment and supplies used in practical works:

- Prepreg composite materials, foam, honeycomb, epoxy adhesive
- Moulds, curing oven, reparation kit, cutting tools, tools and supplies for composite curing
- Structural Repair Manual of some commercial aircrafts
- Tensile test machine with associated equipments
- Ultrasonic NDT device

Dates

Contact us

Duration

5 days

Place

University Bordeaux 1 - IMA
rue Marcel Issartier
33700 Mérignac

Programme

Hours	Monday	Tuesday	Wednesday	Thursday	Friday
8H00-9H00				Application 2: Using the Structural Repair Manual : examples	Practical work 4: Characterization of mechanical strength before and after reparation
9H00-10H00	Introduction: Module content and schedule	Course 2: Damage analysis before reparation	Course 3: Reparation implementation		
Break					
10H15-11H15	Course 1: Damage description and classification	Conference 1	Conference 2	Conference 3	
11H15-12H15					
Lunch					
14H00-15H00	Practical work 1: Manufacturing of a composite structure	Application 1: Study of the architecture of a Structural Repair Manual	Practical work 2: Drafting of a reparation card using the Structural Repair Manual	Practical work 3: Reparation (after damaging) of a composite structure	Evaluation
15H00-16H00					
Break					
16H15-17H15					
17H15-18H15					

Damage description and classification (2H00)

Damage analysis before reparation (2H00)

Reparation implementation (based on Structural Repair Manual) (6H00)

Description of practical works:

- **Manufacturing of a composite structure (4H00)**
- **Drafting of a reparation card using the Structural Repair Manual (4H00)**
- **Reparation (after damaging) of a composite structure (4H00)**
- **Characterization of mechanical strength before and after reparation (4H00)**

Certification of the module

A certificate of training is established, at the end of the module, by the Service Commun de la Formation Continue et de l'Apprentissage of the University Bordeaux 1 for each participant, on the basis of attendance sheet.

Training fees

1 250 € net inclusive of didactical material, coffee-breaks and lunches.

A company group discount is provided.

Responsible of the module

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Coordination



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