AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Teaching PROCESSING AND PROPERTIES OF COMPOSITE MATERIALS FOR AERONAUTICS

GenCod A004095

Owner professor Alfonso MAFFEZZOLI

Teaching in italian PROCESSING AND PROPERTIES OF COMPOSITE

Teaching PROCESSING AND PROPERTIES OF COMPOSITE

SSD code ING-IND/24

Reference course AEROSPACE ENGINEERING

Course type Laurea Magistrale

Credits 9.0

Teaching hours Ore-Attivita-frontale: 81.0

For enrolled in 2017/2018

Taught in 2018/2019

Course year 2

Language INGLESE

Curriculum AEROSPACE DESIGN

Location Brindisi

Semester Secondo-Semestre

Exam type Orale

Assessment Voto-Finale

Course timetable https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION

This course provides a strong interdisciplinary approach to composite materials in view of their application in aeronautic structure. Competences on polymer matrices and reinforcements, mechanics of anisotropic materials, fabrication technologies of thermoplastic and thermosetting matrix composites are provided.

REQUIREMENTS

knowledge of solid mechanics and materials science and technology

COURSE AIMS

Knowledge and understanding:

The course provides the basis of knowledge to understand and solve complex new problems in design and processing of composite materials accounting for anisotropy and reactive processing

Applying knowledge and understanding

The student will be able to apply the basic knowledge on mechanics of anisotropic materials to the design of simple structural elements. A multidisciplinary approach is presented accounting for chemical, materials and mechanical engineering aspects.

Making judgements

Simplification and synthesis of complex problems is presented in order to promote the judgement and evaluation capabilities of the students

Communication

The course promotes the development of the following skills of the student: ability to expose in precise and formal terms an abstract model of concrete problems, identifying the salient characteristics of them and discarding the inessential characteristics; ability to describe and analyze an efficient solution for the problem under consideration. A seminar on composite properties is assigned to students

Learning skills

Autonomous learning is promoted thanks to the use of: different books and slides, numerical methods, homework exercise to be solved in groups of two.

TEACHING METHODOLOGY	Lessons, practice with a software implenting micro and macromechanic of composite materials, visit to an industrial plant
ASSESSMENT TYPE	Oral exam after a seminar on composite properties and a homework .
FULL SYLLABUS	ntroduction, reinforcement materials (12 hours). Thermosetting and thermoplastic matrices and core materials (8 hours). Micromechanic (10 hours). Mcromechanic (20 hours). Properties (4 hours) Fabrication technologies of polymer matrix materials (28hours). A visit to at least an industrial plan is programmed
REFERENCE TEXT BOOKS	See the file in the field "materiale didattico"