AEROSPACE ENGINEERING (LM52)  
(Reggio Calabria - 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 2018/2019  
Taught in 2019/2020  
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.
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<tr>
<th>TEACHING METHODOLOGY</th>
<th>Lessons, practice with a software implementing micro and macromechanics of composite materials, visit to an industrial plant. Self evaluation tests after each topic by Kahoot</th>
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<td>ASSESSMENT TYPE</td>
<td>Oral exam after a seminar on composite properties and a homework.</td>
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| FULL SYLLABUS        | Introduction (2 h.)  
Thermosetting and thermoplastic matrices and core materials. (6 h.)  
Micromechanics. (15 h.)  
Properties (4 h.)  
Fabrication technologies of polymer matrix materials (30 h.)  
A visit to at least an industrial plan is programmed (4 h.) |
| REFERENCE TEXT BOOKS | See the file in the field “materiale didattico” |