AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Insegnamento FUNDAMENTALS OF AEROSPACE TECHNOLOGIES C.I.

GenCod A006484

Docente titolare TERESA PRIMO

Insegnamento FUNDAMENTALS OF AEROSPACE TECHNOLOGIES C.I.

Anno di corso 2

Insegnamento in inglese

Lingua

Settore disciplinare ING-IND/16

Percorso CURRICULUM AEROSPACE TECHNOLOGY

Corso di studi di riferimento AEROSPACE ENGINEERING

Tipo corso di studi Laurea Magistrale

Sede Brindisi

Crediti 3.0

Periodo Primo Semestre

Ripartizione oraria Ore Attività frontale: 27.0

Tipo esame Orale

Per immatricolati nel 2022/2023

Valutazione

Erogato nel 2023/2024

Orario dell'insegnamento https://easyroom.unisalento.it/Orario

BREVE DESCRIZIONE DEL CORSO

The course aims to deepen the aspects related to production technologies applied in aeronautical constructions with particular reference to the choice and function performed by the construction materials and the transformation technologies connected to them.
In the field of plastic deformation technologies, the fundamental principles of plasticity theory, formability and material behaviour, Sheet Metal Forming Processes and their applicability to the aeronautical sector will be illustrated.
At the same time, the aspects relating to assembly processes and in particular those relating to the welding of metallic materials, riveting and Adhesive Bonding of the components will be treated. Lastly non-destructive testing for verification of product quality will be tackled.
Numerical exercises will be carried out on some aspects covered in the theory part to familiarize with the physical quantities that characterize them, in addition to laboratory exercises that will be focused on tools for the finite element simulation of sheet metal forming.

PREREQUISITI

It is necessary to have passed Mechanical Technology exam. Knowledge of Technical Industrial Design exam is useful

OBIETTIVI FORMATIVI

- Knowledge of elasto-plastic behavior of materials and rheological models
- Basic knowledge of Assembly Processes
- Basic knowledge for the Sheet Metal Forming Simulation

METODI DIDATTICI

Frontal lessons

MODALITA' D'ESAME

The exam consists of two test:
Oral: the student discusses the contents of the course, illustrating their level of knowledge and understanding of the topics covered.
Practical: it will be focused on the tools for the finite element simulation of sheet metal forming.

PROGRAMMA ESTESO	Elasto-plastic behavior of materials and Rheological Models Sheet Metal Forming Processes Formability and material behaviour Sheet Metal Forming Simulation: One Step (Inverse) Method Sheet Metal Forming Simulation: Incremental Explicit/Implicit FEA Methods Welding Processes Structural Assembly Adhesive Bonding

TESTI DI RIFERIMENTO

- Class Notes.
- F.C. Campbell, Manufacturing Technology for Aerospace Structural materials, First Edition, Elsevier, 2006.
- Mikell P. Groover, Fundamentals of Modern Manufacturing, Materials, Processes and Systems.