AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Insegnamento AEROSPACE STRUCTURES AND CERTIFICATION (MOD.1) C.I.

GenCod A006605
Docente titolare Gennaro SCARSELLI

Insegnamento AEROSPACE STRUCTURES AND CERTIFICATION

Insegnamento in inglese AEROSPACE STRUCTURES AND CERTIFICATION

Settore disciplinare ING-IND/04

Corso di studi di riferimento AEROSPACE ENGINEERING
Tipo corso di studi Laurea Magistrale

Crediti 6.0

Ripartizione oraria Ore Attività frontale: 54.0
Per immatricolati nel 2022/2023

Erogato nel 2022/2023

Anno di corso 1

Lingua

Percorso CURRICULUM AEROSPACE SYSTEMS

Sede Brindisi

Periodo

Tipo esame Orale

Valutazione

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

BREVE DESCRIZIONE DEL CORSO	This course is an introduction to the finite elements method: basic structural schemes are developed and solved using commercial software. In the second part Certification issues are analysed. The course is closed by an experience in Laboratory where a static test is designed, carried out and analysed.
PREREQUISITI	Knowledge of calculus, basic concepts of continuum mechanics, solid mechanics.
OBIETTIVI FORMATIVI	Capability of developing a finite element model for structural applications Capability of interpretation of the numerical results Capability of debugging numerical models Knowledge of the certification process in the aeronautical field Knowledge of how a structural certification test is carried out
METODI DIDATTICI	Frontal lectures Assignments Laboratory
MODALITA' D'ESAME	Development of a FE model in classroom Discussion of the certification issues

PROGRAMMA ESTESO

Introduction to the finite elements method. The Galerkin method for the discretization of structures. Resolution of a truss loaded with concentrated loads. The commercial software used for the Finite Elements models development. Simple elements. Masses. Bars. Beams. Panels. Solid models. Materials. Simple structural schemes. The loads. The boundary conditions. The different structural analyses. Linear static analysis. Normal modes analysis. Transient analysis. Buckling analysis. The interpretation of the results. The visualization of the results. Integration of CAD/CAE. Certification specifications in the aeronautical field. CS 23, CS 25, CS VLA, CS VLR. The certification documentation. Certification tests. The flutter certification. A full development of a structural component: from the requirements to the design and calculation; the manufacturing and test with the final interpretation of the numerical and experimental results.

TESTI DI RIFERIMENTO

Handouts prepared by the teacher