

AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Insegnamento FUNDAMENTAL OF HELICOPTER DESIGN, PRODUCTION AND MAINTENANCE

GenCod A003318

Insegnamento FUNDAMENTAL OF HELICOPTER DESIGN, PRODUCTION

Insegnamento in inglese FUNDAMENTAL OF HELICOPTER DESIGN, PRODUCTION AND

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 2020/2021

Erogato nel 2020/2021

Anno di corso 1

Lingua INGLESE

Percorso CURRICULUM AEROSPACE TECHNOLOGY

Docente FRANCESCO NICASSIO

Sede Brindisi

Periodo Primo Semestre

Tipo esame Orale

Valutazione Voto Finale

Orario dell'insegnamento

<https://easyroom.unisalento.it/Orario>

BREVE DESCRIZIONE DEL CORSO

This course provides basic concepts of helicopter systems, with associated structures and substructures. The course intends to reach the "integrated helicopter view" in which each part is connected to the "helicopter main system". This interdisciplinary approach facilitates the scientific development of the students.

PREREQUISITI

In order to attend the course, students must have a deep knowledge of physics (kinematic, static, dynamic, thermodynamic, electrical, optical, acoustic studies...). Overall, skills on aircraft (configurations and main features) are desirable. The knowledge of aerodynamic, flight mechanics, aeronautic structures and propulsion principles could be an aid for the students.

OBIETTIVI FORMATIVI

The course aims at developing the student's skills of helicopter system. In particular, it is expected that the students will know:

- the main features of helicopter structures;
- the architecture of the main common helicopters;
- the certification specifications about helicopter vehicles;
- the helicopter substructures in a correct manner;
- the mechanical vibrations;
- the fasteners design.

The students are encouraged to:

- carry out simple planning applications;
- estimate order of magnitude of values in case study of a vehicle benchmark;
- learn technical terminology (English vocabulary)

METODI DIDATTICI

The course is delivered with class activities, where the teacher presents methods, models and experimental experiences.

MODALITA' D'ESAME

The exam consists of written and oral tests, based on questions, where the student is required to demonstrate his understanding of some specific facts of helicopter configuration.

PROGRAMMA ESTESO

- Course introduction
 - Basic helicopter structures
 - CS 27 & 29
 - Main and Tail Rotor
 - Flap, Pitch, Lead and Lag Main Rotor DOFs
 - Swashplate
 - Main Command Line
 - Tail Command Line
 - Drive System
 - Main Gear Box and Boundary Conditions
 - Mechanical Vibrations
 - Fasteners
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TESTI DI RIFERIMENTO

This course is a summary of several basic helicopter structures concepts: teaching material has been specifically produced for each lesson and it is provided to the students.