AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Teaching AEROSPACE SYSTEMS C.I.

GenCod A005864

Owner professor MICHELE GIANNUZZI

Teaching in italian AEROSPACE SYSTEMS C.I.

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SSD code ING-IND/05

Reference course AEROSPACE ENGINEERING

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 54.0

For enrolled in 2019/2020

Taught in 2019/2020

Course year 1

Language ENGLISH

Curriculum SYSTEMS

Location Brindisi

Semester First Semester

Exam type Oral

Assessment

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

BRIEF COURSE DESCRIPTION

The course aims to analyze the functionality of each aerospace system. It also studies the interdependencies of several systems in routine or emergency conditions. The attention will be focused on the functional aspects of its components and less on their construction solutions. According to this setting, the system should be seen as a "logical block of functionality."

REQUIREMENTS

General notions of physics, electrotechnics, thermodynamics and chemistry.

COURSE AIMS

Upon completion of the course students will have acquired:

- The concept of aircraft intended as a system operating within the air transport system, including, in particular, maintenance.
- Basic knowledge of systems engineering: definition of requirements, management of interfaces, verification, and validation of the project.
- The ability to identify the main aerospace on-board systems, the functions they perform, the architectures, the performances, the operating principles, with references to the energy sources that allow the operation of each system.
- The ability to identify the features and design choices made through retrospective analysis of aircraft systems or existing space modules.
- The ability to apply the concepts learned in class with simple sizing calculations of elements of the on-board systems.

TEACHING METHODOLOGY	The structure of the single lesson is articulated through a series of sub-chapters that are repeated - as far as possible - in a standard way: ▪ The mission of the system ▪ Interdependence on other systems ▪ Basic operating principles ▪ Key components ▪ Command, control, and warning systems ▪ Description of the real plant ▪ Operational aspects of the operation.
ASSESSMENT TYPE	The exam consists of a written test with questions on the various systems and their correlation. An oral test will follow.
FULL SYLLABUS	**Aircraft board systems:** Zones / Rooms / Doors; Engine systems; APU; Pneumatic system; Cabin air conditioning and pressurization system; Oxygen system; Fuel system; Hydraulic system; Flight controls; Landing gear; Anti-ice system and anti-fire system; Internal equipment; Water treatment. **Introduction to space systems**
REFERENCE TEXT BOOKS	All lecture notes shown during lessons will be made available in the digital version. During the lessons, the teacher will refer to the following textbooks: I. Moir, A. Seabridge, "Aircraft Systems: Mechanical, Electrical and Avionics Subsystems Integration", Volume 21 di Aerospace Series, John Wiley & Sons, 2008. F. Vagnarelli - "impianti aeronautici" - IBN editore S. Chiesa, fascicoli tematici su impianti di bordo di vario tipo, Ed. CLUT, Torino.