



# UNIVERSITÀ DI PISA

## AIRCRAFT CONSTRUCTION

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**LUIGI LAZZERI**

Anno accademico 2019/20  
CdS AEROSPACE ENGINEERING  
Codice 230II  
CFU 12

Moduli	Settore/i	Tipo	Ore	Docente/i
COSTRUZIONI AERONAUTICHE I	ING-IND/04	LEZIONI	60	LUIGI LAZZERI
COSTRUZIONI AERONAUTICHE II	ING-IND/04	LEZIONI	60	LUIGI LAZZERI

### Learning outcomes

#### *Knowledge*

The course aims at providing the student the ability to operate a synthesis of all the basic aeronautical disciplines required for performing the conceptual design of an aircraft. Moreover, the student will have capacity of performing structural analysis of aircraft structures; in this aspect, load assessment and stress analysis methodologies will be provided to assess the static strength, the fatigue and damage tolerance behaviour and the response to aeroelastic phenomena.

#### *Assessment criteria of knowledge*

During the oral examination, the student must be able to discuss some aspects of the report he has prepared on the conceptual design of an aircraft. Moreover, the student must show full and clear knowledge of the methodologies for the structural design of certain aircraft primary components, from various points of view.

Methods:

- Final oral exam
- Written report

#### *Teaching methods*

Delivery: face to face

Learning activities:

- attending lectures
- participation in seminar
- preparation of oral/written report

Attendance: Advised

Teaching methods:

- Lectures
- Seminar
- project work

#### *Syllabus*

Fundamental design aspects: regulations, loads, atmospheric turbulence, structural deformation and gust loads; aeroelastic phenomena and critical velocities, load spectra, "fail safe", "safe-life" and "damage tolerance" design criteria, minimum weight structures, conceptual and preliminary design of the aircraft; design criteria of subsystems: wings, fuselage, control and stabilization surfaces, engines, landing gears, lift augmentation devices. Verification and analysis methods.

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