

# AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

## Insegnamento AERONAUTIC PROPULSION MOD. 1 C.I.

GenCod A003309

Docente titolare Maria Grazia DE GIORGI

**Insegnamento** AERONAUTIC PROPULSION MOD. 1 C.I.

**Insegnamento in inglese** AERONAUTIC PROPULSION MOD. 1

**Settore disciplinare** ING-IND/07

**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** Percorso comune

**Sede** Brindisi

**Periodo**

**Tipo esame** Orale

**Valutazione**

**Orario dell'insegnamento**

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

### BREVE DESCRIZIONE DEL CORSO

This course presents aerospace propulsive devices with particular focus on air-breathing engine

### PREREQUISITI

-Fluid dynamic and fluid machinery

### OBIETTIVI FORMATIVI

- 1 Gain knowledge of different types of aero-engines (turbojets, turbofans, ramjets) and to understand the aerodynamic and thermodynamic characteristics of major engine components.
- 2 Develop the knowledge and skills to analytically and numerically solve problems related to aerospace propulsion systems.
- 3 Develop skills in working independently.
- 4 Develop skills in critical evaluation of scientific literature.
- 5 Develop skills in planning and presentation of scientific talks and reports.

### METODI DIDATTICI

Theory and practical activities (Tutorials devoted to discussion and problem solving referred to the aeroengine.)

### MODALITA' D'ESAME

- The final exam consist of two part:
- 1)Written and oral examination covering all material covered in course
  - 2)assignments and individual project

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## PROGRAMMA ESTESO

- 1) Types of Airbreathing Engines. Aircraft Propulsion Requirements.
- 2) Elements of Thermodynamics for Aero Propulsion Ideal & Real Engine Cycle Analysis. Parametric Cycle Analysis.
- 3) Flow dynamic in subsonic & supersonic Inlets.
- 4) Turbomachinery: Axial Flow Compressors and Axial Flow Turbines.
- 5) Combustors.
- 6) Nozzles.
- 7) Airbreathing Engine System Considerations.
- 8) Piston Engine
- 9) Novel propulsive architecture

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## TESTI DI RIFERIMENTO

- Aerothermodynamics of Gas Turbine and Rocket Propulsion Gordon C. Oates eISBN: 978-1-60086-134-5 print ISBN: 978-1-56347-241-1 DOI: 10.2514/4.861345
- Hill, P., and Peterson, C., Mechanics and Thermodynamics of Propulsion, Addison-Wesley Publishing Co., 1992,
- Course notes