

# AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

## Teaching AERONAUTIC PROPULSION MOD. 1

GenCod A003309

**Owner professor** Maria Grazia DE GIORGI

**Teaching in italian** AERONAUTIC PROPULSION MOD. 1 C.I.

**Teaching** AERONAUTIC PROPULSION MOD. 1

**SSD code** ING-IND/07

**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** Percorso comune

**Location** Brindisi

**Semester**

**Exam type** Oral

**Assessment**

**Course timetable**  
<https://easyroom.unisalento.it/Orario>

### BRIEF COURSE DESCRIPTION

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

### REQUIREMENTS

-Fluid dynamic and fluid machinery

### COURSE AIMS

- 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.

### TEACHING METHODOLOGY

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

### ASSESSMENT TYPE

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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## FULL SYLLABUS

- 1) Types of Airbreathing Engines. Aircraft Propulsion Requirements.
  - 2) Elements of Thermodynamics for Aero Propulsion ; Ideal & Real Engine Cycle Analysis. Parametric Cycle Analysis.
  - 3) Subsonic & Supersonic Inlets.
  - 4) Turbomachinery: Axial Flow Compressors and Axial Flow Turbines.
  - 5) Combustors.
  - 6) Nozzles.
  - 7) Airbreathing Engine System Considerations.
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## REFERENCE TEXT BOOKS

- 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