

AW11 - Engine and powerplant

From the Advanced Master ASAA
(Aviation Safety Aircraft Airworthiness)



Highlights

- Engineering & certification
- Industrial experience

Key elements

Dates: **January 13 to 27, 2023**
(exam January 27)

Duration: **27 hours**

For whom:

recent graduates, jobseekers and experienced employees

Location:

ISAE-SUPAERO, Toulouse

Course fees: **€2,300**

Language: **English**

This module provides the engineering background to understand the aerothermodynamic operation of the various types of engine, for the purpose of engine certification and for certification of the propulsion system on an aircraft. It defines and explains their key design characteristics, performances and limitations, and the associated key certification requirements and means of compliance as per authorities' regulations.

Prerequisites

- A good engineering background
- Aircraft architecture and basic aeronautics knowledge
- Aircraft certification process and procedures
- FAR/CS25 safety objectives and basic knowledge of safety analysis (ARP4761)

Learning objectives

After completing this course, participants will be able to:

- Describe the basics of aerothermodynamics as applied to turbines engines;
- Describe the main engine architectures and components (turbofan, turbo-propeller, turboshaft), their control systems and their interactions with aircraft;
- Describe the main principles of powerplant integration in the aircraft, the involved systems and associated failure conditions;
- Determine and implement certification processes, requirements and means of compliance applicable for engines and powerplant;
- Collect and analyze in-depth and autonomously relevant regulatory certification documents for Engines and Powerplant domains.

Practical information and registration

Jessica Alix - 05 61 33 83 91 – info.exed@isae-supaero.fr

AW11 - Engine and powerplant

From the Advanced Master ASAA
(Aviation Safety Aircraft Airworthiness)



Course content

Aero-thermodynamics of gas turbine

- General operating principles and physics of gas turbine

Engine certification

- Certification procedure
- Certification requirements (EASA CS-E) and means of compliance

Engine architecture

- Turbofan, turbo-propeller and turboshaft
- Electronic control systems

Powerplant installation

- Powerplant systems, integration and certification (EASA/FAA CS/FAR 25)
- Auxiliary power unit

Teaching methods

Teaching methods	Yes
Lectures / tutorial	X
Collaborative learning	
Flipped classroom	
Blended learning (online and face to face)	
Learning by doing	X
Project-based	
Simulation	
Case study	X

Assessment

Written exam