AW9 - Avionics

From the Advanced Master ASAA

(Aviation Safety Aircraft Airworthiness)

Key elements

Period: **Mid-December**

Estimated duration: **29 hours**

For whom:
recent graduates, jobseekers and experienced employees

Location:
ISAE-SUPAERO, Toulouse

Language: **English**

Highlights

- Certification approach for avionics
- Integrated Modular Avionics (IMA)
- Introduction to connected aircraft

This module provides the essential knowledge of airplane's avionics systems and Integrated Modular Avionics (IMA). It defines and explains the associated certification processes and requirements as per authorities' regulations and means of compliance. The module also includes an introduction to connected aircraft and related certification challenges.

Prerequisites

- Aircraft certification process and procedures
- System safety requirements, design assurance demonstration (ARP4754, ARP4761)
- ETSO/TSO equipment certification

Learning objectives

After completing this course, participants will be able to:

- Describe functional architectures of avionics systems;
- Determine and implement certification processes and requirements applicable for avionics systems;
- Describe functional architectures of IMA and describe the associated certification processes and regulations;
- Evaluate the main certification challenges of future air navigation systems and future connected aircraft;
- Collect and analyze in-depth and autonomously relevant regulatory certification documents for Avionics systems and IMA domains.

Information and registration

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Course content

Communication, Navigation and Surveillance

- Communication
- Radionavigation – Precision approach
- Satellite-based navigation and landing procedures
- Performance-based procedures
- Surveillance (TAWS, ACAS, Transponder/ADS)
- Future Air Navigation System

Aircraft Monitoring System

- Centralized monitoring system
- Flight warning system

Autoflight System and Flight Management System

- Flight management functions
- Autoflight and autoland modes, logics and laws

Integrated Modular Avionics (IMA)

- IMA architecture, functions and integration
- IMA certification approach and requirements

Connected aircraft

- Introduction to connected aircraft and related existing and future functions
- Safety and certification challenges

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