# EV ACADEMY

## AVIATION WEEK

## 2019

**March 5-8, 2019 • Holiday Inn Ankara - Çukurambar**

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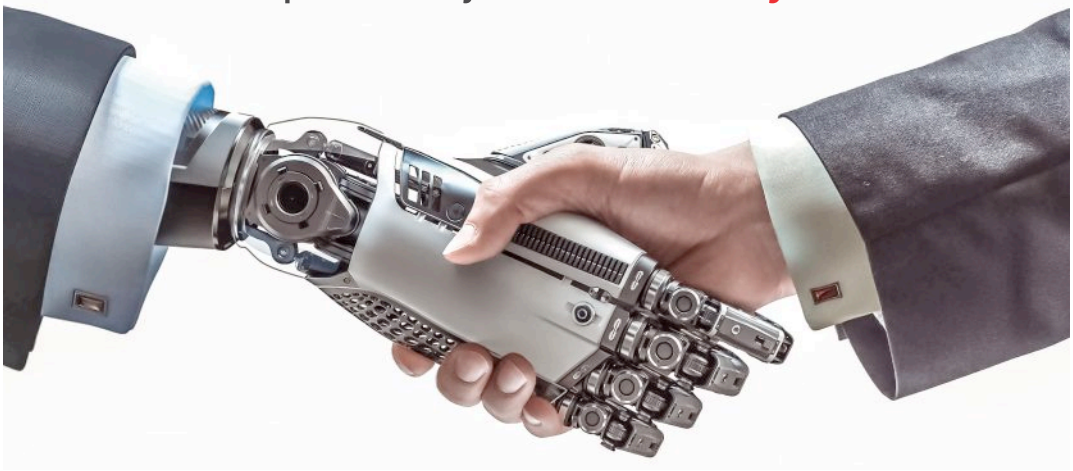

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# AVIATION WEEK

# 2019

TAOS
CERTIFICATION & ENGINEERING

March 5-6, 2019

**SAE-ARP-4761(A) combined with SAE-ARP-4754A**

Instructor : Nazan Gozay GURBUZ

AFUZION

March 7-8 , 2019

**Optimizing DO-178C & DO-254**

Instructor : Vance HILDERMAN

**Holiday Inn Ankara – Çukurambar**

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## NAZAN GOZAY GURBUZ

Nazan Gözay Gürbüz (BSME, MSME, MBA) serves as System Safety and Developement Assurance Specialist, Consultant and Instructor.

Founder of TAOS Certification and Engineering. Worked in both Industry and Military Authority side in domestic and international aircraft development projects for more than 20 years (TRACES Aerospace, STM, TAI).

She has been active member of SAE International S-18 Aircraft & Systems Development and Safety Assessment Committee for more than 10 years and has provided key contributions to development of SAE-ARP-4754A Aircraft Development Processes, SAE-ARP-4761(A) Safety Assessment Processes and SAE-AIR-6110 Contiguous Aircraft/System Development Process Example.

## VANCE HILDERMAN

Mr. Vance Hilderman is Afuzion Incorporated's Avionics Certification Manager and has worked with many Turkish aerospace companies on his twenty business trips to Turkey the past decade.

- BSEE, MSEE, MBA
- Founder of two of the world's largest avionics development services companies
- Developer of the world's first training in DO-178 and trainer of over 9500 engineers in 35 countries in DO-178, DO-254, DO-278, and DO-200A
- Primary author of the world's first, and best selling, book on DO-178 and DO-254 (available at most major bookstores worldwide)

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# SAE-ARP-4761(A) COMBINED

## Instructor : Mrs. Nazan Gozay GURBUZ

## SAE-ARP-4754A
## Guidelines for Development of Civil Aircraft and Systems

## ABSTRACT

ARP 4754A provides guidelines for processes to develop aircraft and systems taking into account the overall aircraft operating environment and functions in support of system safety assessment process. This includes validation of requirements and verification of the design implementation for certification and process assurance. ARP4754A provides the practices for showing compliance with regulations (14CFR Part 25, CS 25, etc.). This guideline is recognized as an acceptable method for establishing a Development Assurance process.

## KEY FEATURES

- ARP-4754A Overview
- Aircraft / Systems Development Process
  - *Development Planning*
  - *Aircraft and System Development Process*
  - *Discussion of Interactions with Safety Processes*
  - *Discussion of Interactions with Hardware and Software development processes*
- Integral Processes
  - *Safety Assessment*
  - *Requirement Management*
  - *Implementation Verification*
  - *Configuration Management*
  - *Process Assurance*
  - *Certification / Regulatory Authority Coordination*
- System Development Objectives

**WITH SAE-ARP-4754A** March 5 - 6

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## Instructor : Mrs. Nazan Gozay GURBUZ

# SAE-ARP-4761
# Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment

## ABSTRACT

ARP 4761 describes guidelines and methods of performing the safety assessment for certification of aircraft. It is primarily associated with showing compliance with certification requirements (e.g., 14CFR/CS Parts 23, 25, 27, and 29, primarily sections 1309 and 1709).

Safety assessments are an essential part of aircraft/system development process. This ARP represents industry best practices and is formally recognized by numerous National Airworthiness Authorities (NAAs), Military Airworthiness Authorities (MAAs), FAA and EASA. The safety assessment process is of fundamental importance in establishing appropriate safety objectives and requirements for the aircraft and its systems, and in determining that the design satisfies these objectives and requirements.

## KEY FEATURES

- Overview of the Relevant Regulatory Safety Requirements
- Key Safety Definitions
- Overview of ARP-4761 and Difference between ARP-4761 and Draft ARP-4761A
- Functional Hazard Assessment (Aircraft/System level FHA)
- Preliminary Aircraft Safety Assessment (PASA) (Draft 4761A)
- Preliminary System Safety Assessment (PSSA)
- Fault Tree Analysis (FTA) and Dependency Diagram (DD)
- FDAL&IDAL Assignment Process (Draft 4761A)
- Common Cause Analysis (CCA)
- Particular Risks Analysis (PRA),
- Zonal Safety Analysis (ZSA),
- Common Mode Analysis (CMA)
- Failure Modes & Effects Analysis and Summary
- System Safety Assessment (SSA)
- Aircraft Safety Assessment (ASA) (Draft 4761A)
- Putting it all Together with Examples
- Problems to be Avoided

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OPTIMIZING

## Instructor : Mr. Vance HILDERMAN

# DO-178C
# Avionics Software Advance Training Workshop

## ABSTRACT

DO-178C (ED-12C) is arguably the world's most difficult software "standard" and many millions of lives rely on it yearly. But software development has rapidly evolved along with aircraft design: many new technologies must be considered, and certified: C++, Model-Based Development, Formal Methods, non-CPU based logic, and advanced tools. New techniques for specifying avionics requirements and design must also be understood. But what are detailed and derived DO-178C requirements? How can C++ and OOT be safely used and certified per DO-332? What are DO-178C Model-Based Development best practices in applying DO-331? What are the answers to applying DO-178C's Parameter Data Items? What were the DO-178B weaknesses and how is DO-178C really different from DO-178B? How can DO-178C cost and schedule be reduced by 20-30%?
This advanced DO-178C training is intended for persons with basic familiarity of DO-178 or safety-critical standards. It can be combined to follow the preceding basic DO-178C course. The developer/teacher is the principal founder of two of the world's largest avionics consulting companies and the principal author of the world's most popular publications on DO-178: Vance Hilderman has taught over 11,000 avionics engineers and managers worldwide, including FAA and EASA officials, and engineers from 95 of the world's largest 100 aviation companies: more than all the competitor's current trainers in the world, combined.
**AFuzion's training has been provided to over 16,000 aviation engineers from 1,000 companies in 30 countries; more than all other trainers in the world combined. Brief summary below; contact us for more free information.**

## KEY FEATURES

- Quick refresher on basic DO-178C and "how" DO-178C is applied to advanced avionics
- Grasp key differences between DO-178B and DO-178C for more advanced users
- Advanced Safety, Derived Requirements, and Detailed DO-178C Requirements
- Understanding advanced DO-178C mistakes and best practices to avoid them including model based development, OOT, and C++
- Controlling engineering cost/risks with DO-178C Requirements, Design, and Code
- Understanding & applying DO-178C's Supplements for:
  - DO-330/ED-215 Software Tool Qualification
  - DO-331/ED-216 Model-Based Development and Verification
  - DO-332/ED-217 Object-Oriented Technology
  - DO-333/ED-218 Formal Methods Supplement

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## Instructor : Mr. Vance HILDERMAN

# DO-254
# Avionics Hardware Intermediate Training Workshop

## ABSTRACT

Since DO-254 was released ten years ago, the knowledge of software hardware development processes, techniques, and strategies for safety-critical hardware has vastly changed and in some cases improved. However, there is a large gap between understanding the real intent of DO-254 certification and the minimalist words in the Book. Just as commercial hardware development techniques have advanced, so has the world of aviation hardware development and certification. This Intermediate DO-254 training will provide important knowledge for attendees to rise to, understand, and apply those advancements and new hardware certification requirements for FAA, EASA and worldwide certification agencies. This Intermediate DO-254 training is intended for persons with basic familiarity of DO-254, DO-178, or safety-critical standards. It can be combined to follow the preceding basic DO-254 course. The developer/teacher is the principal founder of two of the world's largest avionics consulting companies and the principal author of several of the world's most popular publications on DO-254: Vance Hilderman has taught over 11,000 avionics engineers and managers worldwide, including FAA and EASA officials, and engineers from 95 of the world's largest 100 aviation companies: more than all the competitor's current trainers in the world, combined.

**AFuzion's training has been provided to over 16,000 aviation engineers from 1,000 companies in 30 countries; more than all other trainers in the world combined. Brief summary below; contact us for more free information.**

## KEY FEATURES

- Quick refresher on basic DO-254 and "how" DO-254 is applied to advanced avionics
- Understanding CAST-27 and AC 20-152 and related EASA certification requirements
- Understanding actual hardware DO-254 requirements with actual case study
- Advanced analysis, element analysis, and structural coverage for hardware logic
- Actual hardware PHAC review checklist walkthrough
- Actual hardware HWPA ("quality assurance") review checklist walkthrough
- Representative SOI audits for Hardware – what are they for #1, 2, 3, and 4
- Hardware Requirements Validation – what is involved
- Applying DO-254 to Military AND Commercial usage; differences between EASA & FAA
- Understanding advanced DO-254 mistakes and best practices to avoid them element analysis/coverage
- Controlling engineering cost/risks with DO-254 Requirements, Design, and Logic
- Understanding and applying AC 20-152, CAST-27, and EASA-CM-SWCEH-001 for avionics hardware development per ED-80 and DO-254

TAOS

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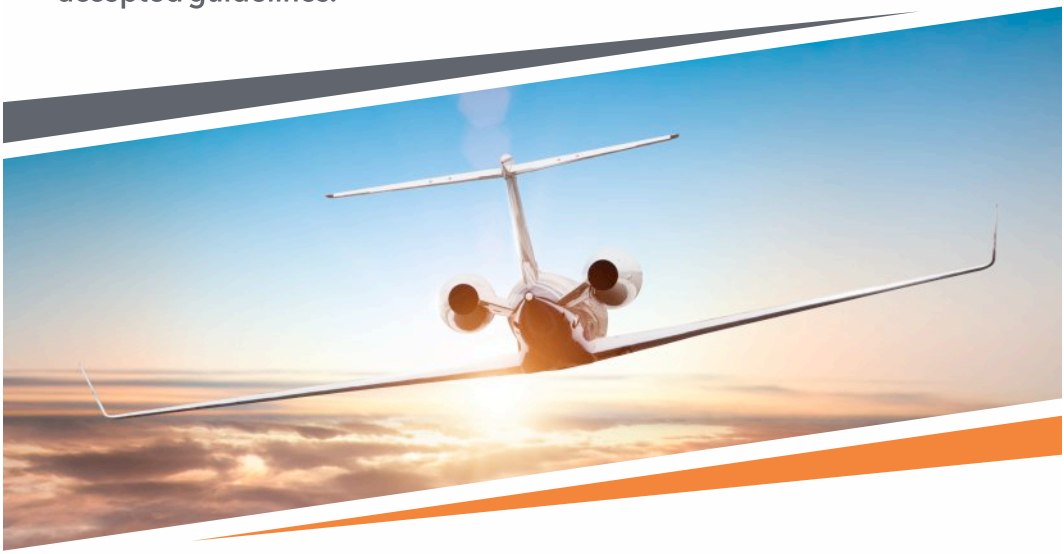
Successful aviation companies have strong process infrastructure for system development and safety. Integrating safety process with your system engineering processes is vital. TAOS is your key stakeholder to establish your processes according to regulations and authority accepted guidelines.



**Gap analysis and infrastructure establishment for Part 21, EMAR 21, ARP-4754A, ARP-4761A, MIL-STD-882, AS 9100**

**Airworthiness Certification Trainings (Part 21, DOA, POA, ETSO)**

**System Safety and Risk Management Trainings (ARP-4761, MIL-STD-882)**

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When Safety Is Critical™

**What do 95 of the world's largest 100 avionics companies have in common?**

AFUZION

- Aviation Development Training & Workshops:
  - DO-178C, DO-254, DO-200A, ARP-4754A
- Avionics Certification & Audits
- Gap Analysis for DO-178C, DO-254, DO-200A, ARP-4754A
- FAA Aviation Development Checklists
- Software Test Outsourcing & Mentoring

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