

# AEROSPACE

## SHORT COURSES

## System Safety Assessment for Commercial Aircraft Certification (AERO0570)

Instructor: Pierre Trudel

### Course Description

This course develops the skills necessary to write and review system safety assessments for regulatory compliance to 14CFR 2X.1309 and 23.2510. Class participants are walked through the evolution of the safety rule and specific techniques for compliance through a comprehensive look at the regulations and current regulatory guidance. In-depth reviews of industry standards in system safety such as SAE ARP4761A and SAE ARP4754B, and ASTM F3230-17 followed by exercises, examples, and class discussions strengthens the students understanding of safety for compliance. By the end of the class, students gain the ability to develop meaningful system safety requirements, design safety compliant systems and equipment, and improve their skills in developing system safety compliance documentation.

Note: This course replaces *Commercial Aircraft Safety Assessment and 1309 Design Analysis*. Completion of either course counts toward earning a certificate.

### Who Should Attend?

This course is intended for anyone involved in the regulatory compliance aspects of system safety. It is specifically designed for Parts 23, 25, 27 and 29 system certification engineers, system designers, FAA Designated Engineering Representatives (DERs), ODA Unit Members (UM), system safety Engineers, engineering leadership, and military personnel procuring civil equipment.

### Learning Objectives

- Describe the history of system safety and its relationship with Aerospace
- Discuss the system safety aspects of 14 CFR 2X.1309 and 23.2510
- Explain the relationship between SAE ARP4761A and SAE ARP4754B
- Apply regulatory and industry guidance to develop effective safety assessments
- Define and manage safety requirements to develop compliant system and architectures
- Evaluate Development Assurance Levels for compliance
- Manage the system safety aspects of compliance for new designs and modifications

## **Course Outline**

### **Day 1**

- Introduction and Concepts of Risks and Risk-Base Analysis
- The System Safety Rule
- Guidance Material, Regulatory Material, Advisory Circulars XX.1309, and Industry Material
- Safety Process Overview
- Functions and Functional Hazard Assessments (FHAs)

### **Day 2**

- Functional Hazard Assessments, continued
- Fault Tree Analysis

### **Day 3**

- SAE ARP4754B - Development Assurance Process
- Development Assurance Level Determination

### **Day 4**

- Preliminary System Safety Assessment (PSSA)
- Understanding Common Cause Analysis
- Reliability

### **Day 5**

- System Safety Assessment (SSA)
- Beyond 1309 - Other rules using system safety tools and processes for compliance
- STC, ASTC, and other small certification projects
- Managing a system safety effort for new and modified systems and aircraft

## **Classroom hours / CEUs**

31.5 classroom hours

3.15 CEUs

## **Certificate Tracks**

Aircraft Compliance

Aircraft Maintenance and Safety

Avionics and Avionic Components

Electrical Wiring Interconnection System (EWIS)

## **Course Fees**

Early registration course fee: \$2,595 if you register and pay by the early registration deadline (45 days out).

Regular registration course fee: \$2,795 if you register and pay after the early registration deadline.

### **Course Materials**

Course materials, including outlines, presentation copies, and supplementary materials, will be accessible through Canvas, KU's online learning system. Instructions to access Canvas will be provided upon completed registration. Students are required to bring a computer or other electronic device with PDF-viewing capabilities with them to class each day. If you require accommodation contact us at [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu) and we will work with you on an accessible solution.

Students enrolled in this class should acquire a copy of the standards listed below.

- ARP4754B Guidelines for Development of Civil Aircraft and Systems
- ARP4761A Guidelines for Conducting the Safety Assessment Process on Civil Aircraft, Systems, and Equipment

Standards may be purchased online at: <https://www.sae.org/standards>

### **U.S. Federal Employee Discount**

This course is available to U.S. federal employees at 10% off the registration fee. To receive the federal employee discount, you must enter the code **FGVT116** during the checkout process. Please note that you must validate your eligibility to receive this discount by entering your U.S. government email address (ending in .gov or .mil) when creating your online registration profile. This discount is available for both the early registration and regular registration fees.

### **Canada Department of National Defence Discount**

This course is available to Canada DND employees at 10% off the registration fee. Please contact the DND Procurement Authority (DAP 2-3) for details. Please note that you cannot register using our online system when requesting this discount. This discount is available for both the early registration and regular registration fees.

### **Instructor Bios**

**Pierre Trudel** is a System Safety Engineer and ODA Unit Member currently working for Boeing Defense, Space & Security (BDS). Pierre brings 29 years of experience in system safety, systems engineering and reliability into the classroom. He has worked system safety, reliability, and systems engineering on airplanes, rotorcrafts and space vehicles. He has experience with commercial and military system safety, Development Assurance practices. Pierre developed companywide processes to facilitate product development and compliance to commercial airworthiness standards and military requirements. He has worked system safety for both equipment suppliers and as an integrator for Original Equipment Manufacturers (OEMs). Pierre has worked system safety using several industry accepted processes - including SAE ARP4761, SAE ARP4754, and MIL-STD-882 - to satisfy safety requirements for Part 23 (small aircrafts), Part 25 (Transport Category Aircraft) and MIL-HDBK-516 (Airworthiness Certification

Criteria). His certification experience as an FAA representative spans the spectrum of TC, ATC, and STC projects on commercial projects such as the Hawker 4000, Hawker 800XP, Premier 1, Cessna CJ4, Citation Latitude, Citation Sovereign, Citation X, KC-46A (767 Tanker), and several other aircraft models and types. Pierre holds a Bachelor of Science in Space Sciences with minors in Electrical and Mechanical Engineering from Florida Institute of Technology.

**Douglas Sheridan** is a principal engineer in system safety at Textron Aviation. Doug has more than 25 years of experience supporting new and amended type certifications of small and large Beechcraft and Cessna piston, turboprop, and jet airplanes. Doug is an Organization Designation Authority (ODA) Unit Member with authority for Part 23 and 25 Safety Analysis in Mechanical and Electrical Systems, and Powerplant Installations. Doug has been an active participant on the SAE International S-18 Aircraft and System Development and Safety Assessment Committee since 1999. He currently serves as secretary for the committee. Doug was formerly the chair of an S-18 sub-committee to revise ARP5151, Safety Assessment of General Aviation Airplanes and Rotorcraft in Commercial Service. Doug holds a private pilot license and is a member of the Textron Aviation Flying Club. Doug earned a Bachelor of Science degree in Aeronautical/ Astronautical Engineering from The Ohio State University.

**This class is available for delivery at your company.**

Your company can realize substantial savings by bringing an aerospace short course to your workplace. On-site delivery is ideal for organizations that need to train 10 or more employees on a specific topic. For more information on on-site course delivery, or to request a cost proposal, please contact us at [ProfessionalPrograms@ku.edu](mailto:ProfessionalPrograms@ku.edu).

**CONTACT US:**

KU Jayhawk Global  
Aerospace Short Course Program  
1515 St. Andrews Dr.  
Lawrence, KS 66047  
Email: [jayhawkglobal@ku.edu](mailto:jayhawkglobal@ku.edu)  
Phone: 785-864-6779 (Registration)