

# AEROSPACE

## SHORT COURSES

### Advanced Topics in System Safety for Commercial Certification (AERO0680)

Instructor: Pierre Trudel

#### Course Description

Advanced System Safety will elevate students' safety process acumen by diving deeper into the safety process and introducing a small cradle to grave project to provide practical experience in using the safety process to help design and develop the proper set of documentation for compliance to requirements.

Advanced topics that will be addressed in this training will include:

- Revisiting Functional Hazard Assessment addressing partial failure conditions, recursive introduction of functional monitors within the Functional Hazard Assessment, and severity substantiation strategies (test, analysis, etc.) along with Human Factors and Crew Contingency Aspects of mitigations.
- Understanding undetectable failures in a design and how to address them in analysis. We will also discuss prevention strategies and common errors that could increase the potential for latency failures to be introduced in a design.
- Advanced fault tree modeling techniques and the ability to practice on an industry grade fault tree software.

#### Who Should Attend?

This training primarily targets aerospace companies developing aircraft and aeronautical technologies under the oversight of regulators. The training will benefit engineering teams associated with the design and the showing of compliance for a given design (aircraft, systems, or parts). Other segments of industry (such as space and autonomous vehicles) that do not have a strongly defined regulatory enforcement can also benefit from this training.

*It is recommended that you have taken the following course prior to taking this course:  
System Safety Assessment for Commercial Aircraft Certification*

#### Learning Objectives

- A deeper understanding of how Functional Hazard Assessment should be used to drive safety strategies within a design along with a better understanding of the relationship between human factor and the functionality built into the design.
- Students will learn to manage undetectable failures both from a design mitigation aspect as well as how to create the proper inspection or test interval for compliance.

- Students will learn the proper way to set up mathematical modeling for compliance (Fault Tree Analysis) as well as what to review and how to find modeling flaws when reviewing documentation for compliance.
- Through a series of hands-on exercises, students will learn how the SAE ARP4761A and SAE ARP4754B processes can be effectively used together to support the development of safe systems for compliance.

### **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.

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