AEROSPACE
SHORT COURSES

Operational Aircraft Performance and Flight Test Practices (AERO0400)

Instructor: Mario Asselin

Course Description

This course provides an overview of airplane performance theory and prediction, certification standards and basic flight test practices. The course will focus on turbojet/turbofan powered aircraft certified under JAR/CAR/14 CFR Part 25. This standard will briefly be compared to military and Part 23 standards to show different approaches to safety, certification, operational and design differences.

Course Highlights

- Basic airplane performance theory
- Determining what to test in order to build performance models
- Using required instrumentation to best measure airplane performance
- Minimizing scatter during flight testing
- Developing performance models to match flight test results
- Certification requirements
- How to demonstrate certification compliance
- Presentation of airplane performance information to the flight crew
- Setting operational limits to ensure continued operational safety

Who Should Attend?

This course is designed for aeronautical engineers in the design or flight test departments, educators, aircrews with engineering background, and military personnel involved in managing fleets of 14 CFR Part 25 (FAR 25) certified aircraft.

Learning Objectives

- Review basic airplane performance theory
- Determine what needs to be tested to build performance models
- Determine the required instrumentation to best measure airplane performance
- Understand the scatter normally expected during flight testing and how appropriate feedback from engineering helps the flight crew minimize this scatter
- Develop performance models to match flight test results
- Understand the safety level built-in certification requirements and their impact on airplane performance;

- Understand how to show compliance to the certification authorities
- Learn how to present the airplane performance information to the flight crew

Course Outline

Day One

- Introduction
- Atmospheric models
- Airspeeds
- Position errors
- Weight and balance

Day Two

- Stall speeds and stall testing
- Stall warning and stall identification
- Required instrumentation and data reduction
- Testing for low-speed drag, excess thrust monitoring
- Check climbs
- High-speed drag and basic flight envelope limits
- Flight Envelope

Day Three

- Aircraft range
- Measuring SAR
- Data reduction
- Presenting the information to aircrews
- Climbing performance
- WAT limits; turning performance

Day Four

- Take-off performance, basic models
- Flight test
- Rejected takeoff
- Presenting the information to the flight crew (AFM, flight manuals)

Day Five

- Landing performance
- Presenting the information to the flight crew (AFM, flight manuals)
- Consideration for contaminated runways (CAR/JAR)
- Obstacle clearance
- Accounting for high temperature deviation for minimum altitude flights

Classroom hours / CEUs
35.00 classroom hours
3.5 CEUs

Certificate Track
Flight Tests and Aircraft Performance

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.

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.

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