Aircraft Structural Loads: Requirements, Analysis, Testing and Certification
Instructor: Wally Johnson

ORLANDO, FLORIDA
November 14–18, 2016
Monday–Thursday,
8:00 a.m.–4:00 p.m. and
Friday, 8:00 a.m.–11:30 a.m.
Course Number AA171240

CEUS
31.5 classroom hours
3.15 CEUs

COST $2,495
Includes instruction,
course materials,
refreshments and lunches.

EARN A CERTIFICATE
This course is part of the Certificate of Specialization in Aircraft Structures and the Certificate of Specialization in Aircraft Design.

Description
This course provides an overview of aircraft structural external loads analysis including: criteria, design, analysis, fatigue, certification, validation and testing. It covers FAR 23 and FAR 25 airplane loads requirements. However, the concepts may be applicable for military structural requirements. Loads calculations examples using BASICLOADS software will be demonstrated throughout the course week. A copy of BASICLOADS software will be provided to attendees.

Highlights
- Overview of data requirements—aerodynamics, mass properties, stiffness, control systems and propulsion
- Certification requirements—methods of compliance and FAR 23 and FAR 25 loads requirements
- Structural design airspeeds derivations—construct flight envelope
- V-n diagrams—calculation of maneuvering load factors, gust load factors, construct V-n diagrams
- Maneuver loads—balanced maneuvers, abrupt pitch maneuvers, roll maneuvers, yaw maneuvers and engine-out maneuvers
- Gust loads—gust formula, discrete tuned 1-cos gust, PSD gust, vertical, lateral and head-on gust
- Ground loads—landing, taxi, ground handling, static and dynamic loads and landing gear drop test
- Airframe loads—wing, horizontal tail, vertical tail, fuselage, control surfaces and flaps
- Fatigue loads—certification requirements, mission requirement, exceedance curve, gust and maneuver fatigue loads
- Loads testing—flight loads validation, ground calibration, static limit and ultimate test and fatigue loads test
- Loads calculations using BASICLOADS software throughout the course

Who should attend?
Designed for practicing engineers and engineering managers whose responsibilities include aircraft structures.

“The course was interactive, comprehensive and the trainer had a dynamic approach which kept the momentum going. Ideal for those who would like to better understand how structural loads are analyzed for design certification.”
—Emilio Isaias, MRB Engineer, Fokker Mexico

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