

HIGH ALTITUDE TRAINING

PILOT SPECIALTY COURSE SERIES

SUMMARY

Crewmembers will gain an understanding of the physiological, aerodynamic, and environmental hazards associated with high altitude flight.



TARGET POPULATION

Required for flight crew and cabin crew of pressurized aircraft above 10,000 feet MSL

It is a required element (ICAO, CARs, FARs, JARs) for all crewmembers operating or working onboard airplanes at high altitudes.



REGULATORY COMPLIANCE*

- ICAO / EASA / FAA / Transport Canada
- Maintains compliance with IOSA standards



DELIVERY MODE

100% online, self-guided



COURSE LENGTH

2 hours, 30 minutes

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LESSON 1: The Atmosphere

- Atmospheric pressure
- Standard pressure
- Pressure lapse rate
- Troposphere, Stratosphere and Mesosphere
- Thermosphere and Exosphere
- Intertropical Convergence Zone (ITCZ)
- Coriolis effect
- Jet stream structure
- Subtropical jet streams
- Polar jet streams

LESSON 2: High Altitude Aerodynamics

- Aerodynamic considerations for airframes and engines
- Thrust Specific Fuel Consumption (TSFC) considerations
- L / D max
- Cruise speed considerations
- Endurance speed
- Buffet margins
- Buffet onset
- Optimum cruise altitudes
- Maximum cruise altitudes (buffet / thrust considerations)
- Temperature gradients
- High altitude stalls and recovery
- Dutch roll
- Yaw damping

LESSON 3: High Altitude Environmental Factors

- Environmental threats
- Temperatures aloft
- Clear Air Turbulence (CAT)
- CAT avoidance
- Mountain wave effects
- Thunderstorm avoidance
- Engine and airframe icing
- Fuel temperature management
- Volcanic ash – detection/avoidance
- Wake turbulence

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LESSON 4: High Altitude Aircraft Systems

- Pressurization systems operation
- Air conditioning
- Crew oxygen systems
- Passenger and portable oxygen systems

LESSON 5: High Altitude Physiology

- Respiration
- Hypoxia types
- Hypoxia symptoms
- Time of useful consciousness
- Decompression
- Hyperventilation
- Oxygen paradox
- Dysbarism
- Decompression sickness
- Barotrauma and internal effects
- Cosmic radiation

LESSON 6: Emergency Procedures / Accident Scenarios

- Loss of pressurization
- Cabin volume
- Failure detection
- Time of useful consciousness
- Oxygen masks
- Emergency descent profiles
- Emergency descent considerations
- Case study – Helios 522

* Operator is responsible for obtaining approval from the regulatory authority.

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