Advanced Aircraft Accident Investigation and Prevention Training Course



16 - 20 Nov 2026

Cape town

4600 € (Per Person)

Ref: #AVI4612_270263

Course Introduction / Overview:

This comprehensive training course provides an in-depth exploration of the principles, processes, and techniques essential for modern aircraft accident investigation and prevention. In an industry where safety is paramount, understanding the complexities behind an incident is the first step toward preventing future occurrences. This program moves beyond surface-level analysis to delve into the systemic and human factors that contribute to accidents, drawing on established methodologies and international standards. Participants will gain a thorough understanding of the entire investigation lifecycle, from initial response and site management to detailed analysis and the formulation of effective safety recommendations. The curriculum is heavily influenced by the pioneering work of academics like James Reason, whose "Swiss Cheese Model" of accident causation is a cornerstone of modern safety science, as detailed in his book "Managing the Risks of Organizational Accidents". BIG BEN Training Center has designed this course to equip professionals with the critical thinking and analytical skills needed to conduct rigorous investigations and contribute to a proactive safety culture within their organizations, ultimately enhancing global aviation safety.

Target Audience / This training course is suitable for:

- Aircraft Accident Investigators.
- Aviation Safety Managers and Officers.
- Airline Operations and Flight Crew Management.
- Aircraft Maintenance Engineers and Technicians.
- Air Traffic Controllers and Supervisors.
- Civil Aviation Authority (CAA) and other Regulatory Body Inspectors.
- Insurance and Legal Professionals specializing in aviation.
- Airport Operations and Emergency Response Personnel.
- Flight Data Monitoring Analysts.
- Human Factors Specialists.

Target Sectors and Industries:

- Commercial Airlines and Cargo Carriers.
- Business and Corporate Aviation Operators.
- Aircraft and Component Manufacturing Companies.
- Maintenance, Repair, and Overhaul (MRO) Organizations.
- Airport Authorities and Air Navigation Service Providers.
- Governmental bodies, including Civil Aviation Authorities and Accident Investigation Boards.
- Aviation Insurance and Legal Firms.
- Defense and Military Aviation Sectors.
- Aviation Training Organizations.

Target Organizations Departments:

- Safety and Quality Assurance Departments.
- Flight Operations Departments.
- Maintenance and Engineering Departments.
- Corporate Compliance and Regulatory Affairs.
- Emergency Response and Planning Departments.
- Legal and Insurance Departments.
- Human Resources and Training Departments.
- Air Traffic Services Departments.

Course Offerings:

By the end of this course, the participants will have able to:

- Apply the international standards and recommended practices of ICAO Annex 13.
- Manage an accident site effectively, ensuring evidence preservation and safety.
- Conduct systematic wreckage analysis and component examination.
- Analyze data from Flight Data Recorders (FDR) and Cockpit Voice Recorders (CVR).
- Utilize human factors analysis frameworks like the SHELL and HFACS models.
- Perform root cause analysis to identify underlying organizational and systemic failures.
- Write clear, concise, and comprehensive accident investigation reports.
- Develop effective and actionable safety recommendations to prevent recurrence.
- Integrate investigation findings into a proactive Safety Management System (SMS).
- Manage media relations and family assistance protocols post-accident.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and highly practical. We believe that complex subjects like aircraft accident investigation are best learned through active participation and real-world application. The course moves beyond traditional lectures to incorporate a blend of detailed presentations, expert-led discussions, and intensive case study analyses of historical accidents. Participants will engage in group workshops and simulation exercises that challenge them to apply investigation techniques in realistic scenarios, such as mock go-team deployments and evidence analysis tasks. Team-based projects will focus on conducting a simulated investigation from start to finish, culminating in the presentation of a final report and safety recommendations. This hands-on approach ensures that theoretical knowledge is immediately reinforced with practical skills. Continuous feedback from the instructor and peer-to-peer learning are integral components, fostering a collaborative environment where participants can share experiences and deepen their understanding of proactive aviation safety management.

Course Agenda (Course Units):

Unit One: Foundations of Aircraft Accident Investigation

- Introduction to Accident Investigation Principles and Objectives.
- International Legal Frameworks: ICAO Annex 13.
- National and Regional Investigative Authorities (e.g., NTSB, EASA, AAIB).
- The Role and Responsibilities of the Investigator-in-Charge (IIC).
- Initial Notification, Emergency Response, and Go-Team Deployment.
- Investigation Process Overview and Phasing.
- Establishing a Just Culture in Investigations.

Unit Two: On-Site Investigation and Evidence Collection

- Accident Site Management and Hazard Control.
- Wreckage Documentation: Photography, Videography, and Diagramming.
- Evidence Identification, Collection, and Preservation Protocols.
- Handling and Analysis of Flight Data Recorders (FDR) and Cockpit Voice Recorders (CVR).
- Interviewing Techniques for Witnesses and Survivors.
- Understanding Aircraft Structures and Systems for Wreckage Analysis.
- Coordination with Air Traffic Control and other External Agencies.

Unit Three: Human Factors and Organizational Analysis

- Introduction to Human Factors in Aviation.
- The SHELL Model and Threat and Error Management (TEM).
- James Reason's Swiss Cheese Model of Organizational Accidents.
- Human Factors Analysis and Classification System (HFACS).
- Investigating Maintenance and Air Traffic Control Human Errors.
- Assessing Crew Resource Management (CRM) and Decision-Making.
- Evaluating the Impact of Organizational Culture and Safety Climate.

Unit Four: Analysis, Reporting, and Technical Investigation

- Root Cause Analysis Methodologies.
- Analysis of Aircraft Performance and Systems Failures.
- Investigating Weather and Environmental Factors.
- Utilizing Flight Data Animation and Simulation Tools.
- Structuring and Writing the Final Accident Report.
- Developing Factual Findings and Probable Cause Statements.
- The Role of Public Hearings and Dockets in the Investigation Process.

Unit Five: Accident Prevention and Safety Management Systems (SMS)

- From Investigation to Prevention: Closing the Loop.
- Formulating Effective and Achievable Safety Recommendations.
- The Role of the Investigator in the Recommendation Process.
- Integrating Investigation Findings into a Safety Management System (SMS).
- Proactive and Predictive Safety Analysis Techniques.
- Managing Family Assistance and Media Communications.
- Legal and Insurance Aspects of Accident Investigation.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can an organization balance the principles of a 'Just Culture' with the legal and regulatory requirements for accountability following a major accident?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by adopting a holistic and proactive philosophy toward aviation safety, moving far beyond the mechanics of a reactive investigation. While other programs may focus narrowly on technical failure analysis, this training integrates a deep exploration of human factors and organizational systems, grounded in seminal frameworks like James Reason's Swiss Cheese Model and the HFACS system. We emphasize not just what happened, but why it was allowed to happen from a systemic perspective. The curriculum is uniquely structured to bridge the gap between post-accident investigation and pre-accident prevention, showing participants how to leverage investigation findings to strengthen their organization's Safety Management System (SMS). Rather than simply teaching how to write a report, we cultivate a mindset of continuous safety improvement. The methodology, rich with complex case studies and interactive simulations, forces participants to grapple with the ambiguities and pressures of a real-world investigation, ensuring they leave with practical, decision-making skills, not just theoretical knowledge. This focus on systemic analysis and proactive prevention provides a more profound and lasting impact on an organization's safety culture.