Airport Human Factors and Safety Management Systems Training Course



19 - 23 Oct 2026

Barcelona

5900 € (Per Person)

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Course Introduction / Overview:

This course provides a comprehensive exploration of the critical role human factors play in the safety and efficiency of modern airport operations. In an industry where the margin for error is minimal, understanding the interplay between people, technology, and procedures is paramount. This program moves beyond basic theory to deliver practical, applicable knowledge grounded in established aviation psychology and safety science. We will delve into foundational concepts articulated by pioneers like James Reason in his seminal work, "Human Error," examining models such as the Swiss Cheese Model to understand how latent failures contribute to incidents. Participants will learn to identify and mitigate human performance limitations, enhance team communication, and foster a robust safety culture. BIG BEN Training Center has designed this course to empower aviation professionals to proactively manage risks by integrating human factors principles directly into their Safety Management Systems (SMS), transforming their organization's approach from reactive incident analysis to proactive safety assurance. This training is essential for anyone committed to achieving operational excellence and the highest standards of safety within the complex airport environment.

Target Audience / This training course is suitable for:

- Airport Operations Managers.
- Aviation Safety Officers and Managers.
- Air Traffic Controllers and Supervisors.
- Airline Station Managers.
- Ground Handling and Ramp Operations Staff.
- Aircraft Maintenance Technicians and Engineers.
- Airport Emergency and Rescue Personnel.
- Aviation Security Staff.
- Regulatory and Compliance Inspectors.
- Human Resources and Training Managers in Aviation.

Target Sectors and Industries:

- Commercial Airlines.
- Airport Authorities and Operators.
- Air Navigation Service Providers (ANSPs).
- Ground Handling and Fuelling Companies.
- Aircraft Maintenance, Repair, and Overhaul (MRO) Organizations.
- Cargo and Logistics Operators.
- Corporate and Business Aviation.
- Governmental bodies including Civil Aviation Authorities and transportation safety boards.

Target Organizations Departments:

- Operations and Flight Dispatch.
- Safety, Quality, and Compliance.
- Air Traffic Management and Control.
- Ground Operations and Ramp Services.
- Technical Services and Engineering.
- Security and Emergency Planning.
- Human Resources and Training.
- Corporate Risk Management.

Course Offerings:

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

- Analyze the core principles of human factors and their impact on aviation safety.
- Apply models like the SHELL and Swiss Cheese Model to deconstruct incidents.
- Identify the physiological and psychological factors affecting human performance.
- Implement strategies for managing fatigue, stress, and workload in airport operations.
- Enhance team effectiveness through Crew Resource Management (CRM) principles.
- Integrate human factors considerations into a formal Safety Management System (SMS).
- Promote a positive safety culture, including the principles of a Just Culture.
- Conduct effective human factors-based incident investigations using tools like HFACS.
- Evaluate the impact of automation and new technologies on human performance.
- Develop proactive safety strategies to mitigate human error in their specific operational context.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive and participant-centered, ensuring that theoretical knowledge is translated into practical skills. We employ a blended learning approach that combines expert-led presentations with dynamic group discussions, allowing participants to share experiences and learn from one another. A significant portion of the course is dedicated to analyzing real-world aviation case studies, which provides a tangible context for understanding the consequences of human error and the effectiveness of mitigation strategies. Collaborative problem-solving exercises and simulation-based scenarios will challenge participants to apply human factors principles in realistic airport operational situations. Regular feedback sessions and guided self-reflection are integrated throughout the program to foster deep learning and continuous improvement. Our approach focuses on building confidence and competence, equipping attendees with the tools and frameworks needed to implement positive changes and enhance safety culture within their organizations immediately upon their return.

Course Agenda (Course Units):

Unit One: Foundations of Human Factors in Aviation

- Introduction to Human Factors and Ergonomics.
- Historical context of human factors in the aviation industry.
- Understanding the SHELL model (Software, Hardware, Environment, Liveware).
- Theories of human error and violation.
- James Reason's Swiss Cheese Model of accident causation.
- The relationship between human factors and system safety.
- Introduction to aviation psychology and cognitive processes.

Unit Two: Human Performance and Operational Limitations

- The information processing model of human cognition.
- Situational awareness and factors that degrade it.
- Managing stress, workload, and fatigue in 24/7 operations.
- Decision-making processes and common cognitive biases.
- The effects of physical and environmental factors on performance.
- Memory, attention, and perception in complex environments.
- Strategies for personal performance optimization and error prevention.

Unit Three: Team Dynamics and Communication

- Principles of Crew Resource Management (CRM) and Team Resource Management (TRM).
- Effective communication strategies for high-stakes environments.
- Leadership, followership, and assertiveness in aviation teams.
- Teamwork, cooperation, and conflict resolution techniques.
- Understanding and shaping group norms and team culture.
- Briefing and debriefing techniques for operational excellence.
- Cross-cultural communication challenges in international airports.

Unit Four: Integrating Human Factors into Safety Management Systems (SMS)

- The four components of an ICAO-compliant SMS.
- The role of human factors in safety policy and objectives.
- Human factors in Safety Risk Management (SRM).
- Developing and promoting a positive safety culture and a Just Culture.
- Designing effective and non-punitive safety reporting systems.
- Human Factors Analysis and Classification System (HFACS).
- Using safety data to identify and mitigate human factors risks.

Unit Five: Advanced Applications and Future Trends

- Human factors in ground handling and ramp safety.
- Case studies in air traffic control and maintenance errors.
- The impact of automation and human-machine interface design.
- Human-centered design in airport infrastructure and technology.
- Investigating incidents and accidents from a human factors perspective.
- Future challenges and emerging trends in aviation human factors.
- Developing a personal action plan for implementing human factors improvements.

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:

As automation becomes more prevalent in airport operations, how does the role of the human operator shift from active controller to system monitor, and what new types of human error might emerge from this paradigm shift?

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

This course distinguishes itself by moving beyond theoretical recitation to focus on the practical integration of human factors into the very fabric of an organization's Safety Management System (SMS). While many programs address human error in isolation, our curriculum is built around the philosophy that human factors is not a separate discipline but a core component of proactive safety management. We emphasize the development of a systemic perspective, teaching participants how to analyze and improve the entire operational system—procedures, technology, environment, and team dynamics—to support human performance. The course content is deeply rooted in established academic principles but is delivered through the lens of real-world applicability, using contemporary case studies from diverse airport environments, including ground handling, air traffic control, and maintenance. Participants leave not just with knowledge of models like SHELL or HFACS, but with the critical thinking skills to apply them diagnostically within their own unique operational contexts. The ultimate goal is to empower leaders to build a resilient and generative safety culture, rather than simply reacting to failures.