Advanced Runway Safety and Incursion Prevention Training Course



19 - 23 Oct 2026

Cape town

4600 € (Per Person)

Ref: #AIR9008_270142

Course Introduction / Overview:

Runway incursions represent one of the most significant and persistent threats to aviation safety, with the potential for catastrophic consequences. This comprehensive training course is meticulously designed to address this critical issue from a multi-faceted perspective, encompassing the roles of pilots, air traffic controllers, and ground personnel. The program delves deep into the causal factors behind runway incursions and excursions, moving beyond simple procedural adherence to explore the complex interplay of human factors, communication breakdowns, and systemic vulnerabilities. Drawing upon the foundational principles outlined in seminal works like "The Field Guide to Understanding 'Human Error'" by Sidney Dekker, this course emphasizes a proactive, systems-thinking approach to safety. Participants will analyze real-world case studies, understand international standards set by bodies like ICAO, and learn to apply practical risk mitigation strategies. BIG BEN Training Center is dedicated to fostering a new generation of aviation professionals who are not just compliant with regulations but are true champions of a robust safety culture, capable of identifying latent threats and implementing effective prevention measures to safeguard operations on the aerodrome surface. This course provides the essential knowledge and skills to transform airport ground operations into a more resilient and safer environment for all.

Target Audience / This training course is suitable for:

- Pilots and Flight Crew Members.
- Air Traffic Controllers (Tower and Ground).
- Airport Operations Managers and Staff.
- Ground Vehicle Operators and Drivers.
- Aviation Safety Managers and Officers.
- Airline and Airport Management Personnel.
- Civil Aviation Authority Inspectors and Regulators.
- Ground Handling Supervisors and Agents.
- Flight Dispatchers.
- Aviation Maintenance Technicians.

Target Sectors and Industries:

- Commercial and Cargo Airlines.
- Airport Authorities and Operators.
- Air Navigation Service Providers (ANSPs).
- Corporate and Business Aviation Operators.
- Ground Handling and FBO Service Companies.
- Aviation Training Organizations.
- Governmental bodies such as Civil Aviation Authorities and Ministries of Transport.
- Military Aviation Units operating from civilian or joint-use airfields.

Target Organizations Departments:

- Flight Operations.
- Air Traffic Services.
- Aerodrome Operations and Management.
- Safety and Compliance Departments.
- Ground Handling and Ramp Services.
- Corporate Training and Development.
- Quality Assurance.
- Airport Emergency Services.
- Airside Maintenance and Engineering.

Course Offerings:

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

- Identify the primary causes and categories of runway incursions and excursions.
- Apply ICAO and national regulatory standards related to runway safety.
- Analyze the role of human factors, including fatigue and situational awareness, in surface incidents.
- Utilize standard aviation phraseology and communication protocols to prevent misunderstandings.
- Interpret airport signage, markings, and lighting systems correctly.
- Implement effective procedures for operating vehicles in controlled movement areas.
- Contribute to the development and function of a local Runway Safety Team (RST).
- Conduct a basic risk assessment of aerodrome hot spots.
- Investigate a surface incident to identify root causes and contributing factors.
- Promote a positive safety culture within their respective teams and organizations.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and highly practical, ensuring that participants can directly apply their learning to their operational environments. This course moves beyond traditional lecture-based instruction by integrating a dynamic blend of learning techniques. A cornerstone of our approach is the extensive use of case studies, where participants analyze real-world runway incursion incidents to understand the chain of events and identify critical points of failure. Interactive group discussions and workshops encourage the sharing of diverse perspectives from pilots, controllers, and ground staff, fostering a holistic understanding of airport operations. Role-playing scenarios, particularly focusing on pilot-controller communication, allow participants to practice critical skills in a controlled, safe setting. High-impact visual aids, including videos and aerodrome simulations, are used to illustrate complex concepts and procedures. Throughout the course, our expert instructors facilitate a collaborative learning environment, providing continuous feedback and encouraging participants to develop practical solutions to real-world safety challenges. This hands-on, engaging approach ensures maximum knowledge retention and skill development.

Course Agenda (Course Units):

Unit One: Fundamentals of Runway Safety Management

- Introduction to Runway Safety.
- Defining Runway Incursions, Excursions, and Surface Incidents.
- Global Statistics and High-Profile Case Studies.
- The Role of ICAO, FAA, and National Civil Aviation Authorities.
- Introduction to Safety Management Systems (SMS) in the Airport Environment.
- The Concept of Aerodrome Hot Spots and Critical Areas.
- Legal and Financial Implications of Runway Incidents.

Unit Two: Human Factors and Communication Protocols

- The "Dirty Dozen" in Aviation and Their Impact on Runway Safety.
- Threat and Error Management (TEM) Framework for Surface Operations.
- Maintaining Situational Awareness on the Ground.
- The Sterile Cockpit and Sterile Tower Principles.
- Standard ICAO Phraseology for Ground Operations.
- Effective Readback/Hearback Techniques.
- Managing Communication Challenges in Low Visibility Conditions.

Unit Three: Pilot and Air Traffic Control Procedures

- Roles and Responsibilities on the Aerodrome.
- Taxi Clearances, Hold Short Instructions, and Crossing Clearances.
- Procedures for Low Visibility Operations (LVO).
- Understanding and Mitigating Controller and Pilot Workload.
- Non-Verbal Communication: Airport Markings, Signage, and Lighting.
- Managing Deviations and Non-Standard Situations.
- Collaborative Decision Making (CDM) between ATC and Flight Crews.

Unit Four: Ground Vehicle and Airport Operations

- Rules and Procedures for Vehicle Operations on the Airside.
- Communication Requirements for Ground Vehicle Drivers.
- Operating within the Controlled Movement Area (CMA).
- Jet Blast, Propeller Wash, and Rotor Wash Hazards.
- Procedures for Airside Construction and Work-in-Progress Areas.
- The Role of Airport Operations in Runway Inspections and Safety.
- Coordination between Ground Handling Agents, Maintenance, and ATC.

Unit Five: Advanced Prevention, Technology, and Safety Culture

- The Function and Importance of Runway Safety Teams (RSTs).
- Technological Aids for Runway Safety (ASDE-X, RWSL, THL).
- Data Collection and Analysis through a Safety Reporting System.
- Incident Investigation and Root Cause Analysis Techniques.
- Developing and Implementing Standard Operating Procedures (SOPs).
- Building a Proactive and Just Safety Culture.
- Future Trends and Innovations in Runway Safety.

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 technology for runway safety advances, how do we ensure that human vigilance and situational awareness are enhanced rather than diminished by over-reliance on automated systems?

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

This training course distinguishes itself through its holistic and integrated approach to a complex, multi-disciplinary challenge. Unlike programs that focus on a single role, this course is uniquely structured to bring together the perspectives of pilots, air traffic controllers, and ground personnel, creating a comprehensive operational picture. This fosters a deep understanding of the interdependencies and communication interfaces that are critical to safety on the aerodrome. We move beyond simple regulatory compliance, embedding the principles of modern safety science, including human factors analysis based on the work of experts like Sidney Dekker, and the proactive framework of Threat and Error Management (TEM). The curriculum is heavily reliant on real-world case studies, allowing participants to deconstruct actual incidents and learn from them in a structured, analytical manner. Furthermore, the course places a strong emphasis on building a positive safety culture, equipping participants not just with technical procedures, but with the leadership and communication skills needed to champion safety initiatives within their own organizations. The focus is on developing critical thinking and proactive risk management capabilities, rather than just rote memorization of rules.