Aviation Safety Management System (SMS): ICAO Framework, Risk Management and Safety Assurance

21 – 25 June 2027
Amsterdam - Zuidas business district hotel

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Introduction:

Airlines, airports, maintenance organisations and ground handlers often hold an aviation safety management system on paper while hazard reports go unanswered, risk registers drift out of date and safety meetings review activity instead of performance. This Core Concept course equips safety and operational leads to run an SMS built on the four ICAO components: safety policy and objectives, safety risk management, safety assurance and safety promotion. Participants work through aviation cases from flight, ramp, hangar and airside operations and produce an SMS Gap Analysis and Implementation Plan for their own organisation.

Course Objectives:

- Map an organisation's existing safety arrangements against the four ICAO SMS components and their elements and record the gaps
- Define safety policy, safety objectives, accountable executive duties and safety accountabilities for an aviation service provider
- Identify aviation hazards and assess, mitigate and record safety risk using a probability and severity matrix and a hazard log
- Operate a mandatory and voluntary safety reporting scheme under just culture principles and triage reports into action
- Set safety performance indicators and targets, monitor them and run safety assurance activities, including management of change
- Produce an SMS Gap Analysis and Implementation Plan with phased actions, owners and safety promotion measures

Target Audience:

- Safety management staff who administer the SMS, hazard log and safety reporting scheme at an aviation service provider
- Quality and compliance managers who audit operations and link findings to safety assurance
- Flight operations, maintenance and engineering managers accountable for operational safety risk in their area
- Airport airside, terminal and ground handling managers responsible for ramp and apron safety
- Managers who support the accountable executive and chair safety action groups or safety review boards

Course Outline:

Day 1: Aviation Safety Management Foundations and SMS Current-State Review

- ICAO Annex 19 and Doc 9859: Purpose, Scope and Service Provider Obligations
- Aviation Safety Concepts: Hazards, Consequences, Safety Risk and Acceptable Level of Safety Performance
- State Safety Programme and Service Provider SMS Interface
- SMS Scaling for Airlines, Aerodromes, Maintenance Organisations and Ground Handlers
- SMS Current-State Review Using an ICAO Component and Element Checklist

Day 2: The ICAO SMS Framework: Policy, Accountabilities and Documentation

- Four ICAO SMS Components and Twelve Elements Mapped to Organisational Functions
- Safety Policy Statement and Measurable Safety Objectives Drafting
- Accountable Executive, Safety Manager and Key Safety Personnel Responsibility Matrix
- Emergency Response Plan Coordination With Airport and Partner Organisations
- SMS Manual Structure, Safety Records and Document Control

Day 3: Safety Risk Management and Safety Reporting in Aviation Operations

- Aviation Hazard Identification Sources: Reports, Audits, Flight Data and Ramp Observations
- Safety Risk Probability and Severity Matrix and Tolerability Decision Rules
- Hazard Log Entry, Risk Mitigation Actions and Residual Risk Acceptance
- Mandatory and Voluntary Safety Reporting Scheme Design and Report Triage
- Just Culture Policy: Acceptable and Unacceptable Behaviour and Reporter Protection

Day 4: Safety Assurance, Performance Measurement and Human Factors

- Safety Performance Indicators, Alert Levels and Safety Performance Targets
- Safety Performance Monitoring Dashboards and Safety Review Board Agenda
- Management of Change Safety Assessment for New Routes, Equipment and Contractors
- Occurrence Investigation Basics: Scope, Evidence, Contributing Factors and Safety Recommendations
- Dirty Dozen Human Factors at Overview in Flight, Hangar and Ramp Work

Day 5: Case Work: SMS Gap Analysis and Implementation Plan

- Guided Case: Ramp Collision Reports and Hazard Log Update at a Ground Handler
- Guided Case: Maintenance Occurrence Trend and Indicator Review at a Repair Station
- Safety Promotion Plan: SMS Training Matrix, Safety Bulletins and Lessons-Learned Briefings
- Phased SMS Implementation Roadmap With Owners, Milestones and Continuous Improvement Review
- SMS Gap Analysis and Implementation Plan Presentation and Peer Challenge

Skills You Will Gain:

- SMS Gap Assessment
- Safety Accountability Mapping
- Aviation Hazard Identification
- Safety Risk Assessment
- Safety Report Triage
- Safety Performance Indicator Design
- Management of Change Assessment
- Safety Promotion Planning

Why Attend This Course:

- Return with an SMS Gap Analysis and Implementation Plan built on your own airline, airport, maintenance or ground handling operation
- Turn unanswered hazard reports into a working hazard log with owners, mitigations and accepted residual risk
- Give the accountable executive and safety review board indicators that show whether safety performance is improving
- Compare SMS practice with peers from airlines, airports, maintenance organisations and ground handlers

Conclusion:

An aviation SMS earns its place when hazard reports lead to mitigations, indicators show real performance and people keep reporting because they trust how reports are handled. The course moves from ICAO Annex 19 and Doc 9859 foundations through policy, accountabilities and documentation, to safety risk management and reporting, then safety assurance, management of change, occurrence investigation basics and human factors. The final day applies this to aviation cases and produces an SMS Gap Analysis and Implementation Plan ready for review.