Training Course on Safety Performance Indicators (SPIs) for Aviation

Professional Development Training Course Outline

Category	Aviation and Airport Management	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The aviation industry operates within a dynamic and complex environment, demanding a relentless commitment to safety. Achieving and sustaining exceptional safety standards hinges on robust Safety Management Systems (SMS) and, critically, the effective utilization of **Safety Performance Indicators (SPIs)**. This course delves into the strategic development, implementation, and analysis of SPIs, equipping aviation professionals with the essential skills to proactively monitor, measure, and enhance safety performance. By moving beyond reactive incident investigation, participants will learn to identify emerging risks, establish meaningful safety targets, and drive continuous improvement across all operational facets, fostering a resilient safety culture.

Training Course on Safety Performance Indicators (SPIs) for Aviation is designed to empower organizations to optimize their **aviation safety management** framework. Focusing on **proactive risk management** and **data-driven decision-making**, the curriculum explores the latest trends in **aviation safety metrics**, including the integration of **leading and lagging indicators** and leveraging **advanced data analytics**. Participants will gain practical expertise in developing **quantifiable SPIs** aligned with **ICAO standards** and **regulatory compliance**, ensuring their organizations not only meet but exceed global safety expectations. This course is indispensable for cultivating a truly **performance-based safety environment** within the aviation sector.

Programme Curriculum

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Course Duration

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Course Objectives

1. Comprehend the foundational regulatory requirements and global best practices for aviation Safety Management Systems (SMS) and their direct link to SPIs.
2. Design Specific, Measurable, Achievable, Relevant, and Time-bound SPIs tailored to diverse aviation operations.
3. Effectively identify and utilize both proactive (leading) and reactive (lagging) SPIs for comprehensive safety monitoring.
4. Establish robust processes for collecting, validating, and analyzing safety data to inform strategic safety decisions.
5. Analyze SPI data to identify emerging safety risks, patterns, and areas requiring immediate intervention.
6. Define realistic and measurable safety goals for continuous improvement and regulatory adherence.
7. Leverage SPIs to promote a positive safety reporting culture and foster active participation from all personnel.
8. Utilize SPI data to pinpoint underlying causes of incidents and develop targeted preventative measures.
9. Integrate hazard identification, risk assessment, and mitigation strategies into the selection and monitoring of SPIs.
10. Explore how advanced data analytics, artificial intelligence, and predictive maintenance contribute to enhanced SPI effectiveness.
11. Understand how to align SPIs with national and international aviation safety regulations and prepare for audits.
12. Establish a cyclical process for reviewing, refining, and evolving SPIs to drive ongoing safety enhancements.
13. Learn to communicate SPI performance clearly and concisely to all stakeholders, fostering transparency and accountability.

Organizational Benefits

- Shifting from reactive incident response to proactive identification and management of safety risks.

- Providing concrete, data-driven insights for informed strategic and operational safety decisions.
- Ensuring adherence to national and international aviation safety regulations (e.g., ICAO Annex 19, EASA, FAA).
- Fostering a transparent and accountable environment where employees are empowered to report and contribute to safety.
- Minimizing the frequency and severity of safety occurrences, leading to safer operations.
- Directing safety resources more efficiently to areas of highest risk and greatest impact.
- Streamlining safety processes and reducing disruptions caused by safety events.
- Building confidence among passengers, regulators, and industry partners through demonstrated safety excellence.
- Lowering insurance premiums, reducing legal fees, and minimizing costs associated with accidents and incidents.
- Creating a safer work environment leads to greater employee satisfaction and reduced absenteeism.

Target Audience

1. Aviation Safety Managers & Directors.
2. SMS Coordinators & Practitioners.
3. Operations Managers & Supervisors.
4. Quality Managers & Auditors.
5. Accountable Managers
6. Regulatory Body Personnel & Inspectors
7. Airline, Airport, MRO, and Air Navigation Service Providers (ANSP) Staff.
8. Aspiring Aviation Safety Professionals.

Course Outline

Module 1: Foundations of Aviation Safety Management & SPIs

- Introduction to Aviation Safety Management Systems (SMS) and ICAO Annex 19 requirements.
- Defining Safety Performance Indicators (SPIs), Safety Performance Targets (SPTs), and Acceptable Levels of Safety (ALoS).
- The critical role of SPIs in proactive safety management and continuous improvement.
- Understanding the relationship between SPIs, Key Performance Indicators (KPIs), and Safety Objectives.
- **Case Study:** Analysis of a major airline's journey in establishing its initial set of SPIs following SMS implementation, highlighting challenges and successes.

Module 2: Developing Effective Leading & Lagging SPIs

- Principles of effective SPI design: Specific, Measurable, Achievable, Relevant, Time-bound (SMART).
- Identifying and developing leading indicators for proactive risk identification (e.g., safety observations, near-miss reports, training compliance).
- Identifying and developing lagging indicators for measuring outcomes (e.g., incident rates, accident rates, human error occurrences).
- Best practices for selecting relevant SPIs for different operational areas (e.g., flight operations, maintenance, ground handling).

- **Case Study:** A regional airport's success in reducing runway incursions by implementing new leading indicators focused on communication protocols and airfield signage compliance.

Module 3: Data Collection, Analysis, and Visualization for SPIs

- Methods and tools for effective safety data collection (e.g., safety reporting systems, audit findings, flight data monitoring).
- Techniques for cleaning, validating, and ensuring the accuracy of safety data.
- Statistical methods for analyzing SPI data (e.g., trend analysis, statistical process control, correlation).
- Effective visualization of SPI data using dashboards and reports for various stakeholders.
- **Case Study:** How a cargo operator utilized advanced data analytics to identify a correlation between maintenance delays and specific technical defects, leading to improved SPIs for dispatch reliability.

Module 4: Establishing Safety Performance Targets & Alert Levels

- Methodology for setting realistic and challenging Safety Performance Targets (SPTs).
- Defining Alert Levels and Trigger Levels for proactive intervention when SPIs deviate.
- Integrating SPIs and SPTs into the organization's overall safety policy and objectives.
- Techniques for reviewing and adjusting SPTs based on performance and evolving risks.
- **Case Study:** An MRO (Maintenance, Repair, and Overhaul) facility's process for setting SPTs for human error rates in critical tasks, demonstrating how they used historical data to establish baselines and monitor progress.

Module 5: Integrating SPIs into Safety Assurance & Risk Management

- The role of SPIs in the Safety Assurance (SA) component of SMS.
- Using SPIs to monitor the effectiveness of risk controls and mitigation strategies.
- Linking SPI performance to the organization's hazard identification and risk assessment processes.
- Developing safety action plans based on SPI analysis to address identified shortcomings.
- **Case Study:** How a flight school used SPIs related to student pilot errors during solo flights to refine their training curriculum and reduce instructional oversight risks.

Module 6: Human Factors, Safety Culture, and SPIs

- Understanding the influence of human factors on safety performance and SPIs.
- Developing SPIs that measure aspects of safety culture (e.g., reporting culture, just culture maturity).
- Strategies for promoting a positive safety culture that encourages open reporting and continuous improvement.
- The role of leadership and employee engagement in driving SPI performance.
- **Case Study:** An air traffic control unit's initiative to improve incident reporting rates by implementing a "no-blame" reporting policy and measuring the subsequent increase in near-miss reports as a leading indicator of enhanced safety culture.

Module 7: Regulatory Compliance, Auditing, and Continuous Improvement

- Aligning SPIs with national and international regulatory requirements (e.g., EASA, FAA, ICAO).
- Preparing for internal and external safety audits using SPI data and reports.

- The continuous improvement cycle: Plan-Do-Check-Act (PDCA) applied to SPI management.
- Benchmarking SPI performance against industry best practices and peer organizations.
- **Case Study:** A national aviation authority's process for standardizing SPI reporting across its regulated entities, demonstrating how this facilitated benchmarking and systemic safety improvements.

Module 8: Advanced Topics & Future Trends in Aviation SPIs

- Leveraging big data and predictive analytics for advanced SPI insights.
- The application of Artificial intelligence (AI) and machine learning in safety data analysis and forecasting.
- Exploring emerging technologies and their impact on future SPI development (e.g., UAV operations, eVTOLs).
- Developing SPIs for new and evolving operational environments and technologies.
- **Case Study:** A major aircraft manufacturer's use of AI-driven predictive maintenance SPIs to anticipate component failures and reduce unscheduled maintenance events across its fleet.

Training Methodology

Our training methodology combines theoretical knowledge with practical application to ensure maximum learning and retention.

- **Interactive Lectures & Discussions:** Engaging presentations with opportunities for Q&A and peer-to-peer learning.
- **Case Studies & Real-World Examples:** In-depth analysis of actual aviation safety scenarios to illustrate concepts and best practices.
- **Group Exercises & Workshops:** Hands-on activities allowing participants to apply learned principles in a collaborative environment (e.g., developing mock SPIs, analyzing sample data sets).
- **Practical Tools & Templates:** Provision of actionable templates and frameworks for immediate application in their respective organizations.
- **Expert Facilitation:** Led by experienced aviation safety professionals with deep industry knowledge and practical experience in SPI implementation.
- **Q&A Sessions:** Dedicated time for participants to address specific organizational challenges and receive expert guidance.
- **Post-Course Support (Optional):** Access to resources and facilitator for follow-up questions.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now