



ICAO Safety Management Systems (SMS) Course Information and outline



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SAFETY MANAGEMENT SYSTEMS (SMS) COURSE

Course information and outline

Background

Managing any aviation organization, large or small, requires the management of many business processes: financing, budgeting, communicating and allocating resources, and so forth. In recent years, managing safety has been added to the list of business processes. Managing safety is now as much a part of running a business as any of the traditional business processes.

ICAO first introduced the requirement for safety management in Annex 11 — *Air Traffic Services*, and Annex 14 — *Aerodromes, Volume I — Aerodrome Design and Operations*. A need was then identified to expand the concept and to harmonize provisions with Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes*, and Part III — *International Operations — Helicopters*, and in a near future the Organization will explore the extension of the concept and requirement to other Annexes of the Chicago Convention.

An SMS is a systematic approach to managing safety, including the necessary organizational structure, accountabilities, policies and processes. In order to reinforce the notion of safety management being a managerial process, the new ICAO safety management requirements include provisions for an organization to establish lines of safety accountability throughout the organization, as well as at the senior management level. The requirements impose upon States the responsibility to establish a safety programme and, as part of such programme, require that air operators, maintenance organizations, air traffic services providers and certified aerodrome operators implement a safety management system (SMS). Lastly, the requirements impose on States the responsibility to establish an acceptable level of safety for the activities/provision of services under consideration.

Course goals

The goals of the *ICAO Safety Management Systems (SMS) Course* are to:

- a) develop participants' knowledge of safety management concepts and ICAO Standards and Recommended Practices (SARPs) on safety management in Annexes 6, 11 and 14, and related guidance material; and
- b) develop participants' knowledge to certify and oversee the implementation of key components of a basic SMS, in compliance with relevant ICAO SARPs and national regulations.

Target audience

Representatives from civil aviation authorities with responsibilities regarding the implementation of safety programmes, and the implementation and/or oversight of safety management systems, in the areas of aircraft operations, air traffic services, maintenance of aircraft and aerodrome operations.

Prerequisites

Participants must have basic technical aeronautical knowledge and a minimum of two years experience in flight, air traffic control or aerodrome operations in a civil aviation administration or the aviation industry.

Class size

The maximum class size for this course is 30 persons.

Course duration

Five days for a total 30 classroom hours, including exercises, case studies and examination.

References

- ICAO Annexes to the Convention on International Civil Aviation
 - Annex 6 – *Aircraft operation, Parts I and III*
 - Annex 11 – *Air Traffic Services*
 - Annex 14 – *Aerodromes – Volume I – Aerodrome Design and Operations*
- ICAO Safety Management Manual (Doc 9859)

Contact

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Training material

The instructional strategy will involve case study materials, presentations and group work.

Course time table

	Day 1	Day 2	Day 3	Day 4	Day 5
Period 1	Module 1	Module 3	Module 5	Module 7	Module 10
Period 2	Module 1	Module 3	Module 5	Module 8	Module 10
Coffee/tea break					
Period 3	Module 2	Module 3	Module 5	Module 8	Module 10
Period 4	Module 2	Module 3	Module 5	Module 8	Module 10
Lunch					
Period 5	Module 2	Module 4	Module 5	Module 8	Module 10
Period 6	Module 2	Module 4	Module 5	Module 9	Exam
Coffee/tea break					
Period 7	Module 2	Module 4	Module 6	Module 9	Course feedback and closing

OUTLINE OF MODULE PLANS

Module 1 – SMS course introduction

Introduction

- Objective of the module:
 - ❖ *To introduce the course goals, concepts, contents and structure, as well as to allow participants to be acquainted with each other and with the course instructors.*

Main presentation

- Description of the module contents:
 - ❖ **Part I** – *Presentation of ICAO instructors and participants*
 - ❖ **Part II** – *Course goals, concepts, contents and structure*
 - ❖ **Part III** – *Administrative information*
 - ❖ **Part IV** – *Evaluation procedures*

Conclusion

- Summary
- Questions by participants.

Module 2 – Basic safety concepts

Introduction

- Objective of the module:
 - ❖ *At the end of this module, participants will be able to explain the strengths and weaknesses of traditional methods to manage safety, and describe new perspectives and methods for managing safety.*

Main presentation

- Description of the module contents:
 - ❖ Concept of safety
 - ❖ The evolution of safety thinking
 - ❖ A concept of accident causation – Reason model
 - ❖ The organizational accident
 - ❖ People, context and safety – SHEL(L) model
 - ❖ Errors and violations
 - ❖ Organizational culture
 - ❖ Safety investigation
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Progress test: Exercise N° 02/01 – *The Anytown City Airport accident (See Handout N° 1)*
- Exercise answer and feedback.

Module 3 – Introduction to safety management

Introduction

- Objective of the module:
 - ❖ *At the end of this module, participants will be able to explain the need for, the strategies and the key features of safety management.*

Main presentation

- Description of the module contents:
 - ❖ The safety stereotype
 - ❖ The management dilemma
 - ❖ Need for safety management
 - ❖ Strategies for safety management
 - ❖ The imperative of change
 - ❖ Safety management – Eight building blocks
 - ❖ Four responsibilities for managing safety
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Progress test: Exercise N° 03/01 – *The Anyfield Airport accident (See Handout N° 2)*
- Exercise answer and feedback.

Module 4 – Hazards

Introduction

- Objective of the module:
 - ❖ *At the end of this module, participants will be able to apply the fundamentals of hazard identification and analysis through a case study.*

Main presentation

- Description of the module contents:
 - ❖ Two fundamental concepts
 - ❖ First fundamental – Understanding hazards

- ❖ Second fundamental – Hazard identification
- ❖ Third fundamental – Hazard analysis
- ❖ Fourth fundamental – Documentation of hazards
- ❖ Questions and answers
- ❖ Points to remember

Conclusion

- Progress test: Exercise N° 04/01 – *International airport construction project*
(See Handout N° 3)
- Exercise answer and feedback.

Module 5 – Risks

Introduction

- Objective of the module:
 - ❖ *At the end of this module, participants will be able to apply the fundamentals of risk management through a case study.*

Main presentation

- Description of the module contents:
 - ❖ Definition of risk
 - ❖ First fundamental – Risk management
 - ❖ Second fundamental – Risk probability
 - ❖ Third fundamental – Risk severity
 - ❖ Fourth fundamental - Risk assessment and tolerability
 - ❖ Fifth fundamental – Risk control/mitigation
 - ❖ Risk management warm-up exercises
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Progress test: Exercise 05/01 – *Accident of a Boeing B-747 at an International Airport*
(See Handout N° 4)
- Exercise answer and feedback

Module 6 – SMS regulation

Introduction

- Objective of the module:
 - ❖ *At the end of this module participants will be able to describe the safety management requirements included in Annexes 6, 11 and 14, including the relationship between a safety programme and an SMS.*

Main presentation

- Description of the module contents:
 - ❖ AGA, ATS and OPS/AMO safety management
 - ❖ What is a safety programme?
 - ❖ What is an SMS?
 - ❖ Acceptable level of safety
 - ❖ Acceptable level of safety – Implementation, scope and legal considerations
 - ❖ Protection of sources of safety information
 - ❖ Question and answers
 - ❖ Points to remember

Conclusion

- Discussion

Module 7 – Introduction to SMS

Introduction

- Objective of the module:
 - ❖ *At the end of this module, participants will be able to describe the features of an SMS, explain the importance of system description and gap analysis and the relationship between SMS and QMS.*

Main presentation

- Description of the module contents:
 - ❖ ICAO requirements
 - ❖ SMS – Introductory concepts
 - ❖ SMS features
 - ❖ First fundamental – System description
 - ❖ Second fundamental – Gap analysis
 - ❖ Third fundamental – SMS and QMS
 - ❖ Clarifying terms
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Discussion.

Module 8 – SMS planning

Introduction

- Objective of the module:
 - ❖ *When completing the module the participants will be able to describe the requirements associated to the planning of an SMS, and explain the structure of an SMS implementation plan.*

Main presentation

- Description of the module contents:
 - ❖ The components of SMS
 - ❖ The elements of SMS
 - ❖ Safety policy and objectives
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Progress test: Exercise 08/01 – *Cuzco International Airport operation (See Handout N° 5)*
- Exercise answer and feedback

Module 9 – SMS operation

Introduction

- Objective of the module:
 - ❖ *When completing the module the participants will be able to describe the requirements associated to the operation of an SMS.*

Main presentation

- Description of the module contents:
 - ❖ Safety risk management
 - ❖ Safety assurance
 - ❖ Safety promotion
 - ❖ Questions and answers
 - ❖ Points to remember

Conclusion

- Discussion.

Module 10 – Phased approach to SMS Implementation

Introduction

- Objective of the module:
 - ❖ *At the end of this module participants will be able to develop a proposal for an SMS standard, based upon a phased implementation, and explain the organization of a State's safety programme.*

Main presentation

- Description of the module contents:
 - ❖ Why a phased approach to SMS?
 - ❖ The four phases
 - ❖ The State's safety programme
 - ❖ CAAs – Four steps to support SMS implementation
 - ❖ Points to remember

Conclusion

- Progress test: Exercise 10/01 – *Model of SMS regulation – Outline of a SMS Standard.*
- Progress test: Exercise 10/02 – *Collision between two aircraft at Milano-Linate International Airport (See Handout N° 6)*
- Exercise answers and feedback
