

TECHNICAL GUIDANCE MATERIAL

for

Aviation Safety Management System Training

SUBJECT: AVIATION SAFETY MANAGEMENT SYSTEM TRAINING

EFFECTIVE DATE: 04 July 2023

APPLICABILITY

This guidance material is applicable to all aviation training organizations

PURPOSE

This guidance material serves to provide to minimum criteria for the establishment of a SMS course for the training of aviation safety personnel as required by Part 140 CARs to enable the safety personnel to implement and maintain the SMS.

REQUIREMENTS

The issuance of this guidance material is necessitated by the following Regulations and TGM which relates to the implementation of SMS.

1. REFERENCE:

- i. CAR Part 140 – SMS
- ii. CATS 140 – SMSs

2. TERMS AND ABBREVIATIONS:

TERM	DEFINITION
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Safety management system	A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures
Safety performance	A State's or service provider's safety achievement as defined by its safety performance targets and safety performance indicators
Safety performance indicator	A data-based parameter used for monitoring and assessing safety performance.
Safety performance target	The State or service provider's planned or intended target for a safety performance indicator over a given period that aligns with the safety objectives

ABBREVIATION	DESCRIPTION
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ERP	Emergency Response Plan
CAR	Civil Aviation Regulations
CATS	Civil Aviation Technical Standards
QMS	Quality Management System

SACAA	South African Civil Aviation Authority
SDCPS	Safety Data Collection and Processing Systems
SMM	Safety Management Manual
SMS	Safety Management Systems
SPI	Safety Performance Indicators
SPT	Safety Performance Targets
SRM	Safety Risk Management
TGM	Technical Guidance Material

3. INTRODUCTION

- 3.1** 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, 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 imposed upon States the responsibility to establish a State safety programme and, as part of such programme, require that air operators, maintenance organizations, air traffic services providers, design and manufacturing organizations and aerodrome operators implement a SMS.
- 3.2** SACAA is obliged to ensure that minimum standards for Aviation SMS training course are established in order to ensure consistency and credibility to SMS training programs.
- 3.3** Information contained in this document sets the basis for the training content of safety management training courses. This document sets out the criteria for the development of a SMS training course for Safety personnel. These are persons who are, or will be, responsible for the implementation and maintenance of SMS within the context of CARs Part 140 and associated CATs.
- 3.4** The SMS training criteria contained in this document is intended to provide the training organization with the core training components necessary to establish a course of SMS training. The person who successfully completes this SMS training will be expected to have the necessary knowledge, skills and attitude to implement and maintain a SMS as required by CARs Part 140.
- 3.5** The criteria should not be limiting further expansion of the training course beyond these minimum recommended components.

4. OVERVIEW

- 4.1** A training course for Safety personnel (“the Course”) should be developed and presented at the level to teach the Safety personnel how to design, implement and maintain a SMS.
- 4.2** With an insight of the job skills required of modern-day aviation safety personnel the following is proposed as a basis for the minimum standard of aviation safety personnel. The basis of this proposed safety management course is based on the latest edition of the ICAO Doc 9859 Safety Management Manual (SMM).

5. AIM OF THE TRAINING COURSE

The aim of the Aviation SMS training course is to provide the student with the necessary knowledge, skills and attitude in developing, implementing and managing a SMS, as well as measuring its performance in a medium to large aviation company.

6. COURSE GOALS

- 6.1** The goals of the SMS Course are to:

- a. Develop the student's knowledge of safety management concepts and ICAO Standards and Recommended Practices (SARPs) on safety management in ICAO Annex 19 and ICAO Doc 9859.
- b. Develop the student's knowledge to oversee the implementation of key components of a basic SMS, in compliance with CARs Part 140.

6.2 The SMS Course should address the following four general requirements of SMS:

- a. Safety policy and objectives.
- b. Safety risk management.
- c. Safety assurance.
- d. Safety promotion.

7. COURSE CONTENT

7.1 The course should address the following six modules. Each module should be taught as a separate unit of study with reference to the overview above. However, it is important that the Safety personnel learn how each module works in conjunction with every other module. Problem based (Case Study) learning is encouraged.

7.2 The method for training is not prescribed and is left to the discretion of the training organization. The adequacy of the methodology used would however be audited by the SACAA during their certification and surveillance audits.

7.3 The following training reference material is required as a minimum, but any addition to training reference material would be left to the discretion of the training organization, to be audited by the SACAA.

8. TRAINING REFERENCE MATERIAL

8.1 Minimum required:

- 8.1.1 ICAO Annex 19,
- 8.1.2 ICAO Doc 9859,
- 8.1.3 CAR 140,
- 8.1.4 CATS Part 140

9. ASSESSMENT METHODS

9.1 Participants should be assessed by a combination of the following:

- 9.1.1 Knowledge based questions
- 9.1.2 Problem based questions
- 9.1.3 Practical exercises
- 9.1.4 Case studies

10. PASS MARK

Minimum pass mark of 75 % must be attained by participants.

11. COURSE DURATION

Training must be 5 days minimum

12. MODULE ONE – Safety Management Fundamentals

12.1 Module Rationale

12.1.1 This module will provide participants with knowledge on fundamental safety management principles and concepts, including the influence of human as well as organizational factors in safety management.

SECTIONS	TOPICS TO BE COVERED
Section 1 - Concept of safety and its evolution	Fundamental safety management concepts from the ICAO SMM Humans in the systems Accident causation Management dilemma
Section 2 - Safety risk management	Understanding hazards and their consequences Hazard identification Safety risk assessments Safety risk tolerability Safety risk mitigation strategies Safety risk management documentation
Section 3 - Safety culture	Safety culture and safety management Development of safety culture monitoring of safety culture

13. MODULE TWO – Safety Data Collection and Processing

13.1 Module Rationale

13.1.1 The purpose of this module is to familiarize participants on safety data collection, analysis, exchange and safety data protection provisions.

SECTIONS	TOPICS TO BE COVERED
Section 1 - Safety data collection, analysis and exchange	Safety data collection Reporting systems Safety data analysis Safety investigation (authorities or safety providers) Safety data governance Safety data protection
Section 2 - Safety data analysis	Types of analysis Safety data/information reporting Safety information exchange Data driven decision making

14. MODULE THREE – Safety performance management

14.1 Module Rationale.

14.1.1 The purpose of this module is to provide the participant with knowledge on the following:

- 14.1.1.1 Development of SPIs,
- 14.1.1.2 Development of SPI charts,
- 14.1.1.3 Target settings,
- 14.1.1.4 Safety performance monitoring and
- 14.1.1.5 Identification of actions required to achieve acceptable level of safety performance

SECTIONS	TOPICS TO BE COVERED
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Section 1 - Development of safety objectives	Overview on SDCPS Safety analysis Development of safety objectives
Section 2 - Safety performance indicators and safety performance targets	Types of safety performance indicators Selecting and defining SPIs Setting safety performance targets Safety performance measurement Use of SPIs and SPTs
Section 3 - Monitoring safety performance	Baseline for safety performance Revision/refinement of SPIs Identifying actions required Update safety objectives

15. MODULE FOUR – SMS Implementation

15.1 Module Rationale.

15.1.1 The purpose of this module is to provide the participant with the necessary knowledge and competency to implement and administrate a SMS.

SECTIONS	TOPICS TO BE COVERED
Section 1 – SMS Organization and accountabilities	Identification of SMS accountable executive Appointment of project team and coordinator Definition of Terms of Reference for SMS Implementation team Safety management applicability Establishment of safety management responsibilities and accountabilities Identification of SMS/Safety manager
Section 2 – SMS gap analysis	Performance of SMS gap analysis Identification of action tasks Review organizational structure, safety accountabilities and procedures
Section 3 – SMS Implementation	Development of SMS implementation plan Monitoring of task implementation
Section 4 – SMS Integration	Integration of SMS with QMS Integration of SMS with other relevant management systems System description and identification of interfaces
Section 5 – SMS manual and records	Development of SMS documentation Approval and agreement of SMS manual Initiation of SMS records keeping system
Section 6 – SMS Committee and Administration	Initiation of SMS/Safety committee Recommendation of SMS/safety committee schedule and agenda to SMS accountable executive Establishment of a permanent SMS administration function/office Initiation of Departmental Safety Action Groups where appropriate
Section 7 – Safety policy and objectives	Development of safety policy statement Development of safety objectives
Section 8 – Emergency response planning	Initiation of organization's ERP Coordination of ERP with relevant external organizations

16. MODULE FIVE – SMS Implementation

16.1 Module Rationale.

16.1.1 The purpose of this module is to provide the participant with the necessary knowledge and competency to implement and administrate a SMS

SECTIONS	TOPICS TO BE COVERED
Section 1 – Hazard Identification and voluntary reporting system	Hazard identification from occurrence notification reports Hazard identification from occurrence investigation process Hazard identification from internal voluntary reporting systems Hazard identification from review of aviation equipment and processes Hazard identification during safety/quality surveillance processes Hazard identification from operational monitoring system data review Establishment of supplementary hazard survey programmes Establishment of central hazards register Establishment of hazard prioritization procedure
Section 2 – safety risk mitigation	Establishment of risk mitigation procedure Establishment of safety risk mitigation documentation Definition of SRM approval processes
Section 3 – Management of change	Establishment of management of change procedures
Section 4 - Occurrence reporting and Investigation	Establishment of mandatory occurrence notification and investigation procedures Establishment of routine incident notification and investigation procedure Establishment of safety data administration policy/procedure
Section 5 – SMS disciplinary policy and procedures	Establishment of internal disciplinary policy and procedures Establishment of equitable disciplinary decision aid (safety culture)
Section 6 – Safety data processing and analysis	Processing and analysis of safety data

17. MODULE SIX – SMS Training, safety promotions and Internal Audit

17.1 Module Rationale.



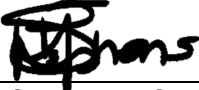

17.1.1 **The** purpose of this module is to provide the participant with the necessary knowledge and competency develop internal SMS training and develop SMS audit program.

Section 1 – SMS training programme	Development of SMS training programme Establishment of safety training records system
Section 2 – Safety information sharing, exchange and safety promotions	Establishment of mechanisms for safety and SMS communication within the organization Establishment of mechanisms to promote safety information sharing internally and externally
Section 3 – Internal and External SMS Audit	Establishment of internal SMS audit program Definition of external SMS audit provisions

18. QUERIES

Any queries or requests for further guidance because of this communication should be sent to: The Manager, QC/AIR: e-mail address: sms@caa.co.za

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