

# Syllabus

SMS Complete (5 days)

*Comprehensive competence.*

## Course Plan

<b>1</b>	<b>Day 1</b> .....	<b>3</b>
1.1	Module 1: Make Safety a System.....	3
1.2	Module 2: SMS Background .....	4
1.3	Module 3: SMS Costs and Benefits .....	5
1.4	Module 4: Safety Knowledge Management.....	6
<b>2</b>	<b>Day 2</b> .....	<b>7</b>
2.1	Module 5: Setting Up an SMS.....	7
2.2	Module 6: SMS Integration.....	8
2.3	Module 7: Safety Culture and Reporting.....	8
2.4	Module 8: Communication Techniques and Safety Promotion.....	9
<b>3</b>	<b>Day 3</b> .....	<b>10</b>
3.1	Module 9: Safety Assurance and Safety Performance Indicators (SPIs) .....	10
3.2	Module 10: Emergency response preparedness .....	10
3.3	Module 11: Modeling Risk.....	11
<b>4</b>	<b>Day 4</b> .....	<b>12</b>
4.1	Module 12: Safety Risk Management .....	12
4.2	Module 13: Extended Event Risk Classification (EERC) for Safety Reports .....	12
4.3	Module 14: Safety Risk Evaluation (SRE).....	13
<b>5</b>	<b>Day 5</b> .....	<b>14</b>
5.1	Module 15: Safety Review .....	14
5.2	Module 16: Course Summary and Test .....	14

## Objectives

Objective 1: Understand the context and drivers of a Safety Management System .....	3
Objective 2: Differentiate existing safety management organisation and new elements of a SMS .....	3
Objective 3: Understand the relationship between a State safety program (SSP) and an SMS .....	4
Objective 4: Be able to describe SMS requirements: ICAO Document 9859 and Annexes .....	4
Objective 5: Be able to describe EASA Ops SMS requirements.....	4
Objective 6: Understand role of SMS in the decision making process and allocation of resources .....	5
Objective 7: Find out if and how a functioning SMS can save costs to your organization .....	5
Objective 8: Understand the need for safety knowledge management.....	6
Objective 9: Understand how to administrate the SMS input to maximize system efficiency.....	6
Objective 10: Be able to develop a system description .....	7
Objective 11: Prepare and perform a gap analysis.....	7
Objective 12: Know how to develop an implementation plan.....	7
Objective 13: SMS documentation requirements .....	7
Objective 14: Setting up an SMS documentation .....	7
Objective 15: SMS documentation in daily practice .....	7
Objective 16: Understand the structure of the Safety Review Board .....	8
Objective 17: Distinguish between different risk assessment tools.....	8
Objective 18: Define Safety Culture.....	8
Objective 19: Learn how to assess and improve safety culture .....	8
Objective 20: Improve reporting culture .....	8
Objective 21: How to communicate SMS objectives and procedures to all operational personnel.....	9
Objective 22: How to communicate SMS results to the management and authorities .....	9
Objective 23: Understand Safety Assurance .....	10
Objective 24: Develop and Review SPIs .....	10
Objective 25: Get to know your emergency response plan.....	10
Objective 26: Distinguish between Threat, Hazard and Consequence.....	11
Objective 27: Show methods and tools for Hazard Identification.....	11
Objective 28: Develop a Bow Tie Model .....	11
Objective 29: Show methods and tools for Safety Risk Assessment .....	12
Objective 30: Learn how to make a systematic event risk classification .....	12
Objective 31: Understand the concept of a safety risk evaluation .....	13
Objective 32: Ability to use the safety risk evaluation document.....	13
Objective 33: Perform a safety risk evaluation .....	13
Objective 34: Learn how to make a systematic safety review .....	14
Objective 35: Get an overview about lessons learned .....	14
Objective 36: Check you knowledge through an open book test.....	14

# 1 Day 1

<b>1.1 Module 1: Make Safety a System</b>		
<i>Note: Presentation of generic SMS risk management process and safety culture definition, may be adapted to customer specific process and definition on request</i>		
<b>Objectives</b>	<b>Contents of Module</b>	<b>Practical Training/Discussion</b>
Objective 1: Understand the context and drivers of a Safety Management System  Objective 2: Differentiate existing safety management organisation and new elements of a SMS	<b>1. Framework:</b> <ul style="list-style-type: none"> <li>• Definition of Safety, Risk and Risk Assessment</li> <li>• Concept of a Safety Management System</li> <li>• SMS Risk Management Process</li> </ul>	Group discussion on “what is safety, risk and risk assessment?”
	<b>2. Requirements:</b> <ul style="list-style-type: none"> <li>• ICAO Standards and Reference Documents</li> <li>• SMS Definition</li> </ul>	
	<b>3. Orientation &amp; Safety Culture:</b> <ul style="list-style-type: none"> <li>• Reactive, proactive and predictive Safety Measures</li> <li>• Safety Culture Definition</li> </ul>	Group discussion on “meaning of safety culture?”

<b>1.2 Module 2: SMS Background</b>		
<b>Objectives</b>	<b>Contents of Module</b>	<b>Practical Training/Discussion</b>
<p>Objective 3: Understand the relationship between a State safety program (SSP) and an SMS</p> <p>Objective 4: Be able to describe SMS requirements: ICAO Document 9859 and Annexes</p> <p>Objective 5: Be able to describe EASA Ops SMS requirements</p>	<p><b>1. ICAO Safety Management SARPs:</b></p> <ul style="list-style-type: none"> <li>• ICAO Safety Management SARPs framework</li> <li>• SMS safety performance measurement and indicators</li> <li>• Development of SSP</li> <li>• Relationship SSP-SMS</li> </ul>	<p>Exercise: An Airline wants to implement an SMS</p>
	<p><b>2. ICAO SMS Standards - Overview:</b></p> <ul style="list-style-type: none"> <li>• The base of SMS</li> <li>• The ICAO components of SMS</li> </ul>	
	<p><b>3. EASA Ops SMS Regulations:</b></p> <ul style="list-style-type: none"> <li>• Implementation rules (IRs)</li> <li>• Accepted means of compliance (AMCs)</li> <li>• Guidance material (GM)</li> </ul>	<p>Practical examples</p>



<b>1.3 Module 3: SMS Costs and Benefits</b>		
<b>Objectives</b>	<b>Contents of Module</b>	<b>Practical Training/Discussion</b>
<p>Objective 6: Understand role of SMS in the decision making process and allocation of resources</p> <p>Objective 7: Find out if and how a functioning SMS can save costs to your organization</p>	<p><b>1. Safety Pays Off:</b></p> <ul style="list-style-type: none"> <li>• St Recall from Safety Risk Management</li> <li>• Cost &amp; Benefit Analysis</li> <li>• Strategy for the Cost &amp; Benefit Analysis</li> </ul>	
	<p><b>2. Failure Induces Costs:</b></p> <ul style="list-style-type: none"> <li>• Direct Cost</li> <li>• Indirect Cost</li> <li>• Calculating Failure</li> </ul>	Regarding a wheels-up landing situation, identify the direct and indirect costs associated with the incidence
	<p><b>3. Costs and Benefits:</b></p> <ul style="list-style-type: none"> <li>• General Considerations</li> <li>• Costs of a Safety Management System</li> <li>• Benefits of a Safety Management System</li> </ul>	Identify and discuss the core traits for an effective safety reporting system in your organization
	<p><b>4. Effective Safety Reporting</b></p> <ul style="list-style-type: none"> <li>• Requirements</li> <li>• Incentives and barriers</li> </ul>	

<b>1.4 Module 4: Safety Knowledge Management</b>		
<b>Objectives</b>	<b>Contents of Module</b>	<b>Practical Training/Discussion</b>
Objective 8: Understand the need for safety knowledge management  Objective 9: Understand how to administrate the SMS input to maximize system efficiency	<b>1. Introduction to Knowledge Management:</b> <ul style="list-style-type: none"> <li>• Statement and Challenge</li> <li>• Definition of Knowledge Management</li> <li>• What System do we need?</li> <li>• What Knowledge do we need?</li> </ul>	
	<b>2. Enabling Technology:</b> <ul style="list-style-type: none"> <li>• The Key to Success / The Goal</li> <li>• Types of Safety Data Bases</li> <li>• Requirements for a Safety Data Base</li> <li>• Safety Data Base Integrity</li> <li>• Safety Data Base Capabilities</li> <li>• Safety Data Base Selection</li> </ul>	Exercise Knowledge Management (Group Work Activity)

## 2 Day 2

<b>2.1 Module 5: Setting Up an SMS</b>		
<b>Objectives</b>	<b>Contents of Module</b>	<b>Practical Training/Discussion</b>
Objective 10: Be able to develop a system description  Objective 11: Prepare and perform a gap analysis  Objective 12: Know how to develop an implementation plan  Objective 13: SMS documentation requirements  Objective 14: Setting up an SMS documentation  Objective 15: SMS documentation in daily practice	<b>1. System Description:</b> <ul style="list-style-type: none"> <li>• ICAO requirements for a system description</li> <li>• System description for an airline operators</li> </ul>	Start working on a system description
	<b>2. Gap Analysis:</b> <ul style="list-style-type: none"> <li>• Gap analysis requirements</li> <li>• Gap analysis check list</li> <li>• How to perform a gap analysis</li> </ul>	Group work on a gap analysis checklist example
	<b>3. Implementation plan:</b> <ul style="list-style-type: none"> <li>• Use of an implementation plan</li> <li>• The ICAO phased approach to an SMS</li> <li>• Resource planning</li> <li>• Authority approval</li> </ul>	First steps towards an implementation in your organisation
	<b>4. Policy and Standards:</b> <ul style="list-style-type: none"> <li>• Safety Policy requirements</li> <li>• No blame policy</li> <li>• Integration of existing policies</li> </ul>	
	<b>5. System Processes and Operating Procedures:</b> <ul style="list-style-type: none"> <li>• Existing manuals</li> <li>• Integration of SMS requirements</li> </ul>	Examination of existing operational and quality manuals
	<b>6. The SMS handbook:</b> <ul style="list-style-type: none"> <li>• SMS handbook layout</li> <li>• What needs to be done</li> </ul>	Start working on an SMS handbook

## 2.2 Module 6: SMS Integration

*Note: Presentation of a generic SMS implementation and risk assessment tools (safety risk evaluation, safety review, event risk classification), may be adapted to customer specific implementation and tools on request*

Objectives	Contents of module	Practical Training/Discussion
Objective 16: Understand the structure of the Safety Review Board	<b>Implementation of SMS:</b> <ul style="list-style-type: none"> <li>• Structure of Safety Review Board</li> <li>• Functions of each element</li> <li>• Roles and responsibilities in an SMS</li> </ul>	Discussion on “Organisational impact of SMS implementation”
Objective 17: Distinguish between different risk assessment tools		

## 2.3 Module 7: Safety Culture and Reporting

*Note: Use of generic SMS risk management process, may be adapted to customer specific process on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 18: Define Safety Culture	<b>1. Safety Culture:</b> <ul style="list-style-type: none"> <li>• Definition of Safety Culture</li> <li>• Characteristics of Safety Culture</li> </ul>	Group discussion on “How to establish/improve safety culture?”
Objective 19: Learn how to assess and improve safety culture		
Objective 20: Improve reporting culture		Group discussion on “reporting - where is the limit?”

## 2.4 Module 8: Communication Techniques and Safety Promotion

*Note: May be adapted to customer specific safety promotion on request*

Objectives	Contents of Module	Practical Training/Discussion
<p>Objective 21: How to communicate SMS objectives and procedures to all operational personnel</p> <p>Objective 22: How to communicate SMS results to the management and authorities</p>	<p><b>1. Elements of safety promotion</b></p> <ul style="list-style-type: none"> <li>• SMS manuals</li> <li>• Safety commitment</li> <li>• Target group specific training and safety awareness</li> <li>• Safety information</li> </ul>	
	<p><b>2. Communication flow</b></p> <ul style="list-style-type: none"> <li>• How to are actively encourage operational personnel to identify and report hazards</li> <li>• SMS Communication between SRB, SSO and SAG members</li> <li>• Safety communication between all levels of the organisation</li> <li>• The role of the Safety Manager</li> </ul>	Discuss examples of organizational SMS communication
	<p><b>3. Risk Reporting</b></p> <ul style="list-style-type: none"> <li>• Internal risk reporting</li> <li>• Keep the management in the safety loop</li> <li>• External risk reporting to authorities</li> </ul>	Case study internal incident

## 3 Day 3

### 3.1 Module 9: Safety Assurance and Safety Performance Indicators (SPIs)

*Note: Use of generic SMS risk management process, may be adapted to customer specific process on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 23: Understand Safety Assurance  Objective 24: Develop and Review SPIs	<b>1. Safety Assurance:</b> <ul style="list-style-type: none"> <li>• Safety surveys</li> <li>• Methods to detect changes in functional systems or operations</li> <li>• Use of safety records</li> </ul>	Apply methods for management of change
	<b>2. Safety Performance Indicators (SPIs):</b> <ul style="list-style-type: none"> <li>• Quantitative safety level</li> <li>• Consideration of all aspects of the provision of ATM</li> <li>• Development of ANS specific SPIs</li> </ul>	Discuss set of SPIs

### 3.2 Module 10: Emergency response preparedness

*Note: May be adapted to customer specific ERP on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 25: Get to know your emergency response plan	<b>1. Emergency Response Plan (ERP) outline</b>  Elements of the ERP Duties and responsibilities The role of the SMS during an emergency Media relation and information management	Case study: Major accident
	<b>2. Annex 13 Investigation</b>  Participants Role of the airline Final report	

<b>3.3 Module 11: Modeling Risk</b>		
<b>Objectives</b>	<b>Contents of module</b>	<b>Practical Training/Discussion</b>
Objective 26: Distinguish between Threat, Hazard and Consequence	<b>Hazard Identification:</b> Definition of Threats, Hazards and Consequences Documentation of Hazards	Group Activity “what is a threat, hazard, consequence?” (Flipchart)
Objective 27: Show methods and tools for Hazard Identification	<b>Bow Tie Model:</b> Development of Bow Tie Model	Group Activity “develop bow tie model for specific risk”
Objective 28: Develop a Bow Tie Model	<b>Bow Tie Case Studies:</b> Practical examples Presentation of Bow Tie Results	Small groups develop bow tie model on flip chart

## 4 Day 4

### 4.1 Module 12: Safety Risk Management

*Note: Presentation of a generic risk matrix, probability and severity table, may be adapted to customer specific matrix and tables on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 29: Show methods and tools for Safety Risk Assessment	<b>Risk Assessment:</b> <ul style="list-style-type: none"> <li>• Definition of Risk Severity and Risk Probability</li> <li>• Handling of Risk Severity and Risk Probability tables</li> <li>• Introduction of Risk Index and Risk Matrix</li> </ul>	Group discussion on severity and probability
	<b>Safety Risk Mitigation:</b> <ul style="list-style-type: none"> <li>• Four Strategies for Risk Mitigations</li> </ul>	Practical examples for risk mitigation strategies
	<b>Risk Management Process:</b> <ul style="list-style-type: none"> <li>• Schemata of Risk Management Process</li> </ul>	

### 4.2 Module 13: Extended Event Risk Classification (EERC) for Safety Reports

*Notes: Based on “Event Risk Classification” provided by EASA ARMS working group may be adapted to customer specific reporting risk assessment procedure on request. Use of generic examples, may be adapted to customer specific examples on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 30: Learn how to make a systematic event risk classification	<b>1. Extended Event Risk Classification theory:</b> <ul style="list-style-type: none"> <li>• EERC process</li> <li>• EERC usage</li> </ul>	Group discussion on “time needed/available for report risk assessment?”
	<b>2. Extended Event Risk Classification practice</b> <ul style="list-style-type: none"> <li>• Use of matrix</li> <li>• Use of results</li> </ul>	Group assesses different example reports

### 4.3 Module 14: Safety Risk Evaluation (SRE)

*Notes: Based on "Safety Issue Risk Assessment" provided by EASA ARMS working group, may be adapted to customer specific implementation on request. Use of generic risk evaluation document template and example, may be adapted to customer specific template and example on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 31: Understand the concept of a safety risk evaluation	<b>Motivation for safety risk evaluation</b> <ul style="list-style-type: none"> <li>• Risk assessment example case study</li> </ul>	Group discussion about the pitfalls of the performed risk assessment
Objective 32: Ability to use the safety risk evaluation document	<b>Safety Risk Evaluation (SRE):</b> <ul style="list-style-type: none"> <li>• When to perform a safety risk evaluation</li> <li>• Usage of results</li> </ul>	Group discussion of triggers of safety risk evaluation by means of example
Objective 33: Perform a safety risk evaluation	<b>Safety Risk Evaluation Document:</b> <ul style="list-style-type: none"> <li>• Introduction how to handle the safety risk assessment document</li> <li>• Example for specific already filled out safety risk evaluation document</li> </ul>	
	<b>Safety Risk Evaluation Case Studies:</b> <ul style="list-style-type: none"> <li>• Practical example</li> <li>• Perform an SRE</li> <li>• Presentation of results</li> </ul>	Small groups develop safety risk evaluation on flip chart

## 5 Day 5

### 5.1 Module 15: Safety Review

*Note: Based on "Safety Review" provided by ICAO SMM Doc. 9859. May be adapted to customer specific reporting risk assessment procedure on request. Use of generic case study. May be adapted to customer specific case on request*

Objectives	Contents of Module	Practical Training/Discussion
Objective 34: Learn how to make a systematic safety review	<b>1. Background</b> <ul style="list-style-type: none"> <li>Safety review process</li> <li>Safety review documentation</li> </ul>	
	<b>2. Safety review practice</b> <ul style="list-style-type: none"> <li>Case study</li> <li>Application of hazard identification</li> <li>Application of risk assessment</li> <li>Application of risk mitigation</li> <li>Use of results</li> </ul>	Moderator and experts perform a safety review on specific risk
	<b>2. Safety review</b> <ul style="list-style-type: none"> <li>Lessons learned</li> </ul>	

### 5.2 Module 16: Course Summary and Test

Objectives	Contents of Module	Practical Training/Discussion
Objective 35: Get an overview about lessons learned	<b>1. Summary of SMS course</b> <ul style="list-style-type: none"> <li>Overview of SMS building blocks</li> <li>Phased approach</li> <li>Implementation steps in your organisation</li> </ul>	
Objective 36: Check you knowledge through an open book test		<b>2. Open book test</b>