

ATTACHMENT A TO THE REGIONAL COOPERATION MECHANISM (RCM) TECHNICAL AGREEMENT

TRAINING PROGRAMME FOR SAFETY INVESTIGATORS

This model training programme is developed, in accordance with the Manual on Aircraft Accident and Incident Investigation Training (DOC 10206) and aims to support States in the development of investigator's training programme, and to harmonize the training and qualification process of investigators across the region.

The investigation training program comprises the following phases and types of training:

- **PHASE 1 (INITIAL OR BASIC TRAINING)**
 - Familiarization /Introductory training
 - Initial formal training on investigations (formal course)
 - On-the-job training
- **PHASE 2 (ADVANCED TRAINING)**
 - Advanced/specialty training
 - On-the-job training
- **PHASE 3 (CONTINUATION TRAINING)**
 - Periodic training
 - Refresher training

The training programme should be regularly reviewed to reflect any significant changes arising from developments in the aviation industry, regulations and safety oversight in the field of aviation accident and incident investigation, and feedback from training and investigation activities.

A) PHASE 1 — BASIC TRAINING

The aim of the basic training is to ensure that the investigator possesses the knowledge, skills and attitudes necessary to conduct a basic investigation into accidents and incidents. The investigator is able to work in a lawful, safe and effective manner and to maintain the integrity of the investigation.

(i) Familiarization

The aim of the induction training is to ensure that new investigators understand the applicable legislation and regulations, as well as the Accident Investigation Authority (AIA) procedures and requirements.

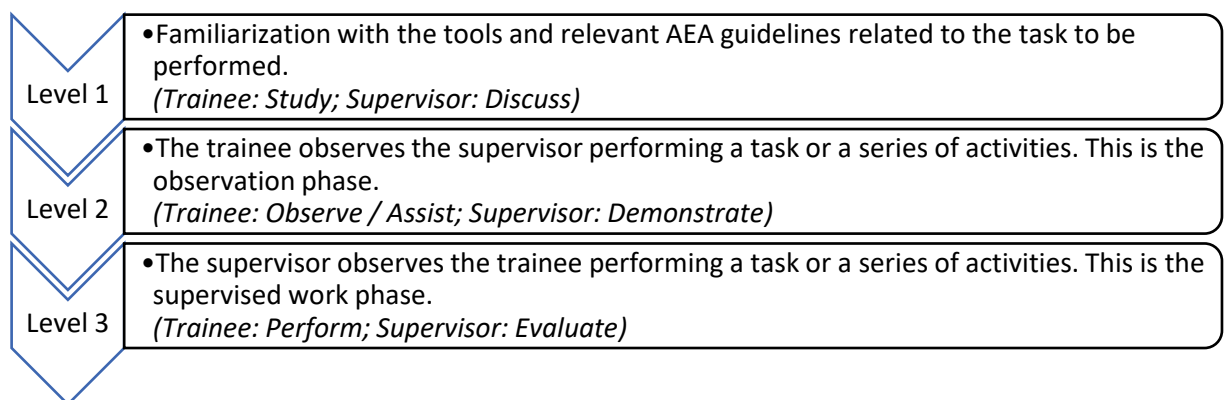
(ii) Initial formal training on investigations (formal investigation course)

After completing the induction training, the trainee investigator undertakes, as soon as possible, an initial formal course in aviation accident and incident investigation, preferably during the first year of training.

(iii) On-the-job training (OJT)

OJT enables trainee investigators to apply theoretical knowledge in practice under the supervision of more experienced investigators (mentors).

The FCE comprises three (03) levels:



The trainee is deemed to have successfully completed the FCE only after demonstrating that they possess the competencies, knowledge, judgement and ability to carry out investigation activities in accordance with current requirements.

The duration of the OJT varies depending on the trainee's progress, with a minimum requirement of 80% of tasks completed successfully and the demonstration of independence in carrying out critical tasks.

OJT conducted is formally documented and retained in the investigator's training file.

B) PHASE 2 — ADVANCED TRAINING

As investigators gain experience, they are enrolled in the advanced training phase, which aims to further develop their competencies in more complex aspects of investigations identified by the AIA, as well as in emerging techniques, technologies, and areas of specialisation.

Where necessary, on-the-job training is organized following advanced training to reinforce practical application.

C) PHASE 3 — CONTINUING PROFESSIONAL DEVELOPMENT

Continuing professional development aims to maintain and enhance investigators' competencies throughout their careers. This training covers:

- skills that require periodic refresher training;
- skills that must be developed or updated in response to organizational changes within the AIA, such as the implementation of new investigation standards, methodologies, techniques, or the introduction of new technologies and equipment.

Investigators appointed to serve as designated investigators and accredited representatives undergo management and leadership training.

Periodic training courses are conducted at defined intervals to maintain a specific qualification or skill. The minimum interval for refresher training to maintain a qualification is two (02) years, and the maximum interval is five (05) years.

CONTENT OF THE TRAINING PROGRAMME FOR SAFETY INVESTIGATORS

A. PHASE 1 – BASIC TRAINING

(i) Familiarization

This phase includes awareness-raising on the following topics:

- 1) Organization and structure of the AIA
- 2) General information on civil aviation accident and incident investigations
- 3) National regulations relating to civil aviation, including safety management and investigations into aviation accidents and incidents)
- 4) Civil aviation safety awareness
- 5) Safety management system and State Safety Program
- 6) Awareness of Human Factors
- 7) Awareness of Dangerous Goods
- 8) AIA Investigations Policy and Procedures Manual, including related Documents

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
01	Organized by the AIA	24 H	Provide information on the structure of the civil aviation system and the organization and functioning of the AIA	- International obligations and national legal framework - Organizational structure of the AIA and organization of the civil aviation system of the State - Memoranda of Understanding with other organizations concerning aviation accident and incident investigation activities - Manual on the organization of the investigation system - Management and use of AIA equipment and materials - Transport arrangements - Code of Ethics and Professional Conduct - Cost control	No

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
02	General information on civil aviation accident and incident investigations	4H	To provide information on the role of ICAO, the Chicago Convention and the SARPs relating to aviation accident and incident investigations, safety management, and related documents published by ICAO	- Convention on International Civil Aviation (CC) - Annexes 13 and 19 to the CC - Relevant ICAO documents relating to AIG areas (Doc 9683, Doc 9734, Doc 9735, Doc 9859, Doc 9946, Doc 9962, Doc 9973, Doc 9998, Doc 10053, CIR 285-AN/166, CIR 298-AN/172, CIR 315-AN/179, ...)	No
03	National civil aviation regulations	16H	Provide information on the regulatory and legislative framework of [State X]	- Description of the legislative and regulatory framework for civil aviation (law, decree, regulations, etc.) - Identification of the aviation regulations of the State - Presentation of the aviation code and implementing regulations relating to civil aviation accident and incident investigations.	No
04	Civil aviation security awareness	8 H	Understanding the nature of threats to civil aviation Working at an airport and moving around safely Communicating and cooperating with other services Recognizing weapons, explosives and prohibited items Responding to emergencies at the airport	- Introduction - Basics of civil aviation security - Working at the airport - Access control - Security procedures at check-in - Recognizing explosive devices and other regulated items - Screening and searching of passengers and their bags/luggage - Protection of parked aircraft	Yes
05	Safety management system and the state safety programme	48 H	Understanding the requirements and concepts of Safety Management Be able to identify hazards and manage safety risks Improve an organization's safety performance	SMS - Human Factors Principles for the Implementation of the QMS - o Errors and Violations - o Human limitations and capabilities - o Teamwork - o Understanding and Decision-Making	Yes

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
			Be able to define safety policy and objectives	○ Workload ○ Time pressure ○ Working H and fatigue - Risk management methodology: ○ Hazard identification (system description, task analysis, operational observations, taxonomy) ○ Risk assessment (principles and methodology) ○ Risk mapping ○ Risk control (principles, ALARP, SHELL models) ○ 5M, control loop) ○ Practical exercises - Safety assurance methodology: ○ Security measurement and indicators ○ Sources of safety data (reporting system, contributions, audits, analyses, surveys, etc.) ○ Safety assurance management ○ Reporting culture ○ Change management ○ Continuous safety improvement ○ Practical exercises - Event analysis and investigation methodology (identification of root causes) ○ 5M ○ Fishbone diagram ○ Cause Tree ○ Reason Model ○ Post-event interview techniques ○ Practical exercises - Training and communication plan SSP - SSP and SMS requirements	

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
				- The need to develop the SSP - The SSP as a bridge between state and service provider security processes - Content and future amendments to ICAO Annex 19 - Content and guidance on the SSP and SMS in the Security Management Manual, Doc. No. 9859 - Objectives, requirements and implementation of SSP - ICAO SSP Framework - State safety policy and objectives - State safety risk management, safety assurance - Promotion of State safety - The four-step approach to implementing an SSP - Reporting and performance measurement for a SSP - Acceptable Level of Safety (ALoS) and Performance at an ALoS (ALoSP) - Safety Performance Measure (SPM) - Safety databases to support the analysis of safety data - Protection of data, safety information and related sources within the SSP - The SSP and the airline's ALoSP	
06	Awareness of human factors	8 H	By the end of the training, participants should Understand how people's capabilities and limitations interact within the system to affect their performance in an operational environment.	- Overview of human factors principles ICAO human performance principles - Everyday factors affecting human performance - Understanding the impact of organizational factors - Investigation into incidents related to human factors - How to develop robust actions to close human factor-related incidents - Practical study of human factors principles and models	Yes

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
			They should possess the necessary skills to identify human errors that contributed to, or could have contributed to, an accident or incident, in accordance with the relevant provisions of the Annexes, ICAO Circular 240 (Investigation of Human Factors in Accidents and Incidents) and ICAO Doc 10151.		
07	Awareness of dangerous goods	3 H	Provide information on how to identify dangerous goods and how to handle them (storage, handling)	- Definition of hazardous substances - Risk prevention - Regulations on the transport of dangerous goods by air - Responsibilities - Categories of dangerous substances - Classification of dangerous substances - Lists of dangerous substances, including - Meaning and role of the UN/ID number - Reading and interpreting the information in the "Identification" section of the dangerous goods regulations - Restrictions: Prohibited and concealed dangerous/radioactive substances - Luggage/mail/countries and airlines - Packaging/labelling and documentation procedures - The loading of dangerous goods - Overview of responsibilities - Separation of hazardous substances - ULD label - Incidents involving dangerous substances	Yes

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
08	AIA Investigations Policy and Procedures Manual, including related Documents	24H	Provide information regarding the organization of investigations	- Initial reporting procedure and follow-up - o Procedures for reporting accidents and incidents - o Response to notifications - Participation in an investigation conducted abroad - Organization and management of a survey conducted by the AIA - o Investigation management system - Activities at the scene of an accident - o Initial measures at the scene of the accident/incident - o Rescue operations - o Safety at the accident/incident site - o Retention of records, samples and recordings - o Processing of flight recorders - o Removal of wreckage and personal effects - o Submerged wrecks - o Return of the wreck - Testing and examination of components - o Laboratory testing of aircraft systems and components - o Practical arrangements - o Test notes and results - Use of factual information - Drafting of the preliminary report, interim statements, final report and safety recommendations - o Interim statement - o Final report - o Safety recommendations - Cooperation with the media - Relations with the families of accident victims - o Commercial passenger aircraft	Yes

No.	Title	Duration	Purpose	Description	Formal (Yes/No)
				○ Non-commercial transport aircraft - Accident/Incident Data Reporting System (ADREP) ○ Preliminary ADREP report ○ ADREP accident/incident data report - Accident prevention measures – accident/incident database system	

Non-formal training does not require the issuance of a certificate. An attendance record is kept in the trainee's file as evidence of participation.

(ii) Initial formal training on investigations (formal course)

Duration	Objective	Description
70 H	To provide participants with the knowledge required to conduct and participate in investigations into aviation accidents and incidents, in accordance with the standards set out in ICAO Annex 13.	- the responsibilities of the States involved, as defined in Annex 13 — Aircraft Accident and Incident Investigation, and national legislation; - safety and security at the accident site; - accident site documentation and wreckage mapping: photography, examination and recording of the wreckage and marks left by the impact; - collection and preservation of evidence; - interview techniques; - airborne and ground-based recorders; - initial fire investigation; - crashworthiness and survival aspects; - the properties and failure modes of materials used in the aircraft structure; - the design of aircraft systems and likely modes of failure; - aerodynamics and aircraft performance; - the examination of powerplants; - organizational factors (including the Safety Management System (SMS) and the State Safety Programme (SSP)); - human factors; - aviation medicine and pathology;

Duration	Objective	Description
		- aircraft performance; - meteorological aspects; - air navigation aspects; - Investigation and analysis techniques; and - Investigation report writing.

(iii) **On-the-job training**

Expected proficiency levels:

Level	Targeted skills
Level 1	Understand the basic elements of the task, including terminology, tools, context, trigger, documentation of the activity)
Level 2	Explain the sequence of the task, including the use of tools/documents, and coordination with other internal or external stakeholders
Level 3	independently perform the task in the correct sequence, accurately, in a timely manner, and with sound judgement

Function	Objective	Detailed activities	Targeted skills	Assessment method
1. Regulatory monitoring and alignment with ICAO	- Gain an operational understanding of ICAO standards and recommended practices (SARPs) - Develop the capacity to identify and report regulatory non-compliance - Contribute to the updating of the AIA's national regulations	A.1. Review of ICAO letters to States related to Annex 13	- Understand and apply ICAO Standards and Recommended Practices (SARPs) - Identify regulatory discrepancies and ensure they are formally notified - Participate in the gradual updating of national AIA regulations	- Case study (analysis of a letter to States) - Table-top exercise: simulation of identifying discrepancies and responding to ICAO - Verification of a draft text amended on the basis of a letter to ICAO States (Annex 13)
		A.2. Drafting the relevant responses		

Function	Objective	Detailed activities	Targeted skills	Assessment method
		B. Update the AIA's regulatory texts C. Identify differences between national regulations and ICAO Annexes C.1. Notify the ICAO of the differences		
2. Development of the technical framework for the investigation	- Learn how to draft manuals, guides and procedures tailored to the AIA context - Contribute to the technical design of internal investigation tools	D. Develop manuals and procedures for investigators	Draft clear and standardized technical documents	- Guided workshop on drafting an SOP or manual - Oral presentation to peers and peer review - Exercise in aligning a procedural framework with the provisions of Annex 13
3. Managing event notifications	- Understanding the information flows associated with event notification - Being able to respond quickly and in a structured manner to a notification - Applying internal procedures for classification and follow-up	E.1. Receipt of the notification	- Receiving and processing event notifications - Classification of events - Notify stakeholders - Based on an analysis, propose how to proceed, delegate the task or, where appropriate, arrange for assistance - Initiate the initial investigation steps	- Table-top simulation of receiving a notification (based on local cases) - Role-play involving classification by severity and selection of the type of investigation - Reconstruction of the post-notification

Function	Objective	Detailed activities	Targeted skills	Assessment method
5. Initial on-site response	- Familiarize yourself with methods for securing, documenting and collecting evidence - Integrate into a coordinated operation with the emergency services and local authorities - Understand techniques for surveying, photography, interviewing and transporting sensitive items	G.1 - Coordination with emergency services	- Apply procedures for securing and documenting an accident site - Collect, label and protect evidence in accordance with best practice - Interacting effectively with emergency services and authorities on the ground - Conducting interviews	- Scenario-based exercises at a training site or designated area (if available) - Supervised simulation of wreck documentation and evidence collection - Conducting interviews
		G.2 - Site security by the authorities		
		G.3 - Setting up the command post and communication facilities		
		G.4 - Documentation of the wreckage (photographs, sketches)		
		G.5 - Field surveys (traces, distances, etc.)		
		G.6 - Collection of physical evidence		
		G.7 - On-site interviews (witnesses, operational staff, emergency services)		

Function	Objective	Detailed activities	Targeted skills	Assessment method
		G.8 - Identification of bodies and participation in post-mortem examinations G.9 - Securing and transporting data recorders G.10 - Transfer of recordings to the specialized laboratory G.11 - Monitoring of FDR/CVR analysis G.12 - Coordination with technical experts		
6. Post-deployment activities	- Be able to assist with the collection of documentation relevant to the investigation - Help conduct post-event debriefings - Attend technical review meetings and understand how they work	H.1 – Document collection	- Identify key technical documents from the parties concerned - Conduct interviews relevant to the investigation within a structured framework - Actively participate in collective analysis and the development of working hypotheses	- Simulation of an interview with a witness or operator staff - Post-accident document analysis workshop - Pooling of technical observations with collective validation
		H.2 – Conducting interviews		
		H.3 - Internal technical meetings		
		H.4 - Technical tests and inspections		
		H.5 - Return of the aircraft or components		

Function	Objective	Detailed activities	Targeted skills	Assessment method
7. Continuation of the investigation	- Be able to contribute to the drafting of interim and final reports - Understand the formal and substantive requirements regarding investigation report - Be able to formulate safety recommendations consistent with the findings	I.1 - Analysis of the information collected	- Contribute to the structured drafting of investigation reports - Formulate well-founded and comprehensible safety recommendations - Use reporting tools (ECCAIRS)	- Table-top exercise in drafting a preliminary report based on simulated events - Workshop on formulating safety recommendations - Exercise in entering and submitting ADREP report via ECCAIRS
		I.2 - Drafting the preliminary report		
		I.3 - Drafting the interim report		
		I.4 - Drafting the final report		
		I.5 - Formulation of recommendations		
		I.6 - Submission of reports to concerned parties /Consultation		
		I.7 - Submission of ADREP to ICAO		
		I.8 - Archiving investigation data		
8. Communication and assistance	- Learning to manage factual and institutional communication with the media	J.1 - Communication with the media	- Ensuring respectful and factual communication with the media - Contribute to institutional support for families, whilst respecting the role of the AIA	- Role-play: AIA statement to the media within 24 H of the incident

Function	Objective	Detailed activities	Targeted skills	Assessment method
	- Understanding the role of the AIA in the victim support system - Mastering the concepts of confidentiality, impartiality and respect for individuals	Day 2 – Support for families and victims	- Maintain the confidentiality and independence of the investigation	- Simulated meeting with families (domestic accident scenario)
9. Analysis of database data	- Know how to extract and interpret safety data from the accident & incident database - Identify trends and formulate appropriate recommendations	K.1 - Data analysis	- Use safety data to identify local trends - Produce decision-making support materials for national authorities - Contribute to continuous improvement of safety	- Practical workshop on trend analysis using a fictitious accident and incident database - Simulation of drafting a monthly safety bulletin - Oral presentation of recommendations arising from the analysis

B. PHASE 2 – ADVANCED TRAINING

Investigators undertake the following advanced/specialist training courses:

- 1) Helicopter accident investigation
- 2) Gas turbine engine accident investigation
- 3) Aircraft performance investigation
- 4) Aircraft structure investigation
- 5) Electronic Systems Investigation
- 6) Air traffic control incidents investigation
- 7) Safety Management System Investigation
- 8) Cabin Safety Investigation
- 9) Fire and explosion investigation
- 10) Aeromedical Investigation (AMED)
- 11) Human factors investigation
- 12) Root cause analysis
- 13) Operational Hazard Identification and Risk Mitigation
- 14) Safety management
- 15) Safety Risk Management Fundamentals
- 16) Safety Information Protection
- 17) Safety Occurrence Reporting for Practitioners
- 18) Safety Management System Assessment and Monitoring
- 19) Human Factors: The TEM and TRM Interface (Threat and Error Management) model and crew resource management (CRM)
- 20) Human factors for airport operators
- 21) Human factors and error management in aircraft maintenance
- 22) Crew and cabin resource management
- 23) Fatigue Risk Management (FRMS)
- 24) Digital photography for aircraft accident investigations
- 25) Aircraft type courses
- 26) Flight recorder playback and analysis
- 27) Assistance to Aircraft Accident Victims and their Families
- 28) Media relations
- 29) Unmanned Aviation Fundamentals

- 30) Unmanned Aircraft Systems Operations
- 31) Unmanned Aircraft Systems Regulations
- 32) Unmanned Aircraft Systems Safety Management System
- 33) Survival Aspects in an Accident
- 34) Non-destructive testing (NDT)
- 35) Composite materials
- 36) Techniques used to investigate accident-damaged systems that involve specialized technologies such as glass cockpits, fly-by-wire systems, GPS and enhanced ground proximity warning systems (EGPWS)
- 37) Reconstruction of evidence recorded by damaged solid-state recorders
- 38) Use of virtual video presentations in large-scale structural wreck reconstructions
- 39) Use of computer simulations and flight simulator software to recreate aspects of the aircraft's flight path relevant to the investigation
- 40) Aircraft accident litigation cases
- 41) Legal aspects of aviation
- 42) Use of information technology to help improve the efficiency and effectiveness of investigations and report writing
- 43) Introduction to methods for cataloguing a large volume of evidence (documents, images, witness statements and wreckage)
- 44) Management of a major accident site in terms of safety and security
- 45) Methods for conducting investigations involving civil and military aircraft
- 46) Liaising with judicial and police authorities in the event of an accident involving unlawful interference.
- 47) The effect of organizational factors on accident causation

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
1)	Helicopter accident investigation	- Differences in Helicopter Investigations - Helicopter Structures - Rotary Wing Control Systems - Helicopter Systems - Engines - Transmissions and Rotors - Rotary-wing aerodynamics and performance - Helicopter Recording Devices - Rotary-wing accidents and human factors - Initial Actions at the Crash Scene	36H	X	X	X	

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Wreckage Recovery, Reconstruction and Diagram - Failure Investigation - Helicopter-Specific Incidents - Crash Survivability - Seven Phases of Investigation					
2)	Gas turbine engine accident investigation	- Types of gas- -turbine engines - Inlet systems - Engine terminology/fundamentals - Components - Manufacturing techniques - Durability- -coatings - Lubrication - Accessories - Bearings & seals - Fuel, electrical and operating systems - FOD/DOD incidents - Nozzles/augmenters - Failure modes - Engine events related to accidents - Field investigation techniques - Evidence analysis - In-flight damage evidence - Post-impact damage analysis - Preparing the report - Rotor disc failure - Engine surge - Blade fatigue - Operability/stability - Hydraulic systems	36H	X	X		

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Pneumatic systems - Core lock - Temperature anomalies - Nozzle failure - Blade creep - Axial collapse - Chip detectors					
3)	Aircraft performance investigation	- Stability and control - Aerodynamics - Loads - Flutter - Drag - High-speed flight - Take-off - High-altitude operations - Landing - Cold weather operations - Wind shear - Performance - Spins - Wake turbulence - Weight and balance	36H	X	X	X	
4)	Aircraft structure investigation	- Aircraft Design Specifications - Structures – Metallurgy and Failure Identification - In-flight breakups - Mid-Air Collisions - Historical structural failures - V-n Diagram - In-Flight Fires vs. Post-Impact Fires	24H	X	X		

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Identification of Composite Failure - Case Studies					
5)	Electronic Systems Investigation	- Cockpit systems Electrical systems - Microcircuits - Non-volatile memory - Aircraft data - Case studies - Flight data recorders - Analogue systems - Digital systems - Software - Engine indicating and warning systems - Digital data buses - On-board maintenance systems - Air data systems - Enabled generated data - Display systems - FMS & GPS systems - FDR/CVR/ELT systems - Remote maintenance monitoring - Electronic connectors - Electronic flight bags - Flight control systems - FADECs - Micro-circuit failures - EMC/EMI - EGPWS - ATC/TCAS - Weather RADAR - RADALTs	36H	X	X	X	

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
6)	Air traffic control incidents investigation	- Basics of Air Traffic Control - Historical Perspective - Types and Functions of Air Traffic Services - Equipment and Automation and ATC Automation Systems - Procedures - Human Factors - Conducting ATS Investigations - Initial Activities - Facility Orientation - Information Gathering - Requesting ATS Data - ATS Maintenance Issues and Consequences - Staff Interviews - Follow-up activities and information gathering - Case Studies and Practical Exercises	36 H		X	X	
7)	Safety Management System Investigation	- How an Investigation Supports SMS - Reporting Systems - Investigation Preparation - The Investigation Process (ISIM) - Occurrence Assessment - Data Collection - Photography - Accident and Incident Diagrams - Witnesses - Basic Material Failure Analysis - Sequence of Events - Integrated Investigation Process - Organizing the Information - Analyzing the Information	36 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Developing Safety Measures - Findings and Recommendations - Writing the Report - Incident and Accident Investigation Exercises					
8)	Cabin safety investigation	- Overview of ICAO Annex 13 - ICAO SARPs relating to Cabin Safety - Overview of ICAO Provisions and Cabin Safety Investigations - Human Performance Training & Skills Development - Cabin Investigator Competencies and Training - Cabin Safety Aspects in Accident Investigation - Research on Brace Positions and Crash Injury Risk - Conducting Interviews - Documenting the Cabin - Analysis and Reporting - Preparation and Presentation of an Accident Report - Cabin Safety Aspects in Incident Investigation	40 H	X	X	X	X
9)	Fire and explosion investigation	- Fire chemistry - Physics - Material/fluid properties - Electrical arc mapping - In-flight fires - Ground fires - Toxicology	36H	X	X		

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Evidence handling and protocol - Scene documentation - Area of origin - Point of origin - Bombs and explosions - Survivability aspects - Laboratory tests - Military and civil aircraft - Fire patterns - Time to protect occupants - Burn-through - Fire entry paths - Survivability - Pool fires - Flame propagation - Case studies - Regulation & certification - Ignition sources - The scientific method					
10)	Aeromedical Investigation (AMED)	- Life support systems - Physiology - Psychology - Biomechanics - Forensic pathology/injury analysis - Gas laws - Atmospheric physics - Fatigue - Nutrition - Sleep - Stress	36H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Medications - Vision - Respiratory system - Toxicology - Crew survivability - Hypoxia/hyperventilation - Sensation and perception - Respiration and circulation - Drugs and alcohol - Diseases/Bloodborne pathogens - The nervous system - Anthropometry - Noise/hearing - Vibration - G-LOC - Dysbarism - Age - Chemical/radiobiological hazards - Spatial disorientation					
11)	Human factors investigations	- Human factors and human error from an investigator's perspective - Human performance and information processing - Human Factors Analysis and Classification System - Illusions - Stress and fatigue - Pilot physiology - Cockpit ergonomics, including anthropometry, different populations, and gender	24 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Crash/impact resistance and crew survivability - Training and negative transfer - Summary of causes of human error and reduction methods from the accident investigator's perspective - Human error investigation procedures (including case studies and indices) - Introduction to the Human Factors Analysis and Classification System - The psychology of witness interviews (for example, pilots' spouses, survivors, crew members with survivor syndrome, etc.) - Pressure on the investigation team - Post-traumatic stress disorder in witnesses, survivors and investigators - Pathology: Clues from the pathologist and their relationship to other indicators of human action, inaction and interactions. What the investigator can request and obtain from the pathologist - Automation and the role of the crew. Autonomy, authority and observability - Case Studies: Individual and team survey exercises.					
12)	Root cause analysis	- Introduction to the concepts of immediate cause vs root cause - Analysis techniques: cause tree, 5 Whys method, Ishikawa diagrams, HFACS - Application in safety investigations - Integrating results into corrective and preventive actions	24 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
13)	Operational Hazard Identification and Risk Mitigation	- Introduction - Hazard Information Capture - Process Hazard Information and SRM Project Activation - SRM Action		X	X	X	
14)	Safety Management	- ICAO Conceptual Framework for Safety Management (Annex 19, Doc 9859) - Components of the SMS: policy, risk management, assurance, promotion - Safety culture and organizational responsibilities - Gradual implementation within aviation organizations		X	X	X	
15)	Safety Risk Management Fundamentals	- Risk management process: identification, assessment, acceptance - Severity and Probability Criteria - Development of control measures - Principles of protection: confidentiality, non-use for punitive purposes - References: Annex 19, Doc 9859, Doc 10004 - Methods for classifying and managing sensitive data - Protected reporting mechanisms and internal procedures - Case studies and risk analysis simulations	6 H	X	X	X	
16)	Safety Information Protection	- Protection principles: confidentiality, non-use for punitive purposes - References: Annex 19, Doc 9859, Doc 10004 - Methods for classifying and managing sensitive data	8 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Secure reporting mechanisms and internal procedures					
17)	Safety Occurrence Reporting for Practitioners	- Types of events to be reported (incident, accident, near miss) - Reporting systems: voluntary, mandatory, confidential - Quality and completeness of reports - Introduction to databases (ECCAIRS, ADREP)	30 H	X	X	X	
18)	Safety Management System Assessment and Monitoring	- SMS audit methods: planning, checklists, interviews - Gap analysis and corrective actions - Performance monitoring using safety indicators (SPI, SPT) - Regulatory inspection and internal assurance frameworks	8 H	X	X	X	
19)	Human Factors: The TEM and TRM Interface	- TEM model: threats, errors, adverse events - TRM: communication, coordination, team leadership - Human limitations and cognitive biases - Simulation of cases of errors that were avoided or poorly managed	8 H	X	X	X	X
20)	Human Factors for Airport Operators	- Identification of risks related to human behavior in the airport environment - Fatigue, stress, inter-departmental coordination - Human-machine interactions and situational awareness - Error prevention and safety culture	30 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
21)	Human Factors and Error Management in Aviation Maintenance	- Types of maintenance errors and their causes (fatigue, distraction, unclear procedures) - Analysis tools: Dirty Dozen, HFACS-ME - Implementation of safety standards and procedures - Development of a just and non-punitive culture	30 H	X	X	X	X
22)	Crew and cabin resource management	- Crew resource management principles, - Information processing, Perception - Attention, - Vigilance and monitoring, - Human error - Workload - Situational awareness - Decision-making - Stress in aviation - Sleep and fatigue - Personality and cultural differences - Communication - Automation - Teamwork and leadership - Threat and error management - Monitoring and intervention - Surprise and startle - Resilience development - Culture	20 H		X	X	X
23)	Fatigue Risk Management	- Development of FRM: ICAO, FAA and EASA - Principles of FRM - Physiological background of FRM - Scientific basis of FRM - Integration of FRM into SMS	24 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- FRM Software Solutions - Pilots' sleep on board					
24)	Digital Photography for Aircraft Accident Investigations	- Digital Photography - Basic Photographic Equipment - Lenses and Camera Controls - Electronic Flash - General Techniques - Macro Photography - Lighting - Picture Identification - Specialized Photographic Techniques - On-Site Photography Priorities - Student Practice Session - Critique of Student Photographs - Videography - Basics of Videography - Uses of Video in an Aircraft Accident Investigation	16 H	X	X	X	
25)	Aircraft type courses			X	X	X	
26)	Flight recorder playback and analysis	- History of flight recorders/data replay - Early 'high-tech' accidents & flight data issues - Crash survivability - Quick access recorders - Data sources/overview - ICAO Annexes 6 and 13 - FOQA/FDA/FDM - CSV-ASCII vs Binary data - Audio analysis - CVR case study - Flight animation issues	20 H	X	X		

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Radar data examples - Airport familiarization using flight data - Image recording - Telemetry - Evidence-based training - Data maps - Derived parameters - Parameter smoothing - ARINC characteristics - Case studies - Proper data extraction procedures - Industry updates					
27)	Assistance to Aircraft Accident Victims and their Families	- ICAO and Standards and Recommended Practices (SARPs) on victims and family assistance - Regulatory requirements - Government and non-governmental roles and responsibilities - Contingency plans - Airport, airlines and State's aircraft accident victim and family assistance plans - Plan development, promulgation and implementation - Financial support - Dealing with the media - Travel and accommodation - Safeguards against unlawful interference - Recommendations for heliport emergency plans - Coordination with external agencies - Preparatory actions	24 H	X	X	X	X

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Facilitation - Timeliness - Case studies of success and failure - Mental health support - Notifications - Victim Remains					
28)	Media relations	- The investigation authority and accident investigation process - Crisis communication - Public relations - Social media considerations - Conducting interviews and communicating with family members - Media broadcasting techniques - Conducting a press conference based on a real-life scenario - Managing the news cycle - Interaction between investigation authorities, the CAA and government agencies	8 H	X	X	X	X
29)	Unmanned Fundamentals	Aviation - Definition and classification of UAS/RPAS systems - Terminology and technical components - Main operations (VLOS, BVLOS) - Overview of civil and commercial uses of drones		X	X	X	X
30)	Unmanned Aircraft Operations	Systems - Flight planning, navigation, surveillance and data management - Emergency management and abnormal procedures - Coordination with ATC and the airport manager - Record-keeping and operational documentation		X	X	X	

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
31)	Unmanned Aircraft Systems Regulations	- National, regional and international regulatory frameworks (ICAO, EU, FAA) - Registration, identification and certification requirements - Qualifications required for remote pilots - Operational restrictions, no-fly zones, airspace sharing		X	X	X	
32)	Unmanned Aircraft Systems Safety Management System	- Risks specific to UAS (loss of control, interference, autonomy) - Implementation of an SMS tailored to UAS operations - Development of emergency response plans - Collection, analysis and feedback on incidents		X	X	X	
33)	Survival Aspects in an Accident	- Post-impact survival behaviors: assessment of immediate risks, rapid evacuation, first aid - Study of factors affecting survival: impact position, cabin layout, accessibility of emergency exits - Use of on-board survival equipment (life jackets, life rafts, survival kits) - Analysis of data from past surveys on survival and injuries	6 H	X	X		X
34)	Non-destructive testing (NDT)	1. Visual Testing • Identify the purpose of visual inspection • Describe the scope of visual inspection within the context of NDT • Operate a variety of visual inspection equipment • Pass the visual testing examination. 2. Ultrasonic Inspection	80 H	X			

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		• Explain and list the basic principles of ultrasonic testing methods • Perform ultrasonic testing methods by following the specified procedures • Be able to produce, understand and evaluate the results in accordance with the written standards. • Identify faults in various parts, materials, or structures of the product. • Pass Ultrasonic Inspection Levels 1 and 2 3. Penetrant Testing • Describe the fundamental principles of penetrant testing methods • Perform penetrant inspection • Write brief inspection instructions and test reports • Pass Penetrant Inspection at Level I, II or Level III 4. Radiographic Testing • Describe the fundamental principles of radiographic testing methods • Identify and record any faults detected and the application of radiographic techniques • Perform radiographic testing using standard procedures • Understand and assess the results of radiographic testing • Pass the end-of-course test 5. Magnetic Particle Inspection					

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Describe the fundamental principles of magnetic particle testing methods - Identify and record detected defects and the application of magnetic particle techniques - Perform magnetic particle testing using standard procedures - Understand and assess the results of magnetic particle testing - Pass the end-of-course test 6. Eddy Current Testing - Describe the fundamental principles of eddy current testing methods - Identify faults in the selected sector - Write brief inspection instructions and test reports - Pass the course 7. Thermographic Inspection - Describe the fundamental principles of thermographic testing - Explain the background and purpose of precise temperature measurement - Identify faults, patterns and problem areas - Develop a strategy for data collection - Pass the course 8. Phased Array Ultrasonic Testing (PAUT) - Understand the conceptual background of phased array ultrasound technology - Adjust and set up equipment for the phased array ultrasound technique					

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Identify and assess faults in phased array ultrasound technology - Write brief inspection instructions and test reports - Pass the course 9. Time-of-Flight Diffraction (ToFD) - Understand the theoretical principles and limitations of ToFD - Identify and assess faults and distinguish faults from symmetrical features - Write brief inspection instructions and test reports - Pass the course 10. Digital Radiographic Testing - Overview of the principles of digital radiography - Various equipment used in radiographic testing - Processing images using phosphor - Adjusting measuring tools and the effect of magnification - Specification of each software used - Analysis, report writing and procedure development					
35)	Composite materials	- Introduction to composite concepts and their history - Raise awareness of the increasing use of composite materials in the aerospace industry for reinforcements, resins, core structures and ancillary materials	16 H	X			

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Provide an understanding of the underlying principles and techniques associated with the manufacturing, identification of damage and contamination, and repair - Terminology used in the composites industry - Identification of the range of composite materials in use within the industry - Future advances being made in newer types of materials - Discuss the various manufacturing processes currently in use - Identify the various steps required in a typical composite repair - Discuss the various challenges involved in carrying out composite repairs in the aerospace industry - Case study analysis of composite repair challenges and outcomes					
36)	Techniques used to investigate accident-damaged systems that involve specialized technologies such as glass cockpits, fly-by-wire systems, GPS and enhanced ground proximity warning systems (EGPWS)	- Identification and recovery of damaged electronic components - Diagnostic methods for digital systems (glass cockpit, electric controls, etc.) - Correlation of system data with flight recorder data - A systems-based approach to analyzing the chain of technical events	6 H	X	X	X	
37)	Reconstruction of evidence recorded by damaged solid-state recorders	- Techniques for the secure extraction of data from damaged recorders - Cleaning, desoldering and recovery of memory components	6 H	X	X	X	

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
		- Specialized software for reading and analyzing extracted data - Recovery limitations and precautions to prevent evidence tampering					
38)	Use of virtual video presentations in large-scale structural wreck reconstructions	- 3D modelling of debris and wrecks for dynamic visualization - Virtual and augmented reality software applied to investigation - Communicating results to stakeholders using immersive media - Case studies on the impact of visual reconstructions on understanding the causes	6 H	X	X	X	
39)	Use of computer simulations and flight simulator software to recreate aspects of the aircraft's flight path relevant to the investigation	- Flight path simulation based on FDR/CVR data - Reproduction of critical or abnormal manoeuvres in a flight simulator - Identification of deviations from standard operating procedures - Limitations and considerations regarding the interpretation of simulations	4H	X	X	X	
40)	Aircraft accident litigation cases	- Legal framework governing liability following an accident (manufacturers, operators, governments) - Presentation of technical evidence in a legal context - The role of experts in civil and criminal proceedings - Concepts of admissible evidence and second opinions	4 H	X	X	X	
41)	Legal aspects of aviation	-					

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
42)	Use of information technology to help improve the efficiency and effectiveness of investigations and report writing	- Collaborative investigation management platforms - Digital document archiving and retrieval systems - Tools to assist with report drafting and translation - Automation of alerts and document traceability	3H	X	X	X	
43)	Introduction to methods for cataloguing a large volume of evidence (documents, images, witness statements and wreckage)	- Using databases to organize evidence - Coding, tagging and classification of recovered items - Indexing of images, videos and witness statements - Digital traceability tools (QR codes, RFID, dedicated software)	4 H	X	X	X	
44)	Management of a major incident site in terms of safety and security	- Inter-agency coordination on the ground (civil protection, police, armed forces) - Establishment of secure perimeters and exclusion zones - Management of access and personnel involved - Protection of evidence and on-site media management	4 H	X	X	X	
45)	Methods of undertaking investigations involving both civil and military aircraft	- Legal frameworks for investigations into state aircraft - Coordination with the military authorities regarding access to data - Confidentiality and classification of certain elements - Mixed case studies (e.g. collision, airspace coordination)	4 H	X	X	X	

#	Title (Fr/Eng)	Content	Duration	Specialty			
				AIR	Operations		HF
					OPS AO	OPS AN – ADRM	
46)	Liaising with judicial and police authorities in the event of an accident involving unlawful interference	- Distinction between safety investigation and criminal investigation - Procedures for cooperation with prosecutors and law enforcement agencies - Management of aviation crime scenes - Issues relating to the chain of custody of evidence	3 H	X	X	X	
47)	The effect of organizational factors on accident causation	- Modern safety theories (Reason's model, SHELL, etc.) - The influence of organizational culture on risky behavior - Methods for analyzing internal practices and systemic failures - Case studies on organizational failures	4 H	X	X	X	X

AIR : Airworthiness / Engineering

OPS AO: Aircraft operations

OPS NA ADM: Operations Air navigation – Aerodroms

HF : Human Factor

C. PHASE 2 – CONTINUOUS TRAINING

The minimum interval for periodic training shall be two (2) years, and the maximum interval shall be five (5) years.

List of recurrent training courses:

N°	Subject	Frequency
01	Aviation Security	Every 2 years
02	Management and use of AIA equipment and materials	Every 3 years / whenever changes occur / upon acquisition of new equipment
03	Awareness of AIA organizational and operational manuals and procedures	Every 3 years / whenever changes occur
04	Awareness of international and national regulatory provisions	Every 3 years / whenever changes occur
05	Hazard at Accident Site	Every 3 years

Capacity building may also be achieved through:

- Participation in conferences and seminars;
- Reading related documents, such as ICAO circulars and aircraft accident and incident investigation reports published by other States;
- Participating as observers in investigations conducted by other States.