

INTERNATIONAL CIVIL AVIATION ORGANIZATION



ASIA/PACIFIC REGIONAL GUIDANCE ON AERODROME OPERATIONS PERSONNEL COMPETENCY REQUIREMENT FRAMEWORK

VERSION 1.0 – DECEMBER 2020

This guidance material was developed by the Asia/Pacific Aerodrome Operations Personnel Competency Small Working Group (AOPC SWG).

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RECORD OF AMENDMENTS

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FOREWORD

1. Introduction

1.1 APANPIRG/27 recognised the importance of the aerodrome operations personnel competency requirement for certification of aerodromes, roles and responsibilities of aerodrome operations personnel in terms of safety, efficiency and facilitation for flights, passengers, cargo, and all set of activities required to maintain a valid aerodrome certificate. APANPIRG/27 endorsed the AOP/WG/4 decision to form a Small Working Group comprised of China, Macao China, Japan, Malaysia, Maldives, Singapore and ACI to develop *Guidance on Aerodrome Operations Personnel Competency Requirement Framework* for use as a reference document in Asia Pacific Region.

1.2 The Asia/Pacific Regional Guidance on Aerodrome Operations Personnel Competency Requirement Framework was developed by the AOPC SWG using information derived from Annex 14 Volume I – Aerodrome Design and Operations, Procedures for Air Navigation Services (PANS) — Aerodromes (Doc 9981), Manual on Certification of Aerodromes (Doc 9774), Airport Services Manual (Doc 9137) and Airport Council International’s (ACI) Handbooks.

2. Scope and purpose of the document

Scope of the document

2.1 This document provides guidance for the competency and assessment of the aerodrome operations and technical personnel in the following areas and corresponding curriculum of the trainings required for those personnel:

- a) Runway surface conditions assessment and reporting;
- b) Aerodrome movement area maintenance;
- c) Inspection of the movement area;
- d) Works in progress on the airside;
- e) Foreign object debris (FOD);
- f) Wildlife hazard management;
- g) Apron safety;
- h) Runway Safety; and
- i) Aerodrome driver permit scheme and vehicle/equipment safety requirement

2.2 Guidance on competency and training of aerodrome rescue and firefighting personnel is available in Airport Services Manual (Doc 9137) Part 1 – Rescue and Firefighting (Chapter 14 – Training) and Part 8 – Airport Operations Services (Chapter 17, 17.6 – Training). Therefore, this manual excludes the rescue and fire-fighting services from the scope.

2.3 Guidance on foreign object debris (FOD) training, wildlife hazard management training and framework for an airside vehicle driver training programme is available in PANS-Aerodrome (Doc 9981).

Purpose of the document

2.4 The purpose of this document is to provide guidance to:

- a) aerodrome operators in establishing minimum competency requirements for personnel involved in aerodrome operations; and
- b) regulators for assessment of minimum qualification of the aerodrome operations personnel during initial certification and continuous surveillance of aerodrome operators.

2.5 Guidelines provided in this document are in consistency with the requirements of ICAO Annexes 14 and 19, PANS-Aerodromes (Doc 9981), Safety Management Manual (Doc 9859), Manual on Certification of Aerodromes (Doc 9774), Airport Services Manual (Doc 9137) and relevant ACI Handbooks.

ACRONYMS AND ABBREVIATIONS

ADP	Airside driver permit
AIA	Accident investigation authority
AIP	Aeronautical information publication
AIS	Aeronautical information service
ANSP	Air navigation services provider
ATS	Air traffic service
AVP	Airside vehicle permit
CAA	Civil aviation authority
FOD	Foreign object debris/damage
GSE	Ground support equipment
IAA	Indian Aviation Academy
IAAA	Incheon Airport Aviation Academy
LVP	Low visibility procedures
NAVAID	Navigation aid
OLS	Obstacle limitation surfaces
PAPI	Precision approach path indicator
RFF	Rescue and fire fighting
RST	Runway safety team
RTF	Radiotelephone
SAA	Singapore Aviation Academy
SARPs	Standards and Recommended Practices
SMS	Safety management system
WGS-84	World Geodetic System — 1984
WHMP	Wildlife hazard management programme
WIP	Works in progress

PART I AERODROME OPERATIONAL MANAGEMENT

Chapter 1 DEFINITIONS

1.1 Definitions can be found in following documents:

- a) Annex 14, Volume I – Aerodrome Design and Operations;
- b) Annex 19, Safety Management
- c) Procedures for Air Navigation Services (PANS) — Aerodromes (Doc 9981); and
- d) Safety Management Manual (Doc 9859).

Chapter 2 FUNCTIONS AND RESPONSIBILITIES OF THE AERODROME MANAGEMENT, OPERATIONS AND TECHNICAL PERSONNEL

2.1 Functions and responsibilities of the aerodrome management, operations and technical personnel can be found in following documents:

- a) PANS-Aerodromes (Doc 9981), Part II – Aerodrome Operational Management;
- b) Manual on Certification of Aerodromes (Doc 9774), Chapter 3, Section D – Obligation of the Aerodrome Operator;
- c) Airport Services Manual (Doc 9137), Part 8 – Airport Operational Services, Chapter 2 – The Functional Responsibilities of the Airport Technical Departments; and
- d) Aerodrome Manual of the respective aerodrome.

Chapter 3 AERODROME OPERATIONS PERSONNEL

3.1 In this document, aerodrome operations personnel are categorised into four levels of seniority in the organizational hierarchy. However, it depends on size and complexity of operations at a particular aerodrome. At smaller aerodromes, there may be only one or two categories/hierarchy of aerodrome personnel.

- a) Accountable Executive;
- b) Head of Aerodrome Operation/Maintenance (Technical Services);
Note – This refers to the senior managerial personnel overseeing the aerodrome operation / maintenance (technical services) matters that may have a different title.
- c) Managers/Supervisors; and
- d) Officers/Technicians.

PART II TRAINING AND COMPETENCY OF AERODROME OPERATIONS PERSONNEL

Chapter 1 TRAINING

GENERAL

1.1. The activities conducted by an aerodrome operator require the appropriate competencies and training of personnel, in order to carry out their assigned tasks.

1.2. Trainings are generally conducted by the individual's employer according to national employment regulations, but may also be conducted by the aerodrome operator or other third parties.

1.3. This chapter provides the general obligations related to training programmes and competency checks for all personnel carrying out the procedures detailed in aerodrome manual.

Note.— Training for other activities, not contained in this document, may be carried out depending on the needs identified by the aerodrome operator.

1.4. Additional material related to training procedures, including more detailed programmes or requirements, can be found in other document related to activity-specific training.

Note.— General principles and procedures on training can be found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Part I.

OBJECTIVES

1.5. Aerodrome operators shall ensure that training programmes are developed and implemented for personnel involved in aerodrome operations.

1.6. The training programmes shall include procedures for the verification of personnel knowledge and for the practical application thereof, at adequate intervals.

OPERATIONAL PRACTICES

1.7. Aerodrome operators shall be responsible for ensuring their staff are adequately trained for each task they are required to carry out. The details of the training will vary depending on the person's experience and background and the complexity of the required task.

1.8. Training objectives should be identified. Based on these objectives, the training programme should include content and frequency for each technical subject, as well as a method to track the progress of the required training and the maintenance of training records.

1.9. A training programme should include:

- a) theoretical training;
- b) practical or on-the-job training;
- c) testing of understanding; and
- d) demonstrating competence or recurrent theoretical and/or practical training.

Note 1.— Provisions on demonstrating competence are in Chapter 2.

Note 2.— Demonstration of continued competence is an alternative to recurrent training.

Note 3.— Chapter 3 provides guidance on the structure of a training programme.

1.10. Refresher training, including theoretical and practical aspects, may be provided after a long term absence to ensure that such personnel is kept abreast of the most recent material, developments and practices.

Chapter 2 DEMONSTRATING COMPETENCE

2.1 In order to demonstrate competence in a specific task, personnel shall demonstrate that the theory, practical training and local knowledge can be applied together in a satisfactory way, usually by successfully completing a competency check.

2.2 Competency checks may be used as an alternative to recurrent training whereby the employer can ensure its personnel demonstrate continued competence in a task and therefore do not require recurrent training.

2.3 Competency checks can be completed during day-to-day activities by having a competent individual accompany and assess the staff member on a task they are required to complete.

2.4 Records of all the steps taken to achieve the task shall be made and an evaluation shall be completed.

2.5 For a team or section to be recognized as competent, periodical audits or checks should be carried out and recorded. All shortfalls should be addressed by reviewing and updating the training material, refresher training or the frequency of refresher training. Similarly, after any accident, incident or serious occurrence, it may be prudent to review training to ensure it remains appropriate.

*Note 1:— **Appendix A** provides a sample of Competency Matrices related to nine aerodrome operational functional areas. Competency requirements of the Safety Manager's functions can be found in Chapter 9 of Safety Management Manual (Doc 9859) [refer to 9.3.6 Appointment of key safety personnel].*

*Note 2:- Following definitions may be used to determine the level of competency of the aerodrome operations personnel in the matrices provided in **Appendix A**:*

- a) Basic - Possess basic fundamental knowledge and general awareness of the subject to comprehend the works and processes involved. Generally, applicable to management levels that oversee the operations.

Basic level of competency maybe achieved attending a relevant course.

- b) Intermediate - Possess technical skills and practical working knowledge of the subject that are required to execute the works competently under supervision. Generally, applicable to operational personnel or project officers who are responsible to perform the duties and are involved in planning/implementation of the system.

Intermediate level of competency maybe achieved attending a relevant course and after having certain periods of practical experiences, as determined by the appropriate authority, on the relevant field or on-the-job trainings.

- c) Advanced - Possess advanced and in-depth knowledge to be able to provide training and expert opinion/advice on the subject. Generally, applicable to specialist who is well versed with the subject with hands-on experiences and specialised trainings.

Advanced level of competency maybe achieved attending a specialized course and after having certain periods of practical experiences, as determined by the appropriate authority, on the relevant field.

Chapter 3 STRUCTURE OF A TRAINING PROGRAMME

INITIAL TRAINING

3.1 Initial training should be composed of theoretical and practical training modules. Personnel should be assessed and demonstrate their capability to safely accomplish the required tasks upon completion of the initial training and prior to starting on-the-job training.

RECURRENT TRAINING

3.2 The aerodrome operator should ensure that personnel complete recurrent training at suitable intervals after the completion of their initial training programme. Continuous competency checking may be used as an alternative to recurrent training.

REFRESHER TRAINING

3.3 When a person has not performed any of their assigned tasks for a significant period of time, or has been involved in an accident, incident or serious occurrence, in which training-related issues have been identified as a contributing factor, that person should complete relevant refresher training prior to:

- a) performing assigned tasks; or
- b) being allowed unescorted access on the movement area and other operational areas of the aerodrome, as appropriate.

Note 1:- PANS-Aerodromes (Doc 9981) provides following training curricula/syllabi:

- a) FOD training (refer to Appendix 1 to Chapter 5 of Part II);
- b) Wildlife control training (refer to Appendix 1 to Chapter 6 of Part II);
- c) Framework for an airside vehicle driver training programme (refer to Appendix 1 to Chapter 9 of Part II);

Note 2:- Training syllabus for aerodrome rescue and firefighting personnel is available in Airport Services Manual (Doc 9137) Part 1 – Rescue and Firefighting (Chapter 14 – Training) and Part 8 – Airport Operations Services (Chapter 17, 17.6 – Training).

*Note 3:- Examples of the training syllabi that are required for Runway Surface Conditions Assessment and Reporting, Aerodrome Movement Area Maintenance, Inspection of Movement Area, Work in progress on the airside, Apron Safety and Runway Safety are provided in **Appendix B**. Depending on the needs of aerodrome, Civil Aviation Authority or aerodrome operator, as appropriate, may assess and determine whether the training syllabi in **Appendix B** qualify as basic, intermediate or advanced courses.*

Note 4:- ICAO and industry recognized training courses for aerodrome operations personnel can be found in following websites:

- a) ICAO Global Aviation Training
<https://www.icao.int/training/Pages/Training-Catalogue.aspx?subjectid=1>
- b) Airports Council International
<https://aci.aero/global-training/programmes/>
- c) International Air Transport Association
<https://www.iata.org/en/training/courses/>
- d) ICAO TRAINAIR Plus Regional Training Centres of Excellence in APAC Regions:
 - 1. Capital Airports Management Academy, China <http://www.cah.com.cn/>
 - 2. GMR Aviation Academy, India <http://www.gmraviationacademy.org/>
 - 3. Incheon Airport Aviation Academy (IAAA), Republic of Korea
<https://academy.airport.kr:844/academy/index.jsp>
 - 4. Civil Aviation Training Center, Republic of Korea
<https://www.airport.co.kr/kcaaeng/main.do>
 - 5. Singapore Aviation Academy (SAA), Singapore <https://saa.caas.gov.sg/>

APPENDIX A - AERODROME OPERATIONS PERSONNEL COMPETENCY REQUIREMENTS

Table A1-0: AOPC Matrix - Accountable Executive

Note: By fulfilling the requirements in table A1-0, the accountable executive may be considered to have fulfilled the competency requirements for all nine aerodrome operational functional areas.

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Test
Accountable Executive	National Legislation and regulations/ requirements, including the need for aerodrome certification References: ▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981)	Basic	a) National aerodrome regulations; b) ICAO Annex 14 requirements on aerodrome certification and Annex 19 requirements on SMS	Initial training Recurrent training (when significant amendment/ changes applied)	No
	Aerodrome operations and safety management system	Basic	Aerodrome/SMS manuals	Initial training	No

Table A1-1: AOPC Matrix - Runway Surface Conditions Assessment and Reporting

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Test
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/ changes applied)	No
	Aerodrome operations and safety management system	Basic	a) Relevant parts of aerodrome/SMS manuals b) Airside Safety and Operations	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> <u>National and international requirements and best practices on:</u> a) Runway pavement characteristics with different types of distress on runway pavement b) Runway friction evaluation and assessment c) Runway surface conditions assessment <u>References:</u> ▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981) ▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition.	Basic	Runway Condition Reporting	Initial training Recurrent training Refresher training as required	No

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	▪ Aerodrome Design Manual (Doc 9157), Part 3 – Pavements ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook				
Managers/ Supervisors	a) National Legislation and regulations / requirements, including aerodrome certification process b) NOTAM/SNOWTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM/SNOWTAM and AIP	Initial training Recurrent training Refresher training as required Specialized training	Yes
	<u>Aerodrome operations and Safety management system, covering:</u> a) Identification of safety Hazards b) Risk assessment and Mitigation c) Accident/Incident Investigation d) Safety/Audits Inspections	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Pavement characteristics b) Evaluation of pavements and identification of types of distress c) Correct use of equipment as required for friction testing and other assessments d) Friction assessment, evaluation and reporting methodology e) Procedures for reporting runway surface conditions f) Radiotelephone g) Runway incursion h) FOD management	Advanced	a) Aerodrome Pavement Maintenance b) Friction measurement training provided by friction testing equipment manufacturer c) Runway Condition Reporting d) Airside Safety and Operations e) Runway Incursion Awareness and Prevention	Initial training Recurrent training Refresher training if required Specialized training as required	Yes

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	References: ▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition. ▪ Aerodrome Design Manual (Doc 9157), Part 3 – Pavements (relevant Chapters only) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook		f) Radiotelephone phraseology		
Officers/ Technicians	a) National Legislation and regulations / requirements including aerodrome compliance to regulations (applicable parts/chapters only) b) NOTAM/SNOWTAM and AIP	Basic	a) National aerodrome regulations b) NOTAM/SNOWTAM and AIP	Initial training Recurrent training Refresher training if required	Yes
	<u>Aerodrome operations (applicable parts/chapters) and safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential reports on hazard and risk management	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> a) Pavement characteristics b) Evaluation of pavements and identification of types of distress c) Correct use of equipment as required for friction testing d) Friction assessment, evaluation and reporting methodology e) Procedures for reporting runway surface conditions f) Radiotelephone g) Runway incursion h) FOD management References: ▪ Annex 14 (applicable chapters only) ▪ PANS-Aerodromes (Doc 9981) (applicable parts/chapters only) ▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition	Intermediate	a) Aerodrome Pavement Maintenance b) Friction measurement training provided by friction testing equipment manufacturer c) Runway Condition Reporting d) Airside Safety and Operations e) Runway Incursion Awareness and Prevention f) Radiotelephone phraseology	Initial training + OJT Recurrent training Refresher training as required	Yes
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Table A1-2: AOPC Matrix - Aerodrome Movement Area Maintenance

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Maintenance (Technical Services)	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> <u>National and International requirements and best practices on:</u> - Aerodrome pavement management system - Runway surface conditions assessment - Obstacle limitation Surfaces - Maintenance Management - Aerodrome visual aids <u>References:</u> - ICAO Annexes 14 and 19 - PANS Aerodromes (Doc 9981) - ACI Aerodrome maintenance - Airport Services Manual (Doc 9137), Part 2 – Pavements	Basic	Understanding Annex 14 and PANS- Aerodromes	Initial training Recurrent training Refresher training as required	No

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	▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook				
Managers/ Supervisors	a) National Legislation and regulations / requirements, including aerodrome certification process b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required Specialized training	Yes
	<u>Aerodrome operations and Safety management system covering:</u> a) Identification of safety Hazards b) Risk assessment and Mitigation c) Accident/incident investigation d) Safety/Audits Inspections e) Occupational health and safety	Intermediate	Relevant parts of Aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Developing SOP b) Preventive maintenance of visual aids and paved and non-paved movement areas c) Runway Incursion d) Radiotelephone e) Maintenance Management f) Removal of runway contaminants (e.g. snow, slush, ice, rubber, fuel etc.) g) Providing maintenance Trainings h) FOD management References:	Advanced	a) Understanding Annex 14 and PANS-Aerodromes b) Aerodrome Pavement Maintenance c) Airfield Lighting including PAPI/VASIS Maintenance d) Maintenance of Markings, Signs and markers	Initial training Recurrent training Refresher training as required Specialized training as required	Yes

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	▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981) ▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition. ▪ Airport Services Manual (Doc 9137), Part 6 - Control of Obstacles ▪ Airport Services Manual (Doc 9137), Part 8 - Airport Operational Services ▪ Airport Services Manual (Doc 9137), Part 9 - Maintenance practices ▪ Airport Services Manual (Doc 9137), Part 5 - Electrical Systems ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook		e) Removal of Contaminants from Aerodrome Pavements f) Runway Incursion Awareness and Prevention g) Radiotelephone phraseology h) Maintenance of Unpaved Surfaces		
Officers / Technicians (Carrying out day-to day Aerodrome Movement Area Maintenance)	a) National Legislation and regulations / requirements, including aerodrome compliance to regulations (applicable parts only) b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary & confidential	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training + OJT	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Pavement characteristics	Intermediate	a) Understanding Annex 14 and PANS-Aerodromes	Initial training + OJT Recurrent training Refresher training as required	Yes

b) Method and technology for pavements maintenance c) Maintenance of the paved and unpaved areas including storm-water drainage systems d) Maintenance of aerodrome visual aids e) Foreign Object debris (FOD) management f) Protection of navigational aids References: ▪ Relevant parts of Annex 14 ▪ PANS-Aerodromes (Doc 9981) (applicable parts/chapters only) ▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition. ▪ Airport Services Manual (Doc 9137), Part 6 - Control of Obstacles ▪ Airport Services Manual (Doc 9137), Part 8 - Airport Operational Services ▪ Airport Services Manual (Doc 9137), Part 9 - Maintenance practices ▪ Airport Services Manual (Doc 9137), Part 2 - Pavements ▪ Airport Services Manual (Doc 9137), Part 5 - Electrical Systems ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook		b) Airside Safety and Operations c) Aerodrome Pavement Maintenance d) Airfield Lighting Maintenance e) Maintenance of Markings, Signs and markers f) Removal of Contaminants from Aerodrome Pavements g) Runway Incursion Awareness and Prevention h) FOD Training i) Maintenance of Unpaved Surfaces j) Radiotelephone phraseology		
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Note:- Managers/supervisors and Officers / Technicians carrying out day-to day aerodrome movement area maintenance may be from Civil Engineering or Electrical Engineering background depending on the field of the maintenance..

Table A1-3: AOPC Matrix - Inspection of Movement Area

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> National and international requirements and best practices on: a) Wildlife Hazard Management b) Obstacle limitation Surfaces c) Movement area Inspection d) Visual aids e) Low visibility operations, if applicable f) Adverse weather operations g) FOD management References: ▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981)	Basic	a) Aerodrome safeguarding b) Aerodrome Inspection c) Airside safety and operations (which includes Wildlife Hazard Management, Adverse Weather, Low Visibility Operations)	Initial training Recurrent training Refresher training as required	No

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	▪ Airport Services Manual (Doc 9137), Part 2 - Pavement Surface condition. ▪ Airport Services Manual (Doc 9137), Part 6 - Control of Obstacles ▪ Airport Services Manual (Doc 9137), Part 8 - Airport Operational Services ▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Control and Reduction ▪ Aerodrome Design Manual (Doc 9157), Part 4 – Visual Aids ▪ Manual of all Weather Operations (Doc 9365) ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook				
Managers/ Supervisors	<u>National and international requirements:</u> a) National Legislation and regulations / requirements, including aerodrome certification process b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and Safety management system, covering:</u> a) Identification of safety Hazards b) Risk assessment and Mitigation c) Accident/Incident Investigation d) Safety/Audits Inspections	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes

	<u>Job related requirements:</u> a) Developing SOP related to inspection of movement area b) Radiotelephone c) Runway incursion d) Knowledge on Wildlife Hazard Management e) Obstacle limitation Surfaces f) Movement area Inspection g) Visual aids h) Low visibility operations, if applicable i) Adverse weather operations j) Providing Inspection Trainings k) FOD management References: ▪ ICAO Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Aerodrome Design Manual (Doc 9157), Part 4 – Visual Aids ▪ Airport Services Manual (Doc 9137), Part 2 -Pavement Surface Condition. ▪ Airport Services Manual (Doc 9137), Part 6 - Control of Obstacles ▪ Airport Services Manual (Doc 9137), Part 8 - Airport Operational Services ▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Control and Reduction ▪ Manual of all Weather Operations (Doc 9365) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook ▪ ACI Wildlife Hazard Management Handbook	Advanced	a) Understanding Annex 14 and PANS-Aerodrome b) Aerodrome Inspection c) Aerodrome safeguarding d) Airside safety and operations (which includes Wildlife Hazard Management, Adverse Weather, Low Visibility Operations) e) Radio telephony phraseology f) Runway incursion awareness and prevention	Initial training Recurrent training Refresher training as required Specialized training as required	Yes
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Officers/ Technicians (Carrying out day-to day inspection of the movement area)	a) National Legislation and regulations / requirements including aerodrome compliance to regulations (applicable parts/chapters only) b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Identification of safety hazards b) Safety reporting – mandatory, voluntary & confidential	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Radiotelephone b) Runway incursion c) Wildlife Hazard Management d) Obstacle Control e) Visual aids f) Low visibility operations, if applicable g) Adverse weather operations h) FOD management <u>References:</u> ▪ Annex 14 (applicable parts only) ▪ PANS-Aerodromes (Doc 9981) (applicable parts/chapters only) ▪ Aerodrome Design Manual (Doc 9157), Part 4 – Visual Aids ▪ Airport Services Manual (Doc 9137), Part 6 - Control of Obstacles ▪ Airport Services Manual (Doc 9137), Part 8 - Airport Operational Services	Intermediate	a) Understanding Annex 14 including PANS Aerodrome b) Aerodrome Inspection c) Aerodrome safeguarding d) Airside safety and operations (which includes Wildlife Hazard Management, Adverse Weather, Low Visibility Operations) e) Radio telephony phraseology f) Runway incursion awareness and prevention	Initial training + OJT Recurrent training Refresher training as required	Yes

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	▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Control and Reduction ▪ Manual of all Weather Operations (Doc 9365) ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ ACI Apron Safety Handbook		g) Adverse weather and low visibility operations (if applicable)		
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Table A1-4: AOPC Matrix - Works in progress on the airside

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Maintenance (Technical Services)	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> National and International requirements and best practices on: a) Compliance with aerodrome works safety plan and procedures including OLS b) Aerodrome emergency plan c) Development of training program to mitigate potential safety hazards caused by works in progress d) Works authorization procedure e) Promoting safety awareness f) Accidents and incidents Investigation g) Hazards Identification and Risk management h) Conduct of internal safety audit	Basic	a) Understanding Annex 14 and PANS-Aerodromes b) Aerodrome Safety Management System c) Accident/incident investigation d) Runway incursion Awareness and Prevention e) Aerodrome Inspection f) Managing Works in Progress	Initial training Recurrent training Refresher training as required	No

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	Implementation of the proposed mitigations; i) Coordination with ATS and other stakeholders/agencies, as required References: ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ ACI Managing Operations During Construction Handbook ▪ CAA Advisory Circular (Guidance materials)				
Managers/ Supervisors	a) National Legislation and regulations / requirements, including aerodrome certification process b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Identification of safety Hazards b) Risk assessment and Mitigation c) Accident/incident investigation d) Safety/Audits Inspections	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> a) Develop work safety plan and work control procedures b) Aerodrome emergency plan c) Provide work safety training d) Promote work safety awareness e) Evaluate and control of contractor f) Prepare inspection checklist g) Perform safety inspection h) Reduced runway length operations i) FOD management <u>References:</u> ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ ACI Managing Operations During Construction Handbook ▪ CAA Advisory Circular (relevant parts only)	Advanced	a) Understanding Annex 14 and PANS-Aerodromes b) Managing Operations during construction c) Runway incursion Awareness and Prevention which includes FOD control d) Emergency Planning and Response e) Airside operation and safety f) Aerodrome Safety Management System	Initial training Recurrent training Refresher training as required Specialized training as required	Yes
Officers/ Technicians	a) National Legislation and regulations / requirements including aerodrome compliance to regulations (applicable parts/chapters only) b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> a) Execute work safety plan and procedures and monitor the height of installations/equipment b) Role in aerodrome emergency plan c) Ensure works in progress in accordance with work plan d) Ensure working area are marked and lit in accordance with work plan e) Ensure access routes in accordance with work plan f) Ensure safety measures implemented in accordance with work plan g) Identify and report hazards h) Perform safety inspection i) FOD management References: j) Annexes 14 & 19 (relevant Chapters) k) PANS-Aerodromes (Doc 9981) l) Safety Management Manual (Doc 9859) m) ACI Managing Operations During Construction Handbook n) CAA Advisory Circular (relevant parts only)	Intermediate	a) Understanding Annex 14 and PANS-Aerodromes b) Managing Operations during construction c) Runway incursion Awareness and Prevention which includes FOD control d) Emergency Planning and Response e) Airside operation and safety f) Aerodrome Safety Management System	Initial training + OJT Recurrent training Refresher training as required	Yes
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Table A1-5: AOPC Matrix – FOD Management

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> a) Documentation and Reporting b) Analysis and Evaluation c) FOD Mitigation <u>References:</u> ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Relevant parts of Doc 9137 ▪ CAA Advisory Circular (Guidance materials)	Basic	FOD Management (Refer to PANS-Aerodrome)	Initial training Recurrent training Refresher training as required	No

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Managers/ Supervisors	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system covering:</u> a) Identification of safety Hazards b) Risk assessment and Mitigation c) Accident/incident investigation d) Safety/Audits Inspections	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) FOD management b) FOD occurrence analysis and evaluation c) Airside Driving d) Specific equipment operation e) Radiotelephone f) Aerodrome markings, signs and lights g) Familiar with actions for emergency cases References: ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Relevant parts of Doc 9137 ▪ CAA Advisory Circular (Guidance materials)	Advanced	a) FOD Management (Refer to PANS-Aerodrome) b) Airside driving (Refer to PANS-Aerodromes) c) Radiotelephone phraseology d) Aerodrome markings, signs and lights e) FOD detection equipment (if applicable, provided by manufacturer)	Initial training Recurrent training Refresher training as required Specialized training as required	Yes

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Officers/ technicians	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential c) FOD inspection and reporting	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training + OJT Recurrent training	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes
	<u>Job Related Requirements</u> a) FOD inspection and reporting b) Airside Driving c) Specific equipment operation d) Radiotelephone e) Aerodrome markings, signs and lights f) Familiar with actions for emergency cases References: ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Relevant parts of Doc 9137 ▪ CAA Advisory Circular (Guidance materials)	Intermediate	a) FOD Management (Refer to PANS-Aerodrome) b) Airside driving (Refer to PANS-Aerodromes) c) Radiotelephone phraseology d) Aerodrome markings, signs and lights e) FOD detection equipment (if applicable, provided by manufacturer)	Initial training + OJT Recurrent training Refresher training as required	Yes

Table A1-6: AOPC Matrix – Wildlife Hazard Management

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> Airport wildlife hazard management programme, focusing: ▪ Role and responsibility of aerodrome wildlife committee; ▪ Operational practices to control wildlife hazard; ▪ Staff training requirements. <u>References:</u> ▪ Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981) ▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Hazard Management;	Basic	Wildlife Hazard Management (Refer to PANS-Aerodrome)	Initial training Recurrent training	No

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	- ACI Wildlife Hazard Management Handbook; - CAA Advisory Circular (if available)				
Managers/ Supervisors (In charge of wildlife hazard management of the airport)	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Accident and incident investigation management b) Hazard and risk management including wildlife strike risk assessment and mitigation	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Wildlife survey b) Understanding of habitat management - how wildlife is attracted to the environment c) Understanding of wildlife ecology - how wildlife could respond to different control methods d) Documentation and strike reporting e) Use of dispersal equipment and other methodology f) Review/evaluation of the effectiveness of the airport wildlife hazard management programme g) Radiotelephone h) Airside driving <u>References:</u> Annexes 14 and 19	Advanced	a) Wildlife Hazard Management (Refer to PANS-Aerodrome) b) Dispersal equipment (provided by manufacturer) c) Radiotelephone phraseology d) Airside driving (Refer to PANS-Aerodromes)	Initial training Recurrent training Refresher training as required Specialized training as required	Yes

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	▪ PANS Aerodromes (Doc 9981) ▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Hazard Management; ▪ ACI Wildlife Hazard Management Handbook; ▪ CAA Advisory Circular (if available)				
Officers/ Technicians (Doing day-to day wildlife surveys, patrols, dispersal)	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> a) Hazard and risk management b) Safety reporting – mandatory, voluntary and confidential reports	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training + OJT	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes
	<u>Job related requirements:</u> a) Wildlife identification and management b) Biology and behavior of wildlife c) Documentation and strike reporting d) Use of dispersal equipment and other methodology e) Analysis and evaluation f) Wildlife habitat management g) Migration of bird h) Airside driving i) Radiotelephone References: ▪ Annexes 14 and 19 ▪ PANS Aerodromes (Doc 9981)	Intermediate	a) Wildlife Hazard Management (Refer to PANS- Aerodrome) b) Dispersal equipment (provided by manufacturer) c) Radiotelephone phraseology d) Airside driving (Refer to PANS- Aerodromes)	Initial training + OJT Recurrent training Refresher training as required	Yes

	▪ Airport Services Manual (Doc 9137), Part 3 - Wildlife Hazard Management; ▪ ACI Wildlife Hazard Management Handbook; ▪ CAA Advisory Circular (if available)				
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Table A1-7: AOPC Matrix - Apron Safety

Aerodrome Operations Personnel	Competency areas (knowledge, skills and attitudes)	Required Competency Level (Basic/ Intermediate/ Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialised)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No

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	<u>Job related requirements:</u> <u>National and international requirements and best practices on:</u> a) Aircraft turnaround procedures b) Role in Aerodrome Emergency Plan <u>References:</u> ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ ACI Apron Safety Handbook	Basic	a) Understanding Annex 14 and PANS-Aerodromes b) Aerodrome Safety Management System (SMS) c) Airside Safety and Operations d) Emergency Planning and Response	Initial training Recurrent training Refresher training as required	No
Managers/ Supervisors	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations, including:</u> a) FOD management b) Safety management during construction and maintenance works c) Understanding of aerodrome emergency procedures d) Follow-me procedures <u>Safety management systems</u>	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> a) Airside driving regulations b) Aircraft turnaround procedures (e.g. Passenger loading bridge operations, Passenger safety on apron, Aircraft fueling safety, flight catering safety etc.) c) Jet blast hazards d) Marshalling e) Apron signs and marking f) Operations under adverse weather g) Handling of fuel and oil spills h) Apron inspection and cleaning (FOD, pavement, markings, signs, ensuring GSE in place etc.) i) Use of personal protective equipment (earplugs, high-visibility vest etc.) j) Role in Aerodrome Emergency Plan k) Radiotelephone terminology l) Compliance with safety rules during construction and maintenance works References: ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ ACI Apron Safety Handbook	Advanced	a) Understanding Annex 14 and PANS-Aerodromes b) Managing Works in Progress c) Emergency Planning and Response d) Airside Safety and Operations e) Aerodrome Safety Management System f) FOD Training	Initial training Recurrent training Refresher training as required Specialized training as required	Yes
Officers/ Technicians	a) National Legislation and regulations / requirements b) NOTAM and AIP	Basic	a) National aerodrome regulations; b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes

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	<u>Aerodrome operations, including:</u> a) Apron management b) Apron safety management c) Follow-me procedures <u>Safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout including apron layouts and stand configurations	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> a) Airside driving regulations and safety hazards b) Aircraft turnaround procedures (e.g. Passenger loading bridge operations, Passenger safety on apron, Aircraft fueling safety, flight-catering safety etc.) c) Jet blast hazards d) Marshalling e) Apron signs and marking f) Operations under adverse weather g) Handling of fuel and oil spills h) Apron inspection and cleaning (FOD, pavement, markings, signs, ensuring GSE in place etc.) i) Use of personal protective equipment (earplugs, high-visibility vest etc.) j) Role in Aerodrome Emergency Plan k) Radiotelephone terminology l) Compliance with safety rules during construction and maintenance works References: ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ ACI Apron Safety Handbook	Intermediate	a) Understanding Annex 14 and PANS-Aerodromes b) Airside Safety and Operations c) Aerodrome Safety Management System	Initial training + OJT Recurrent training Refresher training as required	Yes.
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Table A1-8: AOPC Matrix - Runway Safety

Aerodrome Operations Personnel	Competency areas (Knowledge, skills and attitudes)	Required Competency Level (Basic / Intermediate / Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialized)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management systems	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No

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	<u>Job related requirements:</u> <u>National and international requirements and best practices on:</u> a) Emergency planning and response b) Aerodrome operations and maintenance in general c) Accident and incident investigation d) Runway Safety Programme and runway safety team <u>References:</u> ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ ACI Runway Safety Handbook ▪ Manual on Prevention of Runway Incursion (Doc 9870) ▪ Runway Safety Team Handbook ▪ Runway Safety Programme – Global Runway Safety Action Plan First Edition, November 2017 ▪ CAA Advisory Circulars (Relevant Parts)	Basic	a) Emergency Planning and Response b) Airside Safety and Operations c) Aerodrome accident and incident investigation d) National and Airport runway safety programmes	Initial training Recurrent training Refresher training as required	No
Managers/ Supervisors	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes

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	<u>Aerodrome operations including:</u> a) FOD management b) Safety management during construction and maintenance works c) Understanding of aerodrome emergency procedures d) Follow-me procedures <u>Safety management systems</u>	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes

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	<u>Job related requirements:</u> All of the competency requirements for frontline officers, but at advanced level, plus: a) Understanding of disabled aircraft removal plan. b) Re-declaration of runway distances c) SMS principles including safety risk management. d) Preliminary investigations of accidents and incidents e) Safety during construction and maintenance works f) Runway Safety Programme and runway safety team References: ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Manual on Prevention of Runway Incursion (Doc 9870) ▪ Runway Safety Team Handbook ▪ Runway Safety Programme – Global Runway Safety Action Plan First Edition, November 2017 ▪ ACI Runway Safety Handbook ▪ CAA Advisory Circulars (Relevant Parts)	Advanced	a) Emergency Planning and Response b) Understanding Annex 14 and PANS-Aerodrome c) Aerodrome SMS d) Aerodrome Incident/Accident Investigation e) Managing Works in Progress f) Airside Safety and Operations g) Runway incursion awareness and prevention h) Runway safety management i) Wildlife hazard management (Refer to PANS-Aerodromes) j) National and Airport runway safety programmes	Initial training Recurrent training Refresher training as required Specialized training as required	Yes.
Officers / Technicians	a) National Legislation and regulations / requirements b) NOTAM and AIP	Basic	a) National aerodrome regulations b) NOTAM and AIP	Initial training Recurrent training Refresher training as required	Yes

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	<u>Aerodrome operations</u> a) Understanding of the aerodrome manual of the airport concerned b) Follow-me procedures <u>Safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential	Intermediate	Relevant parts of aerodrome and SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes

	<u>Job related requirements:</u> a) Runway inspection including FOD, pavement conditions, drainage, markings and signs, in-pavement lights, obstacles, etc. b) Runway surface condition reporting c) Airside driving including airfield signs and markings d) Radiotelephone e) Adverse weather operations and low visibility procedures f) Removal of runway contaminants, e.g. rubber, ice, snow g) Vegetation control h) Wildlife hazard management i) Follow-me procedures j) Prevention of runway incursion k) Compliance with safety rules during construction and maintenance works l) Emergency response procedures m) Role in Runway Safety Team References: ▪ Annexes 14 and 19 (relevant parts) ▪ PANS Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Runway Safety Team Handbook ▪ ACI Runway Safety Handbook	Intermediate	a) Understanding Annex 14 and PANS Aerodromes b) Aerodrome Inspection c) Runway Condition Reporting d) Airside Driving (Refer to PANS-Aerodrome) e) Adverse weather and low Visibility Operations f) Removal of Contaminants from Aerodrome Pavements g) Escort and Follow-Me Operations h) Runway Safety Management i) Runway incursion awareness and prevention j) Airside Safety and Operations k) Managing Works in Progress l) Wildlife hazard management m) Emergency Planning and Response n) National and Airport runway safety programmes	Initial training + OJT Recurrent training Refresher training as required	Yes.
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Table A1-9: AOPC Matrix - Aerodrome Driver Permit Scheme and Vehicle/Equipment Safety Requirement

Aerodrome Operations Personnel	Competency/knowledge areas	Required Competency Level (Basic/ Intermediate / Advanced)	Training Areas	Required Type of Training (Initial, OJT, Refresher, Recurrent, Specialized)	Requirement of Competency Check
Head of Aerodrome Operation	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training (when significant amendment/changes applied)	No
	Aerodrome operations and safety management system	Basic	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training	No
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	No
	<u>Job related requirements:</u> (a) Emergency procedures for aerodrome driving (b) Vehicle/equipment safety requirements (c) Aerodrome driver training program (d) Aerodrome driver permit record system and vehicle/equipment permit record system <u>References:</u> ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Airport Services Manual (Doc 9137), Part 9 – Airport Maintenance Practices (Relevant Chapters)	Basic	Airside driving (Refer to PANS-Aerodromes)	Initial training Recurrent training Refresher training as required	No

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	- Manual on prevention of runway incursion (Doc 9870) - ACI Apron Safety Handbook - CAA Advisory Circular (Guidance materials)				
Managers/ Supervisors	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Recurrent training Refresher training as required	Yes
	<u>Aerodrome operations and safety management system, covering:</u> - Identification of safety Hazards - Risk assessment and Mitigation - Accident/incident investigation - Safety/Audits Inspections	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training Recurrent training Refresher training as required	Yes

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	<u>Job Related Requirements:</u> (a) Develop airside traffic rules and procedures (b) Provide airside safety training to drivers (c) Promote airside safety awareness to drivers (d) Provide Radiotelephone training (e) Familiarization with vehicle/equipment safety requirements (f) Conduct inspection for vehicle/equipment (g) Keep data and records of aerodrome driver permit and vehicle/equipment permit References: ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Airport Services Manual (Doc 9137), Part 9 – Airport Maintenance Practices (Relevant Chapters) ▪ Manual on prevention of runway incursion (Doc 9870) ▪ ACI Apron Safety Handbook ▪ CAA Advisory Circular (Guidance materials)	Advanced	Airside driving (Refer to PANS-Aerodromes)	Initial training Recurrent training Refresher training as required Specialized training as required	Yes
Officers/ technicians (working on maneuvering area)	National Legislation and regulations / requirements, including aerodrome certification process	Basic	National aerodrome regulations	Initial training Initial training Recurrent training Refresher training as required	Yes

	<u>Aerodrome operations and safety management system, covering:</u> a) Identification of safety Hazards b) Safety reporting – mandatory, voluntary and confidential	Intermediate	Relevant parts of aerodrome/SMS manuals	Initial training + OJT Recurrent training Refresher training as required	Yes
	Aerodrome layout	Intermediate	Aerodrome layout (Based on aerodrome layout drawing and onsite orientation)	Initial training + OJT Recurrent training Refresher training as required	Yes
	<u>Job Related Requirements:</u> (a) Holder of a valid official driver license of the same class of vehicle recognized/issued by the local government (b) Medical fitness certificate (c) Driving skill (d) Specific equipment operation (e) Radiotelephone (f) Airside operations safety rules (g) Airside driving rules (h) Adverse weather conditions procedures (i) Aerodrome signage, markings and lightings (j) Roles in aerodrome emergency plan References: ▪ ICAO Annexes 14 and 19 ▪ PANS-Aerodromes (Doc 9981) ▪ Safety Management Manual (Doc 9859) ▪ Airport Services Manual (Doc 9137), Part 9 – Airport Maintenance Practices (Relevant Chapters)	Intermediate	a) Airside driving (Refer to PANS-Aerodromes) b) Specific equipment operation (if applicable, provided by manufacturer)	Initial training + OJT Recurrent training Refresher training as required	Yes

	▪ Manual on prevention of runway incursion (Doc 9870) ▪ ACI Apron Safety Handbook ▪ CAA Advisory Circular (Guidance materials)				
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APPENDIX B – TRAINING SYLLABI

Title of Training Course	Understanding Annex 14 and PANS-Aerodrome	Course Reference No.: 01	Version: 1/2020
	Reference to AOPC Matrix Table: A1-2, A1-3, A1-4, A1-7, A1-8		
Course Goal (Purpose of the course)	The ICAO Annex 14 sets out the fundamental Standards and Recommended Practices (SARPs) for airport design and operations, which States undertake to apply through national legislation. This course provides an introduction to the content and structure of Annex 14. This course also covers the implementation of the PANS-Aerodrome in the context of an aerodrome Safety Management System.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Describe the SARPs contained in Annex 14 ▪ Implementation of SARPs. ▪ Discuss best practices to meet the requirements of Annex 14. ▪ Share experience with experts on the different options to implement and further improve best practices. ▪ Conduct Aerodrome operational safety assessments, as per PANS-Aerodromes, for safety risk management, aeronautical and compatibility studies		
Prerequisites for taking this course	Title of Training Course (if applicable): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s): 1) Understanding Annex 14 (ACI); or https://aci.aero/global-training/training-information/course-categories/safety/understanding-icao-annex-14/ 2) Working with Annex 14 (ACI) https://aci.aero/global-training/training-information/course-categories/safety/gsn-4-working-with-annex-14/ In addition to the above, for PANS-Aerodromes, refer to “Aerodrome Safety Management incorporating PANS-Aerodromes” (IAAA) https://academy.airport.kr:844/academy/pagework_02102.html		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Runway Condition Reporting (ICAO-ACI GRF Online Training)	Course Reference No.: 02	Version: 1/2020
	Reference to AOPC Matrix Table: A1-1, A1-8		
Course Goal (Purpose of the course)	The ICAO Global Reporting Format (GRF) is a globally-harmonized methodology for runway surface condition assessment and reporting that it is intended to be the only such reporting format for international aviation, with the objective of reducing runway excursions, thus improving the safety of airport operations. The aim of the course is to assist airport personnel to implement the new Runway Condition reporting requirements as outlined in ICAO Circular 355 (Assessment, Measurement and Reporting of Runway Surface Conditions).		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Describe the background for Runway Condition Assessment and Reporting as it relates to the ICAO Global Reporting Format (GRF) ▪ Explain the major elements of the Runway Condition Assessment Matrix (RCAM) ▪ Describe when a Runway Condition Assessment should be conducted ▪ Describe the steps required to conduct a Runway Condition Assessment ▪ Explain under what circumstances Runway Condition Codes can be adjusted ▪ Determine the Runway Condition Codes to be used as per the GRF ▪ Explain the formatting and use of the SNOWTAM and other means of promulgation ▪ Complete a Runway Condition Report (RCR) using the ACI Runway Condition Worksheet ▪ Through multiple case scenarios, apply the steps required to generate an RCR and NOTAM		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): ACI/ICAO Global Reporting Format (GRF) online training course (Desirable) https://www.olc.aero/product/icao-global-reporting-format/ ☐ None ☒ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s): ACI-ICAO Global Reporting Format (GRF) for Runway Surface Condition Assessment and Reporting. https://aci.aero/global-training/training-information/course-categories/safety/grf-for-runway-surface-condition-assessment-and-reporting/		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Notes:-

- (1) Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.*
- (2) The pre-requisite listed is a desirable online course and therefore not compulsory.*

Appendix B

Title of Training Course	Airside Safety and Operations	Course Reference No.: 03	Version: 1/2020
	Reference to AOPC Matrix Table: A1-1, A1-2, A1-3, A1-7, A1-8		
Course Goal (Purpose of the course)	The Airside Operations course provides participants with a broad understanding of airside operations at an airport. Participants will investigate the various components of airside operations and how they interact together to form an operational system.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Describe the safety operations at airports. ▪ Describe the factors that affect safety at airports. ▪ Explain how to control and maintain safety at airports. ▪ Apply practical and up-to-date tools for managing safety on the airport. ▪ Implement safety standards in airport operations..		
Prerequisites for taking this course	Title of Training Course (if applicable): Airside Operations - online training (ACI) https://aci.aero/global-training/programmes/airport-operations-diploma/airside-operations/ ☐ None ☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s): Airside Safety and Operations (ACI) https://aci.aero/global-training/training-information/course-categories/safety/gsn-2-airside-safety-operations/		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Runway Incursion Awareness and Prevention	Course Reference No.: 04	Version: 1/2020
	Reference to AOPC Matrix Table: A1-1, A1-2, A1-3, A1-4, A1-8		
Course Goal (Purpose of the course)	To raise awareness of the danger of runway incursions by sharing information of incidents (through case studies and facilitated discussion) and offering advice to operational personnel about how airport operators, airlines and air traffic service providers can prevent runway incursions. To raise awareness of this key topic and give participants practical ideas which they can implement at their own aerodrome to enhance safety.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ select terms and definitions associated with runway safety; ▪ risks to runway safety and factors that contribute to the rise in runway incursions; ▪ purpose and scope of ICAO Manual for Prevention of Runway Incursions (Doc 9870); ▪ purpose of runway incursion prevention programs and runway safety teams; ▪ common runway incursion scenarios; ▪ common factors that could contribute to a runway incursion; ▪ purpose and benefits of a standardized approach to runway incursion incident reporting and data collection; ▪ communication procedures to prevent runway incursions; ▪ procedures for runway safety teams; ▪ problems that contribute to the breakdown of communication; ▪ visual aids to help maintain situational awareness; ▪ best practices for taxi operations; and ▪ usefulness of Standard Operating Procedures (SOP).		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Runway incursion awareness and prevention (ACI) https://aci.aero/Global-Training/Training-Information/Course-Categories/Safety/Runway-Incursion-Awareness-and-Prevention/		
Training method/activities	☐ CBT/Online ☒ Classroom ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Aerodrome Inspection	Course Reference No.: 05	Version: 1/2020
	Reference to AOPC Matrix Table: A1-3, A1-4, A1-8		
Course Goal (Purpose of the course)	This course provides a competency-based training on aerodrome safety inspection for aviation authorities and airport operators. Trainees will learn how to carry out aerodrome inspection in accordance with ICAO SARPs (Standards and Recommended Practices) and relevant national standards through classroom interaction training, field practices and exercises at airside areas.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Employ standard communication phraseology required for safely conducting aerodrome inspection ▪ Conduct an Aerodrome Surface Inspection ▪ Conduct an inspection of Visual aids and navigational aids (NAVAIDs) ▪ Verify airside access and movement in airside areas ▪ Conduct an inspection for the application of safety measures in airside operations ▪ Verify the application of Notice to Airmen (NOTAMs) ▪ Inspect the presence of wildlife ▪ Conduct an inspection of Aerodrome Rescue and Fire Fighting Services (ARFFS) ▪ Conduct an inspection of a Safety Management System (SMS)		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): 1) Aerodrome Inspection (IAAA); or https://academy.airport.kr:844/academy/pagework_02104.html 2) GSN 6: Aerodrome Auditing and Compliance (ACI) https://aci.aero/global-training/training-information/course-categories/safety/gsn-6-aerodrome-auditing-and-compliance/		
Training method/activities	☐ CBT/Online ☒ Classroom ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

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Title of Training Course	Aerodrome Safeguarding	Course Reference No.: 06	Version: 1/2020
	Reference to AOPC Matrix Table: A1-3		
Course Goal (Purpose of the course)	All aerodromes have to ensure that the environment both on and off the airport are maintained in a safe condition for aircraft operations. The aerodrome safeguarding course is designed to introduce participants to the different forms that safeguarding takes and how to develop procedures in order to implement effective controls.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Explain the importance of safeguarding in today's aviation environment ▪ Understand the elements of aerodrome safeguarding ▪ Explain how aerodrome safeguarding procedures may be developed ▪ Describe the legal aspects of the safeguarding process ▪ Apply the knowledge on aerodrome safeguarding at their own		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Aerodrome Safeguarding and OLS (ACI) https://aci.aero/global-training/training-information/course-categories/safety/aerodrome-safeguarding/		
Training method/activities	☐ CBT/Online ☒ Classroom ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

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Title of Training Course	Adverse Weather and Low Visibility Operations	Course Reference No.: 07	Version: 1/2020
	Reference to AOPC Matrix Table: A1-3, A1-8		
Course Goal (Purpose of the course)	Through practical planning exercises and real-life examples, this one-of-a-kind course reviews operational obstacles due to weather and the solutions to address them. Explore planning tools and procedures that will help your airport respond to rare disturbances. Learn how to prepare your resources, equipment and staff to establish a proactive culture across your operations and organization.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Understand how adverse weather conditions produce complications ▪ Build response and action plans that address the risks your airport faces ▪ Minimize the impact of disruption and quickly return to normal operations ▪ Strengthen cooperation between departments and operations to become more efficient in planning and response ▪ Improve the allocation of resources, equipment and staff		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Airport Extreme Weather Operations and Planning (IATA) https://www.iata.org/en/training/courses/airport-operations-weather/262/en/		
Training method/activities	☐ CBT/Online ☒ Classroom ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

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Title of Training Course	Emergency Planning and Response	Course Reference No.: 08	Version: 1/2020
	Reference to AOPC Matrix Table: A1-4, A1-7, A1-8		
Course Goal (Purpose of the course)	This course investigates the importance of planning for emergency situations and of properly managing activities in crisis situations. It introduces the international requirements of an Emergency Plan, discusses how to manage the press and media in crucial situations, as well as focusing on business continuity and the return to normal operations after a crisis. The support provided to victims and the need to rebuild confidence after an incident are also discussed. Current topics on aviation terrorism are included. Case studies provide key insights into the current world climate.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Explain the key role of emergency planning. ▪ Describe best practices in crisis management. ▪ Apply relevant tools and advice to implement emergency plans and procedures.		
Prerequisites for taking this course	Title of Training Course (if applicable): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (if available): GSN 3: Emergency Planning and Crisis Management (ACI) https://aci.aero/global-training/training-information/course-categories/safety/gsn-3-emergency-planning-crisis-management/		
Training method/activities	☐ CBT/Online ☒ Classroom ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Aerodrome Accident and Incident Investigation	Course Reference No.: 09	Version: 1/2020
	Reference to AOPC Matrix Table: A1-8		
Course Goal (Purpose of the course)	This course will introduce industry best practices for Accident and Incident Investigation at airports. Key concepts and issues such as the impact of human factors on increasing incidents and accidents in aviation. Through this course, participants will become able to establish mitigation measures at their own airports to reduce incidents and accidents.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Describe the type of incidents and accidents that can happen at airports. ▪ Conduct formal investigations to reduce and prevent accidents at their airport. ▪ Apply personal experience to further determine how best to prevent accidents and incidents at their airport.		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): 1) Accident and Incident Investigation (ACI); or https://aci.aero/global-training/training-information/course-categories/safety/accident-and-incident-investigation/ 2) Aircraft Accident Investigation Techniques (SAA); or https://saa.caas.gov.sg/course-details?courseTitle=aircraft-accident-investigation-techniques&courseId=1000467 3) Aircraft Accident Investigation Management (SAA); or https://saa.caas.gov.sg/course-details?courseTitle=aircraft-accident-investigation-management&courseId=1000468 4) Incident Investigation: Effective Safety Risk Management (SAA) https://saa.caas.gov.sg/course-details?courseTitle=incident-investigation:-effective-safety-risk-management&courseId=1000665		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Runway Safety Management	Course Reference No.: 10	Version: 1/2020
	Reference to AOPC Matrix Table: A1-8		
Course Goal (Purpose of the course)	Runway Safety is a significant challenge and top priority for airport operations. This training program deals with Runway Safety Management designed for airport operators. The content of this course is distilled from a wide range of guidance material from Civil Aviation Authorities, operational safety procedures from airports, guidance from ICAO and best practices from other international aviation organizations dealing with runway safety.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: • Understand the importance of runway safety at an aerodrome • Describe the key steps required to establish a runway safety team • Explain major industry best practices with regards to runway Planning and Design from a safety perspective • Describe the major requirements of runway inspections and reporting • Explain key Low Visibility Procedures required to ensure the safe operation of aircraft during low visibility conditions including the protection of Navigational Aids (NAVAIDs) • Understand the key elements of airside operations and how they impact on runway safety • Describe the key elements of runway maintenance • Explain how to manage temporary restrictions and how to disseminate this information to stakeholders • Describe the major safety measures with regards to construction associated with the operational areas of the aerodrome		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Runway Safety Management (ACI) https://www.olc.aero/product/runway-safety-management/		
Training method/activities	☒ CBT/Online ☐ Classroom ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Aerodrome Pavement Maintenance	Course Reference No.: 11	Version: 1/2020
	Reference to AOPC Matrix Table: A1-1, A1-2		
Course Goal (Purpose of the course)	This course will provide information needed to establish an effective aerodrome pavement management and maintenance program. This course will help trainees to understand the performance of pavements, how to evaluate them, the characteristics of a good pavement management and maintenance program, and current repair techniques used in the industry. This course will help airport officers make informed decisions about the maintenance of aerodrome pavements and address special considerations such as minimizing impacts on users, maximizing airport safety, and adapting to their local operating environments.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Evaluation of pavements and identification of types of distress ▪ Techniques for repairing Hot-Mix Asphalt and Portland Cement Concrete pavements ▪ Pavement management and maintenance programs ▪ Aerodrome pavement maintenance - case studies ▪ Conduct an Aerodrome Surface Inspection		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): UC Berkeley, ITS-SAA Airport Maintenance (SAA) https://saa.caas.gov.sg/		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Radiotelephone Phraseology	Course Reference No.: 12	Version: 1/2020
	Reference to AOPC Matrix Table: A1-1, A1-2, A1-5, A1-6		
Course Goal (Purpose of the course)	Radiotelephone training. ICAO standard phraseologies are developed to provide efficient, clear, concise, and unambiguous communications. Constant attention should be given to the correct use of ICAO phraseologies in all instances in which they are applicable.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Employ standard phraseology; ▪ Understand the need to use clear, concise communications;		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): <i>Note: The following training courses include Radiotelephone Phraseology</i> 1) Refer to PANS-Aerodromes – Framework for an Airside Vehicle Driver Training Programme 2) Aerodrome Inspection Course (Course reference no.: 05)		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Removal of Contaminants from Aerodrome Pavements	Course Reference No.: 13	Version: 1/2020
	Reference to AOPC Matrix Table: A1-2 and A1-8		
Course Goal (Purpose of the course)	To provide participants with Knowledge, Skills and Attitudes to enable them effectively and efficiently monitor and remove contaminants (e.g. rubber deposits, ice, snow, etc. as per local climate conditions) on aerodrome pavements and apply appropriate removal methodology to obtain the required friction level.		
Course Objective (Learning objectives)	Upon successful completion of the course, the participants will be able to: ▪ Identify causes of reduction in friction value of runway surface and its effect on aircraft movement on active runway ▪ Appreciate importance of maintaining requisite friction value on runways ▪ Measure runway friction value ▪ Identify the low-friction areas ▪ Apply appropriate contaminant removal methods considering the pavements surface material and extent of deposits		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☒ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): 1) Airport Runway Snow Removing Operations Management (Capital Airport Management Academy, China); or https://www.icao.int/training/Pages/training-catalogue-details.aspx?catid=446&language=0&region=&ITP=0 2) Runway Rubber Removal (IAA) https://www.icao.int/training/Pages/training-catalogue-details.aspx?catid=383&language=0&region=&ITP=0		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☒ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Maintenance of Markings, Signs and Markers	Course Reference No.: 14	Version: 1/2020
	Reference to AOPC Matrix Table: A1-2		
Course Goal (Purpose of the course)	The course enables the participants to interpret and implement the certification specifications related to Runways, Taxiways, Aprons and adjacent areas markings and signs, e.g. for planning purposes and future maintenance. Based on best practices, the participants will become knowledgeable about the configuration, dimensioning and design of these infrastructural elements and will learn how to fulfill relevant requirements.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to verify and maintain: ▪ Markings ▪ Signs ▪ Markers		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☒ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): 1) Airfield Pavement Markings (IAA); and https://www.icao.int/training/Pages/training-catalogue-details.aspx?catid=382&language=0&region=&ITP=0 2) Airfield Signs (IAA) https://www.icao.int/training/Pages/training-catalogue-details.aspx?catid=2426&language=0&region=&ITP=0		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Managing Works in Progress	Course Reference No.: 15	Version: 1/2020
	Reference to AOPC Matrix Table: A1-4, A1-7, A1-8		
Course Goal (Purpose of the course)	All aerodromes have to manage works in progress at some point, whether as a result of new developments or maintenance. It is therefore vital that staffs involved are able to manage the construction in a safe manner, enabling aircraft operation to continue, whilst at the same time allowing the works to carry on. This course provides detailed information on how to plan aerodrome works, ensuring the necessary documentation is produced in accordance with the Airport's Safety Management System, how the works are controlled on a day to day basis and how to bring new developments into operational status.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Effectively manage works, Risk Assessments and Compliance Statements, ensuring compliance with National and International Standards ▪ Explain how to effectively manage contractors to ensure safe operations ▪ Offer examples for managing works in the form of Case Studies as part of the learning experience ▪ Explain the need for effective and safe "Management of Change" in the Aerodrome works process		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): Managing Operations During Construction online course (ACI) https://www.olc.aero/product/managing-operations-during-construction/ ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☐ Initial ☒ On-Job-Training ☐ Recurrent ☐ Refresher ☒ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Airport Safety Course - Managing Aerodrome Works (ACI) https://aci.aero/global-training/training-information/course-categories/safety/managing-aerodrome-works/		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☒ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Title of Training Course	Escort and Follow-me Operations	Course Reference No.: 16	Version: 1/2020
	Reference to AOPC Matrix Table: A1-8		
Course Goal (Purpose of the course)	This course explains why Escort and Follow-Me Operations are required on a daily basis at airports and provides the theoretical knowledge required to undertake them.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: ▪ Understand how Escort & Follow-Me operations help to facilitate secure, safe and efficient airside operations. ▪ Recognize the similarities and differences that exist between Escort and Follow-Me operations. ▪ Explain the role and responsibilities of the driver in performing Escort and Follow-Me operations. ▪ Describe the key steps involved in conducting successful escort and follow-me operations. ▪ Understanding the procedures that must be followed when conducting Escort and Follow-Me operations. ▪ Understand the training that should be undertaken to ensure driver competence to conduct Escort and Follow-Me operations.		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Escort and follow-me online course (ACI) https://www.olc.aero/product/escort-and-follow-me-operations/		
Training method/activities	☒ CBT/Online ☐ Class room ☐ Practical/Simulator ☐ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☐ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Appendix B

Title of Training Course	Airfield Lighting including PAPI/VASIS Maintenance	Course Reference No.: 17	Version: 1/2020
	Reference to AOPC Matrix Table: A1-2		
Course Goal (Purpose of the course)	This course provides trainees an overview of Airport Electrical & Mechanical Installations and their maintenance		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: • Provide participants knowledge skill & attitude (KSAs) about Aeronautical Grounds Aids, Serviceability and Maintenance Standards at their airports and to maintain the desired serviceability levels during day-to-day operation and during changes in infrastructures and procedures. • Maintain the Airfield Lighting Systems as per ICAO Standards.		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☐ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): 1) Aeronautical Ground Aids, Serviceability standards and maintenance (IAA); or https://www.aai.aero/sites/default/files/CALENDAR%20%20ENGLISH.pdf 2) Maintenance of Airfield Lighting System (GMR Aviation Academy, India) https://gmractionacademy.org/maintainance-of-airfield-lighting-system.aspx		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☒ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

Appendix B

Title of Training Course	Maintenance of Unpaved Surfaces	Course Reference No.: 18	Version: 1/2020
	Reference to AOPC Matrix Table: A1-2		
Course Goal (Purpose of the course)	This course provides trainees the knowledge in maintenance of aerodrome unpaved surfaces.		
Course Objective (Learning objectives)	Upon successful completion of this course, participants will be able to: Gain a comprehensive knowledge in aerodrome unpaved surfaces including drainage in compliance with ICAO Annex 14.		
Prerequisites for taking this course	Title of Training Course (<i>if applicable</i>): N/A ☐ None ☒ Indoctrination/Familiarization ☐ Initial ☐ On-Job-Training		
Training Type	☐ Indoctrination/Familiarization ☒ Initial ☒ On-Job-Training ☐ Recurrent ☐ Refresher ☐ Specialized		
Course Content	Reference to the ICAO/Industry recognized training course(s) (<i>if available</i>): Landscaping (GMR Aviation Academy, India) https://gmractionacademy.org/landscaping.aspx		
Training method/activities	☐ CBT/Online ☒ Class room ☐ Practical/Simulator ☒ Practical (On-site) ☐ Factory/Manufacturer		
Assessment	☐ Attendance only (If competency test / assessment is not required) ☒ Minimum passing score: 80% (If competency test is required) ☒ Satisfactory result in on-site assessment (If assessment is required)		

Note:- Aerodrome operators and training organizations approved by State's CAA can develop and deliver a training course based on above course content.

APPENDIX C - REFERENCES

ICAO PUBLICATIONS

Convention on International Civil Aviation (Doc 7300)

Annex 14 — Aerodromes Volume I — Aerodrome Design and Operations

Annex 15 — Aeronautical Information Services

Annex 19 — Safety Management System

PANS-Aerodromes (Doc 9981)

PANS-TRG, (Doc 9868), Part I

Manual on Certification of Aerodromes (Doc. 9774)

Safety Management Manual (Doc 9859)

Airport Services Manual (Doc 9137)

Part 1.— Rescue and Fire Fighting

Part 2.— Pavement Surface Conditions

Part 3.— Wildlife Hazard Management

Part 5.— Removal of Disabled Aircraft

Part 6.— Control of Obstacles

Part 7.— Airport Emergency Planning

Part 8.— Airport Operational Services

Part 9.— Airport Maintenance Practices

Aerodrome Design Manual (Doc 9157)

Part 1.— Runways

Part 2.— Taxiways, Aprons and Holding Bays

Part 3.— Pavements

Part 4.— Visual Aids

Airport Planning Manual (Doc 9184)

Part 1.— Master Planning

Part 2.— Land Use and Environmental Control

Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476)

World Geodetic System — 1984 (WGS-84) Manual (Doc 9674)

Runway Safety Team Handbook

Runway Safety Programme – Global Runway Safety Action Plan First Edition, November 2017

OTHER PUBLICATIONS

ACI Apron Safety Handbook

ACI Runway Safety Handbook

ACI Wildlife Hazard Management Handbook

ACI Managing Operations During Construction Handbook