



**TRAINING, CERTIFICATION & REGISTRATION
REQUIREMENTS FOR AIR TRAFFIC SAFETY
ELECTRONICS PERSONNEL (ATSEP)**

AIR NAVIGATION ORDER

VERSION : 1.0
DATE OF IMPLEMENTATION : 01-01-2020
**OFFICE OF PRIME INTEREST : Technical Standards, Directorate of Airspace & Aerodrome
Regulations**



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TYPE OF DOCUMENT	AIR NAVIGATION ORDER (ANO)		
STATUS OF DOCUMENT	CONTROLLED		



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A. AUTHORITY:

This Air Navigation Order (ANO) is issued by the Director General, Pakistan Civil Aviation Authority in pursuance of powers vested in him under Rule 4 of the Civil Aviation Rules, 1994 (CARs 1994).

B. PURPOSE:

The purpose of this ANO is to prescribe training, certification and registration requirements for Air Traffic Safety Electronics Personnel (ATSEP) involved in planning, development, installation, operation, maintenance, training, calibration and inspection of **Communication, Navigation, Surveillance (CNS)** Systems.

C. SCOPE:

This ANO shall be applicable to Air Traffic Safety Electronics Personnel (ATSEP) who perform a function in CNS Services in Pakistan.

D. DESCRIPTION:

D1. DEFINITIONS:

The following terms when used in this ANO, shall have the meanings assigned to them respectively. Any term used in this ANO but not defined herein, shall have the same meaning as given in Civil Aviation Ordinance 1960, Civil Aviation Authority Ordinance 1982, Civil Aviation Rules 1994 and relevant CAA Regulations, ANOs / Circulars / Manuals, ICAO Annexes 1 to 19, as amended from time to time.

D1.1 AIR NAVIGATION SERVICES:

This term includes air traffic management (ATM), communications, navigation and surveillance systems (CNS), meteorological services for air navigation (MET), search and rescue (SAR) and aeronautical information services/aeronautical information management (AIS/AIM). These services are provided to air traffic during all phases of operations (approach, aerodrome and en-route).

D1.2 APPROVED TRAINING:

Training conducted under special curricula and supervision approved by DAAR PCAA.

D1.3 APPROVED TRAINING ORGANIZATION:

An organization approved by and operating under the supervision of PCAA or ICAO TRAINAIR Plus Programme.

D1.4 ASSESSMENT (EVIDENCE) GUIDE:

A guide that provides detailed information (e.g. tolerances) in the form of evidence that an instructor or an evaluator can use to determine whether a candidate meets the requirements of the competency standard.

D1.5 AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL (ATSEP):

ATSEP are personnel proven competent in the installation, operation and/or maintenance of a communications, navigation, surveillance/air traffic management (CNS/ATM) system, who are registered with DAAR PCAA after successful completion of ATSEP Phase 1 Training, as prescribed in this ANO.

D1.6 ATSEP (S/E):

An ATSEP who is registered with DAAR PCAA as ATSEP (S/E) after successful completion of ATSEP Phase 2 Trainings (i.e. System / Equipment specific training), as prescribed in this ANO.



D1.7 COMPETENCY:

A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

D1.8 COMPETENCY-BASED TRAINING AND ASSESSMENT:

Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

D1.9 CHICAGO CONVENTION:

The convention on International Civil Aviation signed at Chicago on 7 December 1944.

D1.10 CNS/ATM SYSTEMS:

Communications, Navigation, and Surveillance systems, employing digital technologies, including satellite systems together with various levels of automation, applied in support of a seamless global air traffic management system.

D1.11 CNS SERVICE:

Communication, Navigation, Surveillance service for the provisioning of Air Navigation Service, including:

- D1.11.1 planning, development, installation and commissioning of CNS facilities;
- D1.11.2 management, monitoring and controlling of CNS units;
- D1.11.3 operation, repair and maintenance of CNS equipment;
- D1.11.4 calibration of flight and ground radio navigation aids; and
- D1.11.5 training and certification of Air Traffic Safety Electronics Personnel (ATSEP).

D1.12 CNS SERVICE PROVIDER:

An organization operating as a separate entity or a part of an organization providing CNS Service.

D1.13 INSTRUCTIONAL SYSTEMS DESIGN (ISD):

A formal process for designing training which includes analysis, design and production, and evaluation.

D2. TRAINING & CERTIFICATION REQUIREMENTS FOR ATSEP:

D2.1 A person shall not perform a function related to CNS service, unless:

- D2.1.1 that person has successfully completed training in the performance of that function; and
- D2.1.2 the CNS Service Provider / ATO is satisfied that the technical person is competent in performing that function.

D2.2 CNS service provider shall establish a training program as well as an assessment program, containing the necessary elements to ensure that ATSEP are properly trained and assessed, to qualify for the assigned job. Following ICAO and PCAA documents are recommended, in this regard, as guidance material for development of ATSEP training programs and assessment methodologies:

- D2.2.1 ICAO Doc 10057 "Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment"
- D2.2.2 ICAO Doc 9868 "Procedures for Air Navigation Services – Training"



D2.2.3 PCAA Manual MNL-005-ARTS "Air Traffic Safety Electronics Personnel Competency-based Training and Assessment Manual

D2.3 ATSEP training program should be clearly linked to ATSEP activities taking into consideration the CNS Service Provider's Safety Management System (SMS) and Quality Management System (QMS).

D2.4 **SCOPE OF ATSEP ACTIVITIES:**

D2.4.1 ATSEP may perform tasks on a wide variety of CNS/ATM systems and equipment requiring a wide range of competencies, and expertise as well as knowledge and skills in electronics, computer sciences and networks. In addition, the ATSEP roles to be carried out may range from technician to high-level engineer.

D2.4.2 CNS Service Provider is responsible for determining the scope of its ATSEP activities by selecting the activities, as given below:

D2.4.2.1 Supervision, monitoring, control and reporting in real time of technical services, supported by electronic systems and/or equipment for CNS/ATM.

D2.4.2.2 Preventive maintenance, corrective maintenance and/or modification and updates of supporting electronic systems and/or equipment for CNS/ATM.

D2.4.2.3 Planning, development, project management, specification, conception, validation, integration, test and acceptance, safety assessment, calibration, certification, optimization and upgrade of supporting electronic systems and/or equipment for CNS/ATM, engineering activities.

D2.4.3 In addition to technical activities, as specified in sub-section D2.4.2 of this ANO, others may be added related to training / teaching or assessment, safety management, security management (e.g. networks), quality management, inspection and audit of CNS services and training facilities.

D2.4.4 With the introduction of new technologies, maintenance methods and design processes, CNS Service Providers should regularly review the scope of ATSEP activities to ensure that ATSEP maintain competencies appropriate to their current activities and with an eye to future activities. Training programs should be focused on the specific activities assigned to ATSEP within a CNS Service Provider.

D2.5 **ATSEP ASSESSMENT:**

D2.5.1 CNS Service Provider or ATO shall establish a process to validate ATSEP training and assessment, including the assessment (evidence) guide, range of variables and the knowledge and skills required for assessing the candidates.

D2.5.2 The ATSEP shall comply with all the requirements of the competency-based training program and be evaluated according to the validated assessment process, as per requirements of this ANO.

D2.6 **TRAINING METHODOLOGY:**

D2.6.1 All ATSEP competency-based training programs shall be developed with the use of a systematic methodology, such as ISD or equivalent.

D2.6.2 The competency-based training program for ATSEP shall be composed of integrated theoretical and practical instruction, as applicable.

D2.6.3 The competency-based training program for ATSEP shall include continuous evaluation of the effectiveness of the training program that is acceptable to the employing CNS Service Provider and / or DAAR PACAA. The evaluation shall ensure that:

D2.6.3.1 the competencies and related assessment are relevant to the work of ATSEP in the specific context



and environment to which they may be assigned after training;

D2.6.3.2 the trainees acquire the necessary competencies in a progressive and satisfactory manner; and

D2.6.3.3 remediation actions are taken if in-training or post-training evaluation indicates a need to do so.

D2.6.4 A competency-based training program for ATSEP shall include sufficient practical training to ensure competency is achieved, where applicable. The performance shall be at a level that is appropriate to the exercise of duty. This practical training shall be performed under the supervision of an instructor qualified and competent in the technical domain for which the certificate of competency is to be issued. In instances where practical training is provided through on-the-job training, the instructor shall be qualified and competent in the technical domain, and the training shall be conducted under the SMS of the CNS Service Provider.

Note-1. Guidelines for the implementation of competency-based training for ATSEP are contained in Appendix A to this ANO.

Note-2. The ATSEP competency framework is prescribed in Appendix "B" to this ANO.

D2.7 ATSEP SELECTION & TRAINING PHASES:

D2.7.1 To ensure global standardization, CNS Service Provider shall organize ATSEP training in the following phases:

D2.7.1.1 PHASE 0: SELECTION:

The CNS Service Providers shall select candidates in line with its ATSEP profiles and activities; and as per qualification criteria set by the ANSP/CNS Service Provider's recruitment rules and regulations.

D2.7.1.2 PHASE 1: INITIAL TRAINING:

Initial training shall be designed to provide underpinning knowledge and skills and is delivered in two parts as **basic training** applicable to all ATSEP and **qualification training** specific to ATSEP profiles. During this phase, ATSEP acquire the knowledge and skills required to subsequently undertake unit training.

D2.7.1.3 PHASE 2: UNIT TRAINING:

After successfully completing the initial training phase, ATSEP shall undergo unit training. This phase is oriented to the activities an ATSEP will perform in a specific environment. Unit training addresses theoretical and practical issues from equipment-specific and/or site-specific perspectives. It includes on-the-job training (OJT). It is in this phase that ATSEP competencies are developed and assessed.

D2.7.1.4 PHASE 3: CONTINUATION TRAINING:

The continuation training phase shall be designed to maintain competencies and prepare for system upgrades and/or modifications. It includes refresher, emergency and conversion training.

D2.7.1.5 PHASE 4: DEVELOPMENT TRAINING:

This phase focuses on the development of additional competencies as required by a change to or an evolution of an ATSEP's profile.

D2.7.2 ATSEP shall go through training at different points in their careers. Typically, ATSEP shall progress from the selection phase to the completion of the Unit Training phase. In order to maintain competency, they shall go through the continuation training phase. Additionally, an ATSEP shall require training when:

D2.7.2.1 There is a change within a system on which the ATSEP is already working. This is addressed through continuation training as provided in sub-section D2.7.1.4 of this ANO.



- D2.7.2.2 The ATSEP changes domains (e.g. from navigation to surveillance). This is addressed through either initial training or unit training as provided in sub-section D2.7.1.2 and D2.7.1.3 of this ANO.
- D2.7.2.3 Any additional system to be operated by an ATSEP is addressed through unit training as provided in sub-section D2.7.1.3 of this ANO.
- D2.7.2.4 A change of activities and associated competencies (e.g. change from maintenance operations to system implementation) is addressed through development training as provided in sub-section D2.7.1.5 of this ANO.

D2.8 EXEMPTION FROM ATSEP TRAININGS:

An Electronics personnel appointed prior to coming into force of this ANO, having successfully completed Ab-initio / Basic Training from an approved training organization (ATO) or having experience of more than five (05) years in CNS services, shall be considered equivalent to having ATSEP Phase 1 Initial Training (i.e. Basic Training and Qualification Training); and will be exempted from ATSEP Phase-1 Training, provided he / she has attended ATSEP Refresher Training of not less than a week (5 working days) duration that is acceptable to CNS Service Provider and / or DAAR PCAA.

D2.9 ATSEP TRAINING SYLLABI:

- D2.9.1 Syllabi/ curricula and assessment procedures for the Basic Training, Qualification Training, Unit Training and Refresher Training shall be prepared in compliance with guidelines provided in Appendix “A” & “B” and documents referred in section D2.2 of this ANO; and such syllabi / curricula and assessment procedures shall be approved by the competent authority of CNS Service Provider or ATO, according to the Service Provider’s procedures.
- D2.9.2 CNS Service Provider / ATO shall provide to DAAR PCAA, one set of syllabi / curricula, assessment procedures and training material of all the training programs required for registration of ATSEP as provided in this ANO.

D2.10 REGISTRATION OF ATSEP:

- D2.10.1 After successful completion of trainings (Phase 1 and Phase 2) as provided in this ANO, ATSEP competencies shall be registered with DAAR PCAA in the following categories:
 - D2.10.1.1 ATSEP
 - D2.10.1.2 ATSEP (S/E)
- D2.10.2 An applicant shall be registered as ATSEP after successful completion of Phase-1 training as prescribed in this ANO.
- D2.10.3 An applicant shall be registered as ATSEP (S/E) after successful completion of Phase-2 training, in the following CNS system / equipment specific trainings, but not limited to:

D2.10.3.1 COMMUNICATION SYSTEMS:

VHF/ EVHF	HF	VDL / HFDL/MODE-S DL	SATCOM	DVLS	AMHS	AIMS	DATIS / DVOLMET
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D2.10.3.2 NAVIGATION SYSTEMS:

NDB	VOR / DVOR	ILS/MLS	DME / TDME	GNSS / GBAS
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D2.10.3.3 SURVEILLANCE SYSTEMS:

PSR	SSR	ADS-B / ADS-C	MLAT	SMR / GMR / PAR	ATM SYSTEM	RADAR DVDR
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D2.10.4 Application for registration as ATSEP or ATSEP (S/E) shall be submitted to DAAR PCAA by filling up the prescribed Form, through head office of the respective CNS Service Provider, along with copies of Phase-1 or Phase-2 trainings, as applicable.

D2.10.5 A unique registration number shall be assigned and Registration document (e.g. Card, Booklet or any other form of document) be issued by PCAA DAAR office to each ATSEP.

D2.11 MONITORING / INSPECTION OF ATSEP TRAINING:

D2.11.1 DAAR PCAA Inspector, at all times and as deemed reasonable to them, to enter any place to which access is necessary; and carry out inspection and monitoring in the area of CNS training facility with or without prior intimation to the CNS service provider / ATO.

D2.11.2 PCAA Inspectors / Designated personnel of DAAR shall have the right to monitor and witness training activities / processes including class room and lab training, tests and assessments, OJT, or any other inspections in any way associated with ATSEP training.

D2.11.3 A CNS service provider / ATO shall, at all reasonable times, permit the designated PCAA Inspectors / Personnel of DAAR and their electronic equipment, unrestricted access to personnel, premises, products and records relevant to CNS training facility / equipment to be inspected / monitored, to determine compliance with standards and applicable regulatory requirements, limitations, conditions relating to the ATSEP training.

D3. PROTECTION & SAFE CUSTODY OF DOCUMENTS:

D3.1 All documents and information received by the Authority or the Director General relating to the safety management process and/or otherwise during the process of continuing supervision are subject to protection from public disclosure.

D3.2 The Authority or the Director General will keep all documentation and information, safely in their record, received during the initial implementation of Safety Management System, during changes in this system and use during the supervision of the Service Provider.

D4. DELEGATION OF POWERS / AUTHORITY:

The Authority or Director General may, in pursuance of Rule 5 of CARs 1994, delegate the powers exercisable under CARs 1994 and this ANO to any sub-ordinate officer of the Authority subject to all applicable limitations. Similarly, the Director General may also delegate sufficient legal authority to DAAR / CNS inspectors allowing them to carry out annual and surprise safety audits, inspections and testing as and when required.

D5. AMENDMENTS AND MODIFICATIONS:

D5.1 Any Amendment and modification to this ANO may be processed and incorporated through Director Airspace and Aerodrome Regulations (DAAR), HQCAA, as deemed appropriate; and effected with prior approval of DGCAA.

D5.2 In case of large scale amendments a revised or new issue of this ANO may be initiated.

D6. EXEMPTION:

D6.1 DGCAA may, in writing, grant exemption / waiver to a CNS Service Provider from compliance with the specified provisions of this ANO, taking into account considerations relating to the safety of air navigation.



D6.2 Validity of any exemption / waiver is dependent on the CNS Service Provider complying with any condition that DGCAA specifies in the exemption / waiver as being necessary in the interests of safety of air navigation.

D6.3 CNS Service Provider must comply with a condition specified in the exemption / waiver.

D7. INTERPRETATION:

The Director Airspace and Aerodrome Regulations (DAAR), HQCAA shall be consulted where there is any difficulty or clarification required about the interpretation of related safety regulations, requirements, associated procedures, guidance material or on any related matter.

E. EVIDENCES (ACRONYMS / RECORDS / REFERENCES):

E1. ACRONYMS:

ADS-B	AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST
AIMS	AERONAUTICAL INFORMATION MANAGEMENT SYSTEM
AMHS	ATS MESSAGE HANDLING SYSTEM
ANO	AIR NAVIGATION ORDER
ANS	AIR NAVIGATION SERVICE
ANSP	AIR NAVIGATION SERVICE PROVIDER
ATO	APPROVED TRAINING ORGANIZATION
ATS	AIR TRAFFIC SERVICES
ATSEP	AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL
ATSEP S/E	ATSEP SYSTEM / EQUIPMENT
CARs, 94	CIVIL AVIATION RULES, 1994
CATI	CIVIL AVIATION TRAINING INSTITUTE
CTO	CHIEF TECHNICAL OFFICER
CNS	COMMUNICATION, NAVIGATION & SURVEILLANCE
DAAR	DIRECTORATE OF AIR NAVIGATION AND AERODROME
DGCAA	DIRECTOR GENERAL CIVIL AVIATION AUTHORITY
DVLS	DIGITAL VOICE LOGGING SYSTEM
DVOR	DOPPLER VHF OMNIDIRECTIONAL RANGE
DVDR	DIGITAL VOICE & DATA RECORDER
GNSS	GLOBAL NAVIGATION SATELLITE SYSTEM
GBAS	GROUND BASED AUGMENTATION SYSTEM
GMR	GROUND MOVEMENT RADAR
HF	HIGH FREQUENCY
HDL	HF DATA LINK
HQCAA	HEADQUARTERS CIVIL AVIATION AUTHORITY
ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION
ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION
NDB	NON DIRECTIONAL BEACON
ILS	INSTRUMENT LANDING SYSTEM
MLAT	MULTI LATERATION
MLS	MICRO WAVE LANDING SYSTEM
OEM	ORIGINAL EQUIPMENT MANUFACTURER
PAR	PRECISION APPROACH RADAR
PSR	PRIMARY SURVEILLANCE RADAR
SARPs	STANDARD AND RECOMMENDED PRACTICES
SATCOM	SATELLITE COMMUNICATION
SMR	SURFACE MOVEMENT RADAR
SMS	SAFETY MANAGEMENT SYSTEM
SSR	SECONDARY SURVEILLANCE RADAR
VHF	VERY HIGH FREQUENCY
VDL	VHF DATA LINK



E2. RECORDS:

NIL

E3. REFERENCES:

- E3.1 Civil Aviation Authority Ordinance 1982
- E3.2 Civil Aviation Authority Ordinance 1960
- E3.3 CARs, 1994
- E3.4 ICAO Annex-1 (Personnel Licensing)
- E3.5 ICAO Doc 9868 (PANS-Training)
- E3.6 ICAO Doc 10057 (Manual on ATSEP Competency Based Training & Assessment)
- E3.7 ICAO Doc 9161 (Manual on Air Navigation Services Economics)
- E3.8 ANO-001-ARTS

IMPLEMENTATION:

This Air Navigation Order (ANO-011-ARTS-1.0) **Training, Certification & Registration Requirements for Air Traffic Safety Electronics Personnel (ATSEP)** shall be implemented with effect from **1st January 2020**.

Dated: _____

(HASSAN NASIR JAMY)

Director General
Pakistan Civil Aviation Authority

(JAVED AZIZ FAROOQI)

Director Airspace & Aerodrome Regulations

Dated: _____

File No. HQCAA/1122/511/ARTS/I



APPENDIX "A"

GUIDELINES FOR THE IMPLEMENTATION OF COMPETENCY-BASED TRAINING FOR AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL (ATSEP)

1. INTRODUCTION:

- 1.1 ICAO DOC 9868 (PANS-TRG) describes procedures for the design of a competency-based training and assessment program including those for ATSEP. These guidelines are to ANSPs /CNS Service Providers and training organizations on steps to develop an ATSEP competency-based training and assessment program.
- 1.2 This appendix provides guidance to Approved Training Organizations (ATO) and Air Navigation Services Providers (ANSPs) on the measures to be taken to facilitate efficient implementation of competency-based training for air traffic safety electronics personnel (ATSEP).

2. GENERAL CONSIDERATIONS:

- 2.1 The level of competence expected from an ATSEP should be defined, approved and agreed between the training organization and the employing ANSP / CNS Service Provider, and authorities in the case of a State-approved program. In broad terms, the ATSEP graduate is expected to have successfully completed all phases of training within the defined time frame.
- 2.2 Local implementation of the ATSEP competency framework of Appendix B to this ANO includes selecting competencies appropriate to the local context.
- 2.3 When transitioning to a competency-based training program, the general approach that is suggested is to start using the existing training program (ab-initio or equivalent) as a reference and then to progressively implement the new competency-based training program for ATSEP, using the *Manual on Competency-based Training of Air Traffic Safety Electronics Personnel* (ICAO Doc 10057).
- 2.4 This transition from an existing ATSEP training program to a competency-based approach shall be made in a progressive manner whereby successive evolutions of the training program introduce a higher level of competency-based training.

3. GUIDELINES FOR THE IMPLEMENTING AUTHORITIES:

- 3.1 The implementation of competency-based training requires blending of various types of training (theoretical and practical) with media (e.g. classroom, various levels of simulation and on-the-job training). The training program shall demonstrate the capacity to achieve training objectives using the various training means.
- 3.2 In view of the developmental nature of a first competency-based ATSEP program in a training organization or ANSP, the validation should be provisional and should be confirmed only after obtaining a satisfactory result from the first courses and after incorporating the lessons learnt into the training program.
- 3.3 All the provisions related to ATSEP training should apply as well as the principles contained in relevant guidance material, such as the *Manual on the Approval of Training Organizations* (ICAO Doc 9841).
- 3.4 One of the attributes of competency-based training, as defined in this document, is the use of a process for the continuous evaluation of the training program to ensure the effectiveness of the training and its relevance to real-time operations. This aspect of continuous evaluation is especially important during the initial implementation of an ATSEP competency-based program.
- 3.5 Oversight by the authority, as applicable, shall be exercised during the initial implementation. The training organizations or ANSP should provide regular feedback as applicable to the authority on the progress and



problems faced during delivery of the program. How this feedback is to be provided to the authority shall therefore be clearly stated as part of the validation process.

- 3.6 The success of the implementation of ATSEP competency-based training programs depends to a large measure on the effective coordination and cooperation between the authority if applicable, the training organizations and the ANSPs employing the ATSEP, and ATSEP representative bodies. Such cooperation and coordination should be encouraged and facilitated by stakeholders.



APPENDIX “B”

AIR TRAFFIC SAFETY ELECTRONIC PERSONNEL COMPETENCY UNITS, COMPETENCY ELEMENTS AND PERFORMANCE CRITERIA

1. The purpose of developing an ATSEP competency framework is to encourage standardized performance and to enable the use of existing best practices in ATSEP training and assessment.
2. The ATSEP competency framework describes the competency units, competency elements and performance criteria that shall be translated into the operating environment of the ANSP, taking into account the system and equipment qualifications.
3. The ATSEP competency framework should be used by training organizations or ANSPs as the basis for developing their own training and assessment process and should be adapted to the operational, technical and organizational environment in which the ATSEP duties will be exercised. The ANSPs or, if applicable, the authority should use the ATSEP competency framework, with due consideration for the local environment, when evaluating ATSEP training programs submitted for validation.
4. The use of a competency framework is not an obligation but is recommended in order to achieve best performance in ATSEP training.
5. It is recommended that training organizations as well as ANSPs use the ATSEP competency framework as a flexible tool to help them define the ATSEP competencies. The competency framework is generic and applies to all phases of training and assessment of ATSEP. It should be adapted to develop curricula and assessment guides that are appropriate to the phases of training and the challenges of the operating environment. Establishing different levels of taxonomy in the training to describe the required performance may be an effective method for differentiating between the performance criteria for each phase of training. The application of this taxonomy is explained in the *Manual on Competency-based Training of Air Traffic Safety Electronics Personnel* (ICAO Doc 10057).
6. The framework constitutes a high-level structure of ATSEP competencies. It may be reorganized and specified under broad categories such as: communication systems, radio navigation aids, surveillance, data processing, system monitoring and control. The proposed framework is generic and does not address the specific type of technology in use, organizational schemes or the type of maintenance conducted (corrective or preventive).
7. Certain competencies might relate exclusively to some dedicated or separate ATSEP function. This would be determined by the local organizational context.

ATSEP COMPETENCY FRAMEWORK:

Note 1. Paragraph 3 of Appendix B states that this framework should be adapted to the local context of the organization. The framework is generic and is intended to be adapted to the operating environment and challenges of the organization as well as to the professional experience of ATSEP. It does not address the specific definition of duties, sharing of tasks, qualifications and proficiency levels existing in the organization. Local implementation of this framework includes selecting competencies appropriate to their local context. The competencies in the table are not listed according to any predefined priority.

Note 2. Performance criteria defined in the following table may serve one or more of the competency units and elements. The criteria used to judge whether the required level of performance has been achieved is to be established by the ANSP and/or ATO.



Competency unit	Definition	CE no.	Competency Element	PC no.	Performance criteria Observable behavior	
1. Engineering	1. Collaborate in developing, modifying and integrating systems, networks and equipment	CE1.1	Develop specifications	PC1.1	Demonstrates technical knowledge and reasoning	
		CE1.2	Design the technical system	PC1.2	Demonstrates ability of engineering reasoning and problem solving	
		CE1.3	Support the technical system	PC1.3	Demonstrate the knowledge and reasoning of interoperability in terms of global systems and environments	
		CE1.4	Install CNS/ATM systems into an operational context	PC1.4	Demonstrates ability to set system requirements	
		CE1.5	Evaluate new technologies	PC1.5	Develops modelling of system and ensures requirements can be met	
		CE1.6	Manage system operational life cycle	PC1.6	Manages development projects effectively	
		CE1.7	Assess system performance in the performance-based operational context	PC1.7	Designs implementation process effectively	
		CE1.8	Manage resources required for CNS / ATM systems and capabilities	PC1.8		Tests, verifies, validates and certifies new systems, equipment or installations
				PC1.9		Supports system and equipment implementation
				PC1.10		Optimizes systems and network elements
				PC1.11		Supports system life cycle
				PC1.12		Anticipates and organizes system and equipment decommissioning
				PC1.13		Contributes to risk management processes
				PC1.14		Determines, prescribes and ensures compliance of systems and network elements with the performance-based operational context
				PC1.15		Manages system resources and safeguards them (e.g. frequency spectrum)
2. Situational awareness	2. Comprehend the current status of the ATM system and anticipate future events	CE2.1	Maintain awareness of the system status	PC2.1	Monitors the CNS/ATM systems in own area of responsibility and contributing areas as well	
		CE2.2	Maintain awareness of the global system environment	PC2.2	Monitors the environmental conditions that have an impact on own and adjacent areas of responsibility and understands the impact on systems and services	



Competency unit	Definition	CE no.	Competency Element	PC no.	Performance criteria Observable behavior		
		CE2.3	Maintain awareness of the operational situation	PC2.3	Monitors the relevant elements of the ATC operational situation		
		CE2.4	Maintain awareness of hazard situations	PC2.4	Maintains awareness of the people involved in or affected by the operation		
		CE2.5	Anticipate the future situation	PC2.5	Obtains information from all available monitoring sources		
				PC2.6	Analyses information from all available monitoring sources		
				PC2.7	Predicts future system load (e.g. network, computing capacity and other parameters)		
				PC2.8	Identifies potentially hazardous situations		
				PC2.9	Checks for data integrity		
		3.Service provision	3.Ensure availability and reliability of CNS/ATM systems and capabilities	CE3.1	Monitor the system	PC3.1	Uses systems monitoring and diagnostic capabilities effectively
				CE3.2	Analyse anomalies in CNS / ATM systems	PC3.2	Evaluates the operational consequences of CNS/ATM system anomalies or failures
CE3.3	Implement solutions to ensure continuity of services			PC3.3	Switches from monitoring to intervention in a timely manner		
				PC3.4	Uses prescribed operation procedures properly		
				PC3.5	Ensures that technical interventions take into account the ATC operational situation		
				PC3.6	Coordinates technical interventions with other technical units, the different stakeholders and ATC		
				PC3.7	Monitors the execution of technical interventions		
				PC3.8	Uses a variety of methods to effectively manage system anomalies and degraded situations		
4.Coordination	4.Manage coordination with operational stakeholders and with other affected stakeholders	CE4.1	Coordinate overall system status and associated resources	PC4.1	Coordinates effectively with internal stakeholders		
		CE4.2	Coordinate actions with different stakeholders	PC4.2	Coordinates effectively with external stakeholders		
		CE4.3	Report safety-critical information	PC4.3	Selects the coordination method based on circumstances and in a timely manner		



Competency unit	Definition	CE no.	Competency Element	PC no.	Performance criteria Observable behavior
		CE4.4	Coordinate handover activities	PC4.4	Uses common coordination terminology as required by the prescribed operational procedures
				PC4.5	Adjusts timing of coordination, taking into account current factors affecting the technical team
				PC4.6	Conducts effective briefings during position handovers and transfer of maintenance tasks
5.Management of non-routine situations	5.Detect and respond to emergency and unusual situations related to the ATC operation and/or CNS/ATM systems and capabilities	CE5.1	Manage emergency and unusual situations	PC5.1	Recognizes, from the information available, the possibility of an emergency, urgent or degraded situation developing
		CE5.2	Manage degraded modes of CNS/ATM systems and capabilities	PC5.2	Determines the nature of the emergency
		CE5.3	Provide assistance during degraded phases	PC5.3	Prioritizes actions based on the urgency of the situation
		CE5.4	Inform stakeholders of potentially hazardous events	PC5.4	Follows prescribed procedures for responding to non-routine situations
				PC5.5	Follows prescribed procedures for communication and coordination of urgent situations
				PC5.6	Creates solutions when no procedure exists for responding to non-routine situations
				PC5.7	Identifies potentially hazardous events requiring coordination with stakeholders
6.Problem solving and decision making	6.Find and implement solutions for identified hazards and associated risks	CE6.1	Determine possible solutions to an identified problem	PC6.1	Takes into account the existing rules and operating procedures when determining possible solutions to a problem
		CE6.2	Prioritize effectively	PC6.2	Implements a chosen solution to a problem
		CE6.3	Manage risks effectively	PC6.3	Organizes tasks in accordance with determined priorities
				PC6.4	Applies appropriate mitigation strategies for the identified hazards
				PC6.5	Works through problems without reducing safety



Competency unit	Definition	CE no.	Competency Element	PC no.	Performance criteria Observable behavior
				PC6.6	Considers expediency and efficiency in decision making
7. Self-management and continuous learning	7. Demonstrate personal attributes that improve performance and maintain an active involvement in self-learning and self-development	CE7.1	Manage stress in an appropriate manner	PC7.1	Takes responsibility for own performance, detecting and resolving own errors
		CE7.2	Self-evaluate to improve performance	PC7.2	Improves performance through self-evaluation of the effectiveness of actions
		CE7.3	Use feedback to improve performance	PC7.3	Seeks and accepts feedback to improve performance
		CE7.4	Adapt to the demands of a situation as needed	PC7.4	Maintains self-control and performs adequately in adverse situations
		CE7.5	Engage in continuous development activities	PC7.5	Changes behavior and responds as needed to deal with the demands of the changing situation
				PC7.6	Maintains awareness of developments in aviation and technological evolution
				PC7.7	Participates in learning activities
8. Workload management	8. Use available resources to prioritize and perform tasks in an efficient and timely manner	CE8.1	Adapt to differing workload conditions	PC8.1	Manages tasks effectively in response to current and future workload
		CE8.2	Identify where and when assistance is needed	PC8.2	Determines if and when support is necessary based on workload
		CE8.3	Request assistance when and where required	PC8.3	Delegates tasks when necessary to reduce workload
		CE8.4	Manage time effectively	PC8.4	Selects appropriate tools, equipment and resources to support the efficient achievement of tasks
		CE8.5	Use available tools efficiently and effectively	PC8.5	Contributes to balancing team workload in normal and non-routine situations
9. Teamwork	9. Operate as a team member	CE9.1	Foster an atmosphere of open communication	PC9.1	Provides feedback constructively
		CE9.2	Encourage team participation and cooperation	PC9.2	Shows respect and tolerance for other people
		CE9.3	Use feedback to improve overall team performance	PC9.3	Carries out actions and duties in a manner that supports a team environment
				PC9.4	Uses negotiating and problem-solving techniques to manage unavoidable conflict when encountered



Competency unit	Definition	CE no.	Competency Element	PC no.	Performance criteria Observable behavior
				PC9.5	Raises relevant concerns in an appropriate manner
				PC9.6	Accepts feedback constructively
				PC9.7	Shares experiences with the aim of continuous improvement
10.Communication	10. Communicate effectively in all situations	CE10.1	Select appropriate methods of communication	PC10.1	Selects communication methods that take into account the requirements of the situation
		CE10.2	Use effective verbal communication	PC10.2	Speaks clearly, accurately and concisely
		CE10.3	Use effective written and other non-verbal communication	PC10.3	Uses appropriate vocabulary and expressions for communications with stakeholders
				PC10.4	Demonstrates active listening by asking relevant questions and providing feedback
				PC10.5	Verifies comprehension of counterparts and corrects as necessary
				PC10.6	Where applicable, uses eye contact, body movements and gestures that are consistent with verbal messages
				PC10.7	Interprets non-verbal communication correctly