ICAO

Doc 9868

PROCEDURES FOR AIR NAVIGATION SERVICES

Training

Third Edition, 2020

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

Appendix 2 to Chapter 2

ICAO COMPETENCY FRAMEWORK
FOR AIR TRAFFIC CONTROLLERS

1.   The ICAO competency framework for air traffic controllers provides the basis that shall be used to develop an adapted competency model suitable for the ANSPs.

2.   ATOs or ANSPs shall use the adapted competency model to develop their training programmes.

3.   The ICAO competency framework for air traffic controllers is generic and applicable to broad rating categories such as area, approach and aerodrome. The framework is independent of the type of equipment in use or of the major areas of application (en-route, approach, tower, etc.) or of the sharing of tasks on the controller working position.

4.   The principles of threat and error management should be integrated in the development of competency-based training and assessment programmes.

Note.— Guidance on threat and error management in air traffic control operations and on the collection of related data is contained in Circular 314, Threat and Error Management (TEM) in Air Traffic Control, *and Doc 9910,* Normal Operations Safety Survey (NOSS).

ICAO COMPETENCY FRAMEWORK FOR AIR TRAFFIC CONTROLLERS

Note.— This framework needs to be adapted to the local context of the organization. The competencies and observable behaviours in the table below are not listed according to any pre-defined priority. Observable behaviours may include, but are not limited to, the observable behaviours listed in the table below.

Competency	Definition	Observable behaviours (OB)	
Situational awareness	Comprehend the current operational situation and anticipate future events	OB 1.1	Monitors air traffic in own area of responsibility and nearby airspace
		OB 1.2	Monitors the meteorological conditions that impact on own area of responsibility and nearby airspace
		OB 1.3	Monitors the status of the ATC systems and equipment
		OB 1.4	Monitors the operational circumstances in nearby sectors to anticipate impact on own situation
		OB 1.5	Scans all available sources of information
		OB 1.6	Acquires information from available surveillance and flight data systems, meteorological data, electronic data displays and any other means available
		OB 1.7	Integrates information acquired from monitoring and scanning into the overall picture
		OB 1.8	Analyses the actual situation based on information acquired from monitoring and scanning

Competency	Definition	Observable behaviours (OB)
		OB 1.9 Interprets the situation based on the analysis
		OB 1.10 Anticipates the future operational situation
		OB 1.11 Identifies potential threats (e.g. high traffic volumes, mountainous terrain, complex airspace infrastructure, complex ATC procedures, adverse weather, unserviceable navigational equipment, flight crew unfamiliar with airport or procedures)
		OB 1.12 Verifies that information is accurate and interpretation are correct
		OB 1.13 Uses available tools to monitor, scan, comprehend and anticipate operational situations

Competency	Definition	Observable behaviours (OB)	
Traffic and capacity management	Ensure a safe, orderly and efficient traffic flow and provide essential information on environment and potentially hazardous situations	OB 2.1	Manages traffic using prescribed procedures
		OB 2.2	Issues clearances and instructions that take into account aircraft performance, terrain obstacles, airspace constraints and weather
		OB 2.3	Uses a variety of techniques to effectively manage the traffic (e.g. speed control, vectoring, traffic sequencing, assigning climb/descent rate)
		OB 2.4	Increases safety margins when deemed necessary
		OB 2.5	Takes action when appropriate to ensure that demand does not exceed sector capacity
		OB 2.6	Maintains focus despite varying traffic levels
		OB 2.7	Reacts appropriately to situations that have the potential to become unsafe
		OB 2.8	Issues clearances and instructions to the flight crew that result in an efficient traffic flow
		OB 2.9	Issues appropriate clearances and instructions
		OB 2.10	Issues clearances and instructions in a timely manner
		OB 2.11	Uses available tools to reduce delays and optimize flight profiles
		OB 2.12	Issues information on the runway conditions, status of airspace, aerodrome resources and status of facilities in a timely manner
		OB 2.13	Issues hazard and safety alerts to the flight crews when necessary
		OB 2.14	Issues traffic proximity information to flight crews in a relevant, accurate and timely manner
		OB 2.15	Issues weather information to flight crews when necessary

Competency	Definition	Observable behaviours (OB)
Separation and conflict resolution	Manage potential traffic conflicts and maintain separation	OB 3.1 Detects potential traffic conflicts
		OB 3.2 Selects the appropriate separation method
		OB 3.3 Applies appropriate separation and spacing
		OB 3.4 Issues clearances and instructions that ensure separation is maintained
		OB 3.5 Issues clearance and instructions that resolve conflicts
		OB 3.6 Resolves conflicts through coordination with adjacent sectors or units
		OB 3.7 Monitors the execution of separation actions
		OB 3.8 Adjusts control actions, when necessary, to maintain separation
		OB 3.9 Takes corrective action to restore appropriate separation as soon as possible when below minima
Communication	Communicate effectively in all operational situations	OB 4.1 Selects communication mode that takes into account the requirements of the situation, including speed, accuracy and level of detail of the communication
		OB 4.2 Speaks clearly, accurately and concisely
		OB 4.3 Uses standard radiotelephony phraseology, when prescribed
		OB 4.4 Adjusts speech techniques to suit the situation
		OB 4.5 Demonstrates active listening by asking relevant questions and providing feedback
		OB 4.6 Verifies accuracy of read backs and corrects as necessary
		OB 4.7 Uses plain language when standardized phraseology does not exist or the situation warrants it
		OB 4.8 Where applicable, uses eye contact, body movements and gestures that are consistent with verbal messages and the environment
		OB 4.9 Writes or inputs messages according to protocol or in a clear and concise manner where protocol does not exist
		OB 4.10 Communicates relevant concerns and intentions
		OB 4.11 Verifies accuracy of system inputs and corrects as necessary

Competency	Definition	Observable behaviours (OB)
Coordination	Manage coordination between personnel in operational positions and with other affected stakeholders	OB 5.1 Determines the need for coordination OB 5.2 Coordinates with personnel in other operational positions and other stakeholders, in a timely manner OB 5.3 Selects coordination method based on circumstances, including urgency of coordination, status of facilities and prescribed procedures OB 5.4 Coordinates the movement, control, transfer of control and changes of previously coordinated data for flights using the prescribed coordination procedures OB 5.5 Coordinates changes of status of operational facilities such as equipment, systems and functions OB 5.6 Coordinates changes of status of airspace and aerodrome resources OB 5.7 Uses clear and concise terminology for verbal coordination OB 5.8 Uses standard ATS message formats and protocol for non-verbal coordination OB 5.9 Uses clear and concise non-standard coordination methods when required OB 5.10 Conducts effective briefings during position handover
Management of non-routine situations	Detect and respond to emergency and unusual situations related to aircraft operations and manage degraded modes of ATS operation	OB 6.1 Recognizes, from the information available, the possibility of an emergency or unusual situation developing OB 6.2 Verifies the nature of the emergency OB 6.3 Prioritizes actions based on the urgency of the situation OB 6.4 Selects the most appropriate type(s) of assistance that can be given OB 6.5 Follows prescribed procedures for communication and coordination of urgent situations OB 6.6 Provides assistance and takes action, when necessary, to ensure safety of aircraft in area of responsibility OB 6.7 Detects that ATS systems and/or equipment have degraded OB 6.8 Assesses the impact of a degraded mode of operation OB 6.9 Follows prescribed procedures for managing, coordinating and communicating a degraded mode of operation OB 6.10 Creates solutions when no procedure exists for responding to non-routine situations
Problem solving and decision making	Find and implement solutions for identified threats and associated undesired states	OB 7.1 Takes into account the existing rules and operating procedures when determining possible solutions to a problem OB 7.2 Uses appropriate tools to interrogate relevant systems as prescribed to assist in determining possible solutions to a problem OB 7.3 Implements an appropriate solution to a problem OB 7.4 Establishes which situations have the highest priority OB 7.5 Organizes tasks in accordance with an appropriate order of priorities

Competency	Definition	Observable behaviours (OB)
		OB 7.6 Applies an appropriate mitigation strategy for the threats identified
		OB 7.7 Perseveres in working through problems without impacting safety
Self-management	Demonstrate personal attributes that improve performance and maintain an active involvement in self-learning and self-development	OB 8.1 Takes responsibility for own performance, detecting and resolving own errors
		OB 8.2 Improves performance through self-evaluation of the effectiveness of actions
		OB 8.3 Maintains self-control in adverse situations
		OB 8.4 Responds as needed to deal with the demands of the changing situation

Competency	Definition	Observable behaviours (OB)
Workload management	Use available resources to prioritize and perform tasks in an efficient and timely manner	OB 9.1 Manages tasks effectively in response to current and future workload OB 9.2 Manages interruptions and distractions effectively OB 9.3 Determines if and when support is necessary based on workload OB 9.4 Asks for help, when necessary OB 9.5 Delegates tasks when necessary to reduce workload OB 9.6 Accepts assistance, when necessary OB 9.7 Adjusts the pace of work according to workload OB 9.8 Selects appropriate tools, equipment and resources to support the efficient achievement of tasks OB 9.9 Uses the automated capabilities of ATS equipment to improve efficiency
Teamwork	Operate as a team member	OB 10.1 Provides both positive and negative feedback constructively OB 10.2 Accepts both positive and negative feedback objectively OB 10.3 Shows respect and tolerance for other people OB 10.4 Carries out actions and duties in a manner that fosters a team environment OB 10.5 Manages interpersonal conflicts to maintain an effective team environment OB 10.6 Uses negotiating and problem-solving techniques to help resolve unavoidable conflict when encountered OB 10.7 Raises relevant concerns in an appropriate manner OB 10.8 Anticipates and responds appropriately to the needs of others

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