



Course Description

Performance-based Navigation (PBN) II - ANSP Implementation, Operational Approval, Role of the Regulator

Activity Code: TCVT-21 (Elective course / Diploma in **Management of Air Navigation Systems** OR Diploma in **Air Traffic Management**).

General description

Performance-based Navigation II is a 5 day course that addresses the implementation and approval processes for PBN navigation specifications from the points of view of States, civil aviation regulators, air navigation service providers and aircraft operators.

How you will benefit

You will benefit by learning about:

- PBN navigation specifications, and in particular ICAO Doc 9613 AN/ 937 Performance-based Navigation Manual;
- PBN obligations and implementation guidance for States, regulators, ANSPs and air operators;
- Operational approval and compliance processes;
- Documentation and promulgation of information relating to PBN navigation specifications.
- Emphasis will be placed on practical exercises.

Designed for:

All managers responsible for the implementation and approval of a PBN navigation specification:

- Flight Instrument Procedure and Airspace Design/Planner managers
- Air Navigation Service Provider and Air Traffic Control managers
- Aircraft operators and airline managers
- Civil Aviation Authorities/ Regulator managers

Course Content

The approval process will be examined from the point of view of the State, the regulator the ANSP and the aircraft operator.

Air operators will learn how to obtain operational approvals.

ANSPs will also learn how to draft the necessary aeronautical information circulars to promulgate new RNAV procedures.



During the course the following topics will be covered:

History and evolution of the ICAO Performance-based Navigation (PBN) Concept

- Overview of PBN I - FANS, CNS/ATM, RNP/RNAV, etc.
- PBN in relation to existing and future airspace structures
- RNP and RNAV Navigation Specifications
- Enroute, Terminal Manoeuvring Area (TMA) and Approach Navigation Specifications

Implementation Guidance for Air Navigation Service Providers

- Simplified and harmonized airspace utilization
- Airspace utilization and management
- Flexible Use of Airspace
- Assessment of navigation infrastructure in support of PBN

Airspace planning and design

- Objectives of airspace planning and design
- Airspace Concept
- Navigation application, specification and infrastructure
- Important aspects of planning
- Implementing the plan

Introduction to the Implementation Process - Planning, Implementation Guidance and HAZID for Air Navigation Service Providers

- ANSP Obligations
- Determining requirements
- Identifying the relevant Navigation Specification for Enroute and the TMA
- Practical exercise to apply the correct Navigation Specification

Stakeholder uses of PBN

- Airspace planning, usually an ANSP responsibility, defines operational requirements for new or existing procedures.
- Procedures design involves coordination between airspace planners and the procedure design office to define new procedures in accordance with ICAO PANS-OPS.
- The designated engineering authority, usually an ANP responsibility carried out under the regulatory charter, assesses that the navigation signals in space of both ground- and space-based navigation equipment meet the appropriate requirements to support a specific procedure.
- Flight inspection office, conducts the flight inspection to validate RNAV or RNP procedures and supporting facilities.

Operational Approvals and promulgation of aeronautical information relating to PBN

- Operational and Functional Requirements for PBN Navigation Specifications
- The Approval Process



- Evaluation, Application and Issuance of PBN Approval to ANSPs and Aircraft Operators
- Group exercise on the PBN approval process
- How to obtain an Operational Approval for a PBN Navigation Specification
- Documentation and promulgation of Orders, Advisory Circulars (ACs), Acceptable Means of Compliance (AMC), Navigation Specifications and Operations Specifications (Ops Specs) so that States and regulators can meet their approval obligations.
- Practical exercise to write an implementation Aviation Information Circular (AIC)

Evaluation, Application and Issuance of PBN Approval to ANSPs and Aircraft Operators by the regulator

- Operational Approval Review
- Exam
- Course evaluation
- Graduation ceremony
- Closing