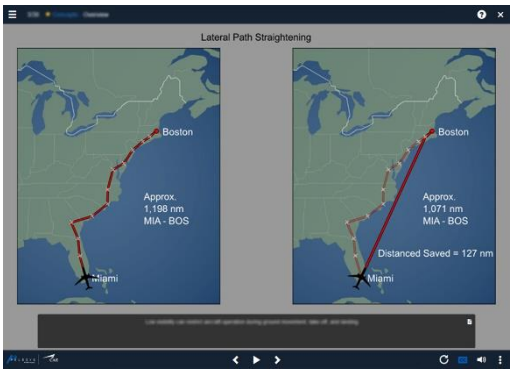
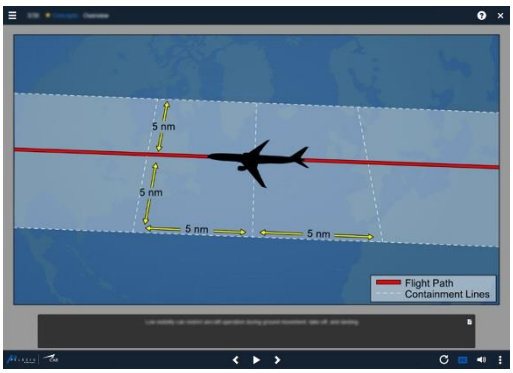
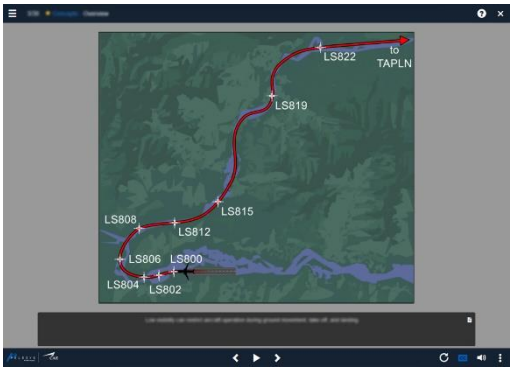
PBN OPERATIONS
2019-2020







SUMMARY

The Pelesys PBN Operations course has been developed in response to significant changes in Performance Based Navigation which resulted from the publication of ICAO PBN Manual Revision 004 (Doc 9613). The material covers PBN concepts, and details the framework for the application of the RNAV and RNP Navigation Specifications to Airspace Concepts, operational requirements including Onboard Performance Monitoring and Receiver Autonomous Integrity Monitor with and without onboard Fault Detection and Exclusion, and contingency operations in Performance Airspace. The course also details the application of PBN to Terminal, Approach and Missed Approach Operations, including RNP Approach and RNP Approval Required applications.

TARGET POPULATION

The Pelesys PBN Operations course is designed for Professional Pilots requiring initial or recurrent training.

REGULATORY COMPLIANCE

- ICAO / EASA / FAA / Transport Canada
- Maintain compliance with IOSA standards

Versions Available:
Jeppesen
Lido

Course Length:
2 hr 45 min

LESSON 01: PBN Concepts

In this lesson we cover:

- Definitions of PBN elements
- General features of and differences between RNP and RNAV Navigation Specifications
- PBN Architecture
- Performance criteria for PBN airspace operations
- Receiver Autonomous Integrity Monitor (RAIM) description
- Common contingencies for abnormal operations in PBN Airspace

LESSON 02: PBN Airspace Applications

In this lesson, we cover:

- The definition and application of Airspace Concepts
- The definition and application of Navigation Specifications within various Airspace Concepts
- The interrelationship between Navigation Specifications, NAVAID structure, and Navigation Applications
- Planned future enhancements to PBN

LESSON 03: Area Navigation (RNAV) Applications

In this lesson, we cover:

- Area Navigation as it applies to the RNAV Navigation Specification
- Use of the RNAV Specification for Enroute, Terminal, Approach and Missed Approach Applications
- Specific information and requirements for RNAV 10, RNAV 5, RNAV 1 and 2, P-RNAV and B-RNAV
- Contingencies specific to RNAV Applications

LESSON 04: RNP Applications

In this lesson, we cover:

- Area Navigation as it applies to the RNP Navigation Specification
- Performance Accuracy requirements for various RNP applications
- Specific information and requirements for RNP 10, RNP 4, RNP 2, RNP 1 and Advanced RNP
- RAIM requirements for PBN including Fault Detection and Exclusion Capabilities
- Required Navigation Accuracy and Actual Navigation Accuracy requirements and depiction within aircraft systems
- Contingencies specific to RNP Applications

LESSON 05: RNP APCH – LNAV and LNAV / VNAV Minima

In this lesson, we cover:

- Approach criteria for the application of RNP Approach to LNAV and LNAV / VNAV minima
- Differences between LNAV and LNAV / VNAV minima
- The use of vertical navigation (VNAV) during these approaches
- Operating procedures for RNP APCH to LNAV and LNAV / VNAV minima
- Additional requirements for operations in the approach and missed approach environments

LESSON 06: RNP APCH – LP and LPV Minima

In this lesson, we cover:

- Satellite Based Augmentation Systems (SBAS)
- Approach criteria for Localizer Performance (LP) or Localizer Performance with Vertical Guidance (LPV) minima
- Requirement for augmented GPS (e.g. WAAS) to provide vertical descent information

LESSON 07: RNP AR

In this lesson, we cover:

- Approach criteria for the application of Required Navigation Performance with Authorization Required (RNP AR)
- The use of vertical navigation (VNAV) during RNP AR compliant approaches
- Operating procedures for RNP AR
- Additional requirements for operations in the approach and missed approach environments

LEARNING TIME AND RUN TIME

This course has a learning time of: (run time plus additional time per page to account for understanding learning points)

- 2 hr 45 min (Jeppesen / Lido)

This course has a run time of: (the base time for each page to be completed)

- 1 hr 58 min (Jeppesen / Lido)

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
PBN Concepts	19
PBN Airspace Applications	7
Area Navigation (RNAV) Applications	19
RNP Applications	13
RNP AR	14
	72

REFERENCE MATERIAL

This course is based upon information contained in the following documents:

FAA

- FAA AC 90-105A - Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace
- FAA ETOPS AC 91-70B - Oceanic and Remote Continental Airspace Operations – Document Information
- FAA AC 90-100A - U.S Terminal and En Route Area Navigation (RNAV) Operations with Change 2
- FAA PBN ADS B Operations AC 90-114
- FAA AC 90-101A - Approval Guidance for Required Navigation Performance (RNP) Procedures with Authorization Required (AR) Including Change 1

ICAO

- ICAO DOC 9613 – Performance Based Navigation Manual – 4th Ed.

TC

- Transport Canada Advisory Circular (AC) No. 700-038 Performance-based Navigation (PBN) – Enroute
- Transport Canada Advisory Circular (AC) No. 700-015 En Route Area Navigation Operations RNAV 5 (Formerly B-RNAV)
- Nav Canada PERFORMANCE-BASED NAVIGATION (PBN) Operations Plan June 2017
- Nav Canada AERONAUTICAL INFORMATION CIRCULAR 30/12 EQUIVALENCY FOR REQUIRED NAVIGATION PERFORMANCE CAPABILITY IN FP2012

The operator remains responsible for obtaining approval from the regulatory authority.

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