



SUMMARY

The Pelesys International Procedures course is a compilation of modules dedicated to providing initial and recurrent training for pilots operating in International Airspace.

The course modules are set up to separate the overall material by subject matter. This allows for the modules to be taken and completed individually.

In addition to meeting the most stringent regulatory compliance requirements, this course is updated annually to remain compliant as regulations and procedures develop and change.

(Note these course modules are also available as stand-alone versions.)

TARGET POPULATION

The Pelesys International Procedures course is designed for corporate flight crew requiring initial or recurrent training.

REGULATORY COMPLIANCE

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

Versions Available:
Business Aviation Training
(BAT)
Airline Training (CAT)

Course Length:
11:00

MODULE 1: Performance Based Navigation (PBN) Enroute and Terminal Concepts

This module contains a complete presentation of PBN – Enroute and Terminal, including:

- 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
- 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
- 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
- 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
- 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
- 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
- Approach criteria for the application of Required Navigation Performance with Authorization Required (RNP AR)

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Course Length:
11:00

- 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

This course has a run time of:

- 1 hr. 58 min

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 - PBN

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

ICAO

- ICAO DOC 9613 – Performance Based Navigation

EASA

- GM1 SPA.PBN.100
- SPA.PBN.105

Versions Available:
**Business Aviation Training
 (BAT)**
Airline Training (CAT)

Course Length:
11:00

FAA

- AC 91-70B
- AC 90-105A
- AC 90-113A
- AC 90-101A
- AC 90-107
- Ac 90-100A

TC

- AC 700-038
- AC 700-006

MODULE 2 – Global Navigation Satellite Systems (GNSS)

This module contains a complete presentation of Global Navigation Satellite Systems (GNSS), including:

- Description of Global Navigation Satellite Systems (GNSS)
- Components
- Operating principles
- Benefits
- User requirements
- Operation
- RAIM
- Abnormal situations
- Approach structure
- GNSS overlay approaches
- RNAV GPS approaches
- RNP AR approaches
- Abnormal situations
- Human Factors in GNSS/FMS

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)

- 1 hr 20 min
- This course has a run time of: (the base time for each page to be completed)
- 1hr 07 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
Introduction	9
Navigation	7
Approaches	5
Human Factors	5
	26

MODULE 3 – Extended Twin-Engine Operations (ETOPS)

This module contains a complete presentation of ETOPS, including:

- ETOPS definitions
- ETOPS regulations
- Background
- Benefit
- Diversion speed
- Diversion distance
- Area of Operations
- Adequate airports / aerodromes
- Suitable airports / aerodromes
- ETOPS alternate airports
- Equal Time Points (ETPs)
- ETOPS range limits
- Extended range area
- Maximum Diversion Time
- Maximum Diversion Distance
- Weather criteria
- Time of intended operation
- ETOPS Entry Point (EEP)
- ETOPS Exit Point (EXP)
- Weather planning minima for ETOPS alternate airports
- Alternate requirements
- Dispatch weather minimums
- Fuel planning
- Critical Fuel Scenarios
- Additional fuel requirements
- Computerized Flight Plan
- Use of departures / destinations as alternates
- Fuel planning scenarios
- MEL / CDL considerations
- ETOPS Verifications Flights
- Weather monitoring
- Loss of suitability
- Changes in magnetic variation
- Defect reporting
- In-flight alternate requirements
- Fuel monitoring
- ETOPS sector entry
- Decision making

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)

- 50 min (EASA / FAA)

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

- 24 min (EASA / FAA)

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	EASA Questions	FAA Questions
Concepts	3	3
Definitions	6	7
ETOPS Planning Considerations	7	7
In-Flight Considerations	4	4
	20	21

REFERENCE MATERIAL - ETOPS

The Pelesys Extended Twin-Engine Operations Course provides pilots and operators with information in support of ETOPS. It is based on information outlined in:

ICAO

- Doc 7030

EASA

- SPA.MNPS.100
- SPA.MNPS.105
- MNPS and the procedures governing their application are published in the Regional Supplementary Procedures and National AIPs

FAA

- AC 91-70B
- AC 120-42B
- FAR 121 APP
- FAR 121 Sub H
- FAR 121 Sub U
- FAR 121.135
- FAR 121.624
- FAR 121.625
- FAR 121.631
- FAR 121.633
- FAR 121.646
- FAR 121.687
- FAR 121.7
- FAR 121.99
- FAR 25 Sub G
- FAR 25 Sub L
- FAR 25-1535

MODULE 4 – Controller Pilot Datalink Communications (CPDLC) using Automatic Dependent Surveillance (ADS)

This module contains a complete presentation of CPDLC ADS, including:

- CPDLC
- ADS-B
- ADS-C
- Ground service providers
- PBCS
- Flight planning requirements
- CPDLC components in Boeing / Airbus aircraft
- Typical MFD functions supporting CPDLC
- Crew alerting such as EICAS
- CDU displays and CPDLC
- System initialization
- Vertical request
- Lateral clearance
- Free text messages
- ATC reports
- Emergency messages
- Loss of communication
- ATC data link failure

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)

- 1 hr 30 min

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

42 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Airbus Questions	Boeing Questions
System Components / Ground Service Providers	18	17
General Procedures	4	4
CPDLC Equipment Installation	4	4
CPDLC Operation	6	6
ADS-A and ADS-B Equipment Installation	3	3
ADS-A and ADS-B Operation	4	4
	39	38

REFERENCE MATERIAL

This course provides the core elements of the CPDLC training, ground school component outlined in the:

ICAO

- Data Communications Implementation Team Tower Data Link Services Controller Pilot Data Link Communication Departure Clearance Service (CPDLC-DCL) Flight Deck User Guide
- Doc 9869 Performance based Communications and Surveillance
- Global Operational Data Link Document (GOLD)

EASA

- Acceptable Means of Compliance (AMC) 20-24
- GM1 SPA.PBN.100 PBN Operations

FAA

- A056 – Compliance Guide
- AC 20-160A
- AC 90-114
- AC 90-117

MODULE 5 – North Atlantic Tracks High Level Airspace (NAT HLA)

This module contains a complete presentation of NAT HLA, including:

- North Atlantic High-Level Airspace (NAT HLA)
- Canada Minimum Navigation Performance Specification Airspace (CMNPS)
- CMNPS transition airspace
- Canada Required Navigation Performance Capability (RNP)
- Structure airspace in Canada
- WATRS Plus Airspace
- Reduced Vertical Separation Minimum (RVSM)
- Required Navigation Performance (RNP)
- PBCS Routes in the OTS
- ASEPS Trial Information and Operating Provisions
- North American routes (NAR)
- North Atlantic Routing Scheme (NERS)
- Arctic Control Area Tracks
- The use of routes in Northern Control Area Tracks
- The use of routes in Southern Control Area Tracks
- The use of routes in Western Atlantic Route Structure (WATRS)
- Blue Spruce Routes
- Aeradio
- Selective calling (SELCAL) and transponder
- HF theory
- Standard HF air-ground message types and formats
- Meteorological reports
- When-Able-Higher (WAH)
- Aeradio Operators

- Controller Pilot Datalink Communication (CPDLC)
- Oceanic clearance procedures
- Flight planning
- MEL Items
- Preflight actions
- Flight plan data entry
- Oceanic clearance
- Navigation accuracy
- Transponder operation
- MET reports
- SLOP
- Position plotting
- Company specific Standard Operating Procedures related to contingencies
- Contingency Procedures in PBCS / ASEPS
- Special Emphasis Items for Half-degree Waypoint Insertion

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)

- 1 hr 30 min

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

- 1 hr 09 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
Special Use Airspace Including NAT HLA and MNPS	8
Route Structures	5
Communications	8
Normal Procedures	1
Contingency Procedure	4
	26

REFERENCE MATERIAL

The Pelesys NAT HLA Operations course provides information to pilots and dispatchers regarding operations in the North Atlantic Track Structure. Supplementary information regarding operations in the NAT can be found in the High-Altitude Operations, PBN and GPS Courses. This course is based on information contained in:

ICAO

- Doc 9613 Performance Based Navigation
- Doc 4444 PANS-ATM
- NAT Data Link Phase 2
- NAT Doc 007
- NAT OPS Bulletin 2017_001
- NAT OPS Bulletin 2018_003
- NAT OPS Bulletin 2018_004

- NAT OPS Bulletin 2018_005
- NAT OPS Bulletin 2018_006
- NAT OPS Bulletin 2019_001
- NAT OPS Bulletin 2019_002
- NAT OPS Bulletin 2019_003

EASA

- SPA.PBN.105

FAA

- AC 20-138
- AC 90-125
- AC 91-70B

TC

- AC 100-001
- AC 700-038
- AC 700-041
- Canada Flight Supplement
- CAR Standard 821 CMNPS
- Nav Canada AIC 30/12
- TP 14371
- TP 1820E Designated Airspace Handbook

MODULE 6 – Polar Operations

This module contains a complete presentation of Polar Operations, including:

- Definitions – Polar Operations
- Route benefits and schedule integrity
- Time and fuel savings
- Regulatory authority and approval – TC, EASA, FAA
- Operational challenges
- Properties of fuel at very low temperatures
- Cloud point and pour point
- Fuel types
- Factors affecting fuel temperature
- Fuel systems and temperature measurement
- Fuel analysis
- Upper air temperature charts
- FMC indications
- Strategies for avoiding cold fuel – altitude and speed changes
- MEL considerations
- Space weather
- Solar flares – electromagnetic and geomagnetic radiation
- Solar activity scales
- Radio blackout

- Designated Polar Routes
- Random routes
- Charts and manuals
- ICAO phraseology
- VHF and HF communications
- HF in Russian airspace
- SATCOM
- CPDLC and ADS
- Position reporting
- Designated areas of magnetic unreliability
- Operation in true heading reference
- North Pole over – flights
- Use of metric units – altitude, distance, wind speed and visibility
- ASOA process
- Considerations for alternate and diversion airports
- ETOPS / non-ETOPS factors
- Safety equipment
- Airline recovery plan for passengers at diversion alternates
- Adequate and suitable airports
- Use of QNE / QFE
- Cold temperature altimetry
- Emergency diversions / descents
- Preferred airfields
- Polar gear
- Search and rescue
- Diversion recovery plan
- LESSON 06: Operational Flight Plan
- This lesson presents flight planning requirements and use of the operational flight plan:
- Company policy
- Polar OFP review – fuel freeze point, MEL, route, weather and NOTAMs
- Plotting charts
- Sample POLAR flight – Cincinnati to Hong Kong
- Company policy
- Polar OFP review – fuel freeze point, MEL, route, weather and NOTAMs
- Plotting charts
- Sample POLAR flight – Cincinnati to Hong Kong

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)

- 1 hr 35 min

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

- 41 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
Introduction	4
Operational Factors	14
Navigation and Communication Procedures	10
Alternates and Diversions	4
Abnormal and Emergency Procedures	2
Operational Flight Plan	4
	38

REFERENCE MATERIAL

This course focuses on core elements of Polar Operations including; air traffic services, communication, and emergency procedures. Reference documents include:

ICAO

- Doc 9613 Performance Based Navigation
- Doc 4444 PANS-ATM

EASA

- GM1 SPA.PBN.100
- SPA.PBN.105

FAA

- 14 CFR Appendix P to Part 121, Requirements for ETOPS and Polar Operations
- AC 91-70B
- AC 120-42B
- [FAA Guidance Overview – Polar Routes](#)

TC

- TP 14371 Airman’s Information Manual AIM COM 3.5 Data Link Networks
- TP 14371 AIM COM 5.2 Global Positioning Systems (GPS)
- TP 14371 AIM RAC 3.16.9 Item 19: Supplementary Information
- TP 14371 MET 1.3.2 WAFS Charts
- TP AIM RAC 8.6.2 Altitudes and Direction of Flight

MODULE 7 – Pacific Operations

This module contains a complete presentation of Pacific Operations, including:

- Definitions - Pacific Regions
- Pacific Region FIRs
- NOPAC CRS Route system track description and usage
- Oceanic Transition Routes (OTR) and NCA transition routes
- NOPAC CRS separation requirements

- NOPAC CRS reroute procedures
- PACOTS track development and designations
- PACOTS track issuance and validity times
- Gateway reservation list
- PACOTS track advisory procedures
- Track message examples
- User Preferred Routes (UPR)
- CEP track description and usage
- CEP track separation including "Mach Number Technique"
- South Pacific fixed tracks and UPRs
- South Pacific RNP-4 areas
- Australian Organized Track Structure (AUSOTS) description
- RVSM, RNP-10 requirements
- Aircraft position plotting requirements
- NOPAC CRS navigation cross-check requirements
- VHF and HF radio requirements and procedures
- HF SELCAL requirements
- Pacific region SATCOM coverage
- CPDLC description and procedures
- ADS description
- Metric weather unit conversions
- Degradation of navigation capability procedures
- Urgency call and emergency call protocol
- Unable to comply with current clearance procedures
- Engine failure or depressurization procedures
- ETOPS significant system failure
- Weather deviation procedures
- Wake turbulence and SLOP procedures

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)

- 45 min

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

- 29 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
Introduction	1
North Pacific	7
Central Pacific / South Pacific	3
Navigation and Communication	6
In-flight Contingencies	7
	24

REFERENCE MATERIAL

This course focuses on core elements of Pacific Operations including; Air Traffic Services, communication, and emergency procedures. Reference documents include:

ICAO

- Doc 9613 Performance Based Navigation
- Doc 4444 PANS-ATM

EASA

- GM1 SPA.PBN.100
- SPA.PBN.105

FAA

- AC 90-105A
- AC 90-117
- AC 91-70B
- OPSEC/MSPEC/LOA Guidance A056
- OPSEC/MSPEC/LOA Guidance B034
- OPSEC/MSPEC/LOA B036
- OPSEC/MSPEC/LOA B038
- OPSEC/MSPEC/LOA B039
- OPSEC/MSPEC/LOA B040
- OPSEC/MSPEC/LOA B041
- OPSEC/MSPEC/LOA B043
- OPSEC/MSPEC/LOA B044
- OPSEC/MSPEC/LOA B046
- OPSEC/MSPEC/LOA B050
- OPSEC/MSPEC/LOA B054
- OPSEC/MSPEC/LOA B055
- OPSEC/MSPEC/LOA B059
- OPSEC/MSPEC/LOA B342
- OPSEC/MSPEC/LOA B344
- Pacific Resource Guide for U.S. Operators

MODULE 8 – Reduced Vertical Separation Minima (RVSM)

This module contains a complete presentation of RVSM, including:

- RVSM definitions
- Benefits of RVSM
- Level of safety
- RVSM implementation
- Operator approval
- Required aircraft equipment
- Maintaining approval
- Equipment accuracy
- Flight crew training
- RVSM capability

- ICAO flight plan
- Weather considerations
- External inspections
- Flight deck checks
- Height Monitoring Units (HMU)
- Altimeter errors
- Track offsets
- Autopilot operation
- TCAS operation
- Equipment faults
- ATC notification
- Defect reporting
- Metric RVSM airspace
- China RVSM airspace and Flight Level Allocation Scheme (FLAS)
- Conversion placard
- Flight planning
- Entering metric RVSM airspace
- Rounding errors
- Exiting metric RVSM airspace
- Altitude deviation
- Flight planning
- Exemptions without pre-approval
- Exemptions with pre-approval
- Aerial photography
- RVSM transitions
- Loss of RVSM capability
- Abnormal operations

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)

- 45 min

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

- 32 min

Exam Generation System (EGS) Banked Questions

The total amount of banked questions for this course is:

Lesson Title	Standard Questions
RVSM General	5
Operational Requirements and Procedures	10
Metric RVSM Airspace	3
Non-RVSM Aircraft	4
	22

REFERENCE MATERIAL

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

ICAO

- ICAO Document 9574 - Manual On Implementation of a 300m (1000 ft) Vertical Separation Minimum Between FL290 and FL 410 Inclusive
- NAT DOC 007 – North Atlantic Operations and Airspace Manual – V 2017-1
- ATC Guidance Manual for RVSM Training In The CAR/SAM Regions

EASA

- ANC1 SPA.RVSM.105(c)

FAA

- FAA AC 91-85A – Operations in Reduced Vertical Separation Minimum (RVSM) Airspace
- AC 120-55
- Memorandum: Effect of ADS-B Our Installation on RVSM and TCAS II Certification, AIR-100 (10/07/16) (PDF)
- Advisory Circular 91-85A (Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum Airspace) (7/21/16) (PDF)

TC

- AC 700-039
- AC 600-006
- AC 700-009
- Nav Canada AIC 27/06
- CAR Part VIII Section 3.0