



Trust, from space to cockpit,  
for one clever sky.



*ESSP AVIATION CONSULTANCY SERVICES*

# TRAINING CATALOGUE



# Training tomorrow's professionals for the benefit of the connected aircraft

# Overall presentation & subject areas

ESSP possesses unique expertise as **Certified satellite-based Navigation service provider**, notably thanks to its role as **EGNOS Services Provider** since more a decade ago. In this context and also supported by its consulting services in the field of **Airspace and Flight Procedures Design**, the company has developed in the last few years a vast expertise on multi-cultural and multinational capacity building.

The company possess an aviation DNA, driving its ambition to expand its business to satellite-based Concepts and Applications services for the benefit of the **connected aircraft**, contributing to the so-called "**digitalisation of ATM services**".

This background has allowed us to build and offer a training catalogue around the following Topic areas:

- o Global Navigation Satellite Systems (GNSS) and its Applications
- o CNS Applications
  - ◀ Performance Based Navigation
  - ◀ Datalink Communications
  - ◀ Surveillance
- o Flight Procedure Design and Aeronautical Data
- o Unmanned Aerial Systems



ESSP holds an Air Navigation Service Provider (ANSP) certificate issued by the European Aviation Safety Agency (EASA).

Our Quality Management System (QMS) is successfully ISO 9011:2015 certified and its processes support all our activities, ensuring the quality of all trainings provided.

In addition, ESSP's organisation and its supporting Information Security Management System (ISMS) is also ISO 27001 certified.

# Index



<b>OVERALL PRESENTATION &amp; SUBJECT AREAS</b>	<b>3</b>
<b>GENERAL INFORMATION</b>	<b>6</b>
<b>GLOBAL NAVIGATION SATELLITE SYSTEMS</b>	<b>8</b>
Global Navigation Satellite Systems (GNSS) Basic	9
Global Navigation Satellite Systems (GNSS) Advanced	10
Global Navigation Satellite Systems (GNSS) Receivers	11
Global Navigation Satellite Systems (GNSS) and SBAS fundamentals	12
<b>GNSS MULTIMODAL APPLICATIONS</b>	<b>13</b>
GNSS Applications in Agriculture	14
GNSS Applications in Rail	15
GNSS Applications in Maritime	16
GNSS Applications in Surveying and Mapping	17
GNSS Applications in Road	18
GNSS Applications - FULL	19
<b>COMMUNICATIONS, NAVIGATION &amp; SURVEILLANCE (CNS)</b>	<b>20</b>
Air Navigation for AIS	21
Performance-Based Navigation (PBN) Basic	22
Performance-Based Navigation (PBN) Advanced	23
Performance-Based Navigation (PBN) for Air Traffic Controllers	24
Performance-Based Navigation (PBN) for Flight Operations Personnel	25
Datalink Communications Basic	26
Datalink Communications Advanced	27
ADS-B / Automatic Dependant Surveillance - Broadcast	28
<b>FPD AND AERONAUTICAL DATA</b>	<b>29</b>
PANS-OPS: Introduction to Flight Procedures Design	30
PANS-OPS Advanced: Performance-Based Navigation	31
PANS-OPS Oversight	32
Helicopter PinS procedures	33
Adaptation to In-flight Navigation Procedures	35
AICM / AIXM 5.1 Basic	36
AICM / AIXM 5.1 Advanced	37
electronic Terrain and Obstacle Data (eTOD)	38
Aeronautical Data Quality (ADQ)	39
ADQ Requirements & Implementation	40
<b>UNMANNED AERIAL SYSTEMS</b>	<b>41</b>
UAS: Specific Operations Risk Assessment (SORA)	42
<b>ARRIVING TO ESSP</b>	<b>44</b>



**OUR OBJECTIVE IS TO  
GIVE OUR TRAINEES  
THE CAPACITY  
TO RESPOND TO  
THE AVIATION  
OPERATIONAL  
AND REGULATORY  
CHALLENGES**

# General Information

## The instructors: experts from ESSP

All our courses are instructed by subject-matter experts with more than 10-years of experience in the respective domains. This allows us incorporating the most up-to-date information, while ensuring that, at the end of your course, you will get relevant knowledge, applicable in your daily professional activities.

Their knowledge is further boosted through the use of state-of-art technological supporting means, which complement and put the theory into practice.

## Training modalities: classroom or virtual

Our classroom courses are mainly held in our 2 locations in Madrid (Spain) and Toulouse (France). All courses are also offered as in-house training at your location.

A significant number of courses are also offered as live virtual training via a video platform.

## Customised trainings

ESSP also offers tailored trainings to its customers. Trainings can be tailored and scaled in accordance to the needs of the trainees. You may combine the contents of various courses listed in our catalogue, or simply tell us about your need and let us build the perfect match for you.

Customisations will include:

- o Specifically designed features for technical, operational and management staff
- o Active participation of our subject matter experts and experienced trainers
- o Flexibility to address needs through different modules and training locations

**COMBINE THE CONTENTS OF VARIOUS COURSES LISTED IN OUR CATALOGUE AND OBTAIN THE COURSE YOU ARE LOOKING FOR**

## General course details

Generally, our courses are designed considering an effective training of 6-hours per day.

Electronic copies of the training material are provided during the first day of the course.

The training material, including but not limited to slides, presentations and any oral presentation provided or made available by ESSP during the training session (hereinafter the "Course Support") is and will remain ESSP's ownership.

## Certificates

An ESSP Certificate of Attendance is awarded upon your full attendance.

## Contact information

Do not hesitate to contact us at [consultancy@essp-sas.eu](mailto:consultancy@essp-sas.eu) for general enquiries, course enrolments, or if you simply would like to know more about our training capabilities!



VIRTUAL TRAINING  
WITH STATE-  
OF-THE-ART  
TECHNOLOGIES



# GLOBAL NAVIGATION SATELLITE SYSTEMS

# Global Navigation Satellite Systems (GNSS) Basic

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	4
Prerequisites	-

## Objective

Provide the technical, operational and management staff with basic knowledge on Global Navigation Satellite Systems (GNSS). At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, and become a perfect reference

to later gather the fundamentals of Performance Based Navigation. Additionally, they will be conversant about GNSS systems (names and types) its principles (signals, errors and mitigations) and its evolutions.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation.
- Close look into the US GPS system and the augmentation systems used in aviation.
- Foreseen evolution on how all these systems will evolve in the coming years.

# Global Navigation Satellite Systems (GNSS) Advanced

## Course Details

Duration	2 days
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Provide technical, operational and management staff with advanced knowledge on Global Navigation Satellite Systems (GNSS). At the end of the course, participants will be able to apply the acquired knowledge in their professional

activities, in areas such as systems design or performances assessment and monitoring. Additionally, they will be conversant about GNSS systems (names and types) its principles (signals, errors and mitigations) and its evolutions.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation.
- Close look into the US GPS system and the augmentation systems used in aviation.
- First approach to EGNOS: its components, architecture and services Practical exercise on how to interact with COTS SW tools and compute GNSS positions.
- Foreseen evolution on how all these systems will evolve in the coming years.
- Comprehensive study on the user level: requirements, equipment types and applications of GNSS.

# Global Navigation Satellite Systems (GNSS) Receivers

## Course Details

Duration	2 days
Type	Classroom
Min. number of trainees	8
Prerequisites	-

## Objective

Provide technical staff with basic knowledge on Global Navigation Satellite Systems (GNSS) receivers' architecture and applications. At the end of the course, participants will understand the concepts of GPS positioning, the different positioning techniques applied when GPS positioning

does not cover the user needs, the limitations of the core constellations to meet aviation's required navigation performance (RNP) levels and how augmentation systems allow the compliance with aviation requirements.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Close look into the US GPS system and the augmentation systems used in aviation.
- Practical exercises on how to interact with COTS SW tools and compute GNSS positions, and on how to navigate using a GNSS receiver.
- The use of new GNSS positioning techniques (DGNSS, RTK, and PPP), explaining the differences between these techniques and what differences in terms of accuracy are observed with respect to basic GPS, and for which applications they are appropriate.
- Familiarisation with the functions that modern GNSS receivers play in aviation by means of flight simulations.

# Global Navigation Satellite Systems (GNSS) and SBAS fundamentals

## Course Details

Duration	2 days
Type	Classroom or virtual training
Min. number of trainees	4
Prerequisites	-

## Objective

Train technical, operational and management staff on the principles of SBAS systems & services and how they are part of the GNSS concept. At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, in areas such as SBAS systems

design and SBAS services provision. Additionally, they will be conversant about GNSS systems (names and types), its augmentations (signals, errors and mitigations) and how SBAS systems, in particular, enable the implementation of the most performing PBN operations.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Close look into the US GPS system and the augmentation systems used in aviation.
- Foreseen evolution on how all these systems will evolve in the coming years.
- Overview of applications enabled by GNSS, in particular of those benefiting from corrections/augmentations provided by SBAS.
- Close look into EGNOS architecture, key performance parameters and services.
- Applicable regulatory framework and service provision aspects to consider for the implementation of aviation Safety Of Life operations based on SBAS.



# GNSS MULTIMODAL APPLICATIONS

# GNSS Applications in Agriculture

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in the agriculture domain. At the end of the course, participants will be conversant about GNSS systems (names and types) its principles

(signals, errors and mitigations) and, overall, its applications in agriculture. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special

attention on the US GPS system, and the different augmentation and positioning techniques.

- Characterisation of the agriculture market segment and its GNSS applications.
- Applications and benefits of highly-accurate GNSS positioning techniques in this domain.

# GNSS Applications in Rail

## Course Details

<b>Duration</b>	1 day
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in the road transportation domain. At the end of the course, participants will be conversant about GNSS systems (names and types) its principles

(signals, errors and mitigations) and, overall, its applications in road transport. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special attention on the US GPS system, and the different augmentation and positioning techniques.
- Institutional and regulatory framework of the rail "Safety-of-Life" domain.
- Characterisation of the rail market segment and its GNSS applications.

# GNSS Applications in Maritime

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in the maritime transportation domain. At the end of the course, participants will be conversant about GNSS systems (names and types) its principles

(signals, errors and mitigations) and, overall, its applications in maritime transport. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special attention on the US GPS system, and the different augmentation and positioning techniques.
- Institutional and regulatory framework of the maritime "Safety-of-Life" domain.
- Characterisation of the maritime market segment and its GNSS applications.

# GNSS Applications in Surveying and Mapping

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in the surveying and mapping (geomatics) domain.

At the end of the course, participants will be conversant

about GNSS systems (names and types) its principles (signals, errors and mitigations) and, overall, its applications in surveying and mapping. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special attention on the US GPS system, and the different augmentation and positioning techniques.
- Characterisation of the surveying and mapping market segments and its GNSS applications.
- Applications and benefits of highly-accurate GNSS positioning techniques in these domains.

# GNSS Applications in Road

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in the road transportation domain. At the end of the course, participants will be conversant about GNSS systems (names and types) its principles

(signals, errors and mitigations) and, overall, its applications in road transport. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special attention on the US GPS system, and the different augmentation and positioning techniques.
- Characterisation of the road market segment and its GNSS applications.
- Applications and benefits of highly-accurate GNSS positioning techniques in this domain.

# GNSS Applications - FULL

## Course Details

<b>Duration</b>	4 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	-

## Objective

Train operational and management staff on the most significant applications of Global Navigation Satellite Systems (GNSS) in various market segments. At the end of the course, participants will be conversant about GNSS systems (names and types) its principles

(signals, errors and mitigations) and, overall, its applications in different market segments.. Additionally, they will be able to apply the acquired knowledge in areas such as provision, promotion and development of GNSS services.

## Learning Objectives

- Historical and technical aspects of GNSS: basic theory and understanding of the fundamentals of how these systems work.
- Overview of the different GNSS systems deployed worldwide and currently in operation, with a special attention on the US GPS system, and the different augmentation and positioning techniques.
- Characterisation of various market segments and its GNSS applications.
- Institutional and regulatory framework of "Safety-of-Life" domains (maritime and rail transport).
- Applications and benefits of highly-accurate GNSS positioning techniques in non-Safety-of-Life domains.



**COMMUNICATIONS,  
NAVIGATION &  
SURVEILLANCE  
(CNS)**

# Air Navigation for AIS

## Course Details

<b>Duration</b>	3 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	-

## Objective

This course will provide the participant with the background knowledge related to Air Navigation including the Earth, types

of projections, Navigation Aids and conventional flight procedures.

## Learning Objectives

- The Earth, including reference points, lines, direction, distance, position, geodetic concepts, the magnetic field and compass and vertical, horizontal and temporal reference systems.
- Projections including the basis for type of projections and their uses in aviation charting.
- Applied navigation including distance between two points, speed and course.
- Navigation Aids with coverage of on-board systems and instruments and ground based/satellite systems (NDB, VOR, TACAN, ILS etc.).
- Conventional flight procedures such as holding, IAP, SID, STAR etc.

# Performance-Based Navigation (PBN) Basic

## Course Details

<b>Duration</b>	1 day
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	-

## Objective

Provide ATM experts, ATCOs, flight procedure designers and in general ANSP staff, as well as authorities, airport operations staff and any other professional, with basic knowledge on Performance Based Navigation (PBN). At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, in areas

such ATM planning, flight procedures design or airport operations. Additionally, they will understand the benefits and principles of PBN and what its enablers are, with some focus on GNSS systems and the augmentation systems used in aviation.

## Learning Objectives

- Technical aspects of GNSS: understanding of the fundamentals of how these systems work.
- Familiarisation with the main GNSS systems in operations today, and the techniques used in aviation to improve (i.e. augment) their performances.
- Regulatory framework around the implementation of Performance Based Navigation (PBN).
- Explanation of the principles of PBN, their components, and how this concept benefits Air Traffic Management.

# Performance-Based Navigation (PBN) Advanced

## Course Details

<b>Duration</b>	2 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	-

## Objective

Provide ATM experts, ATCOs, flight procedure designers and in general ANSP staff, as well as authorities, airport operations staff and any other professional, with advanced knowledge on Performance Based Navigation (PBN). At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, in areas

such ATM planning, flight procedures design or airport operations. Additionally, they will understand the benefits and principles of PBN and what its enablers are, with some focus on GNSS systems and the augmentation systems used in aviation.

## Learning Objectives

- Technical aspects of GNSS: understanding of the fundamentals of how these systems work.
- Familiarisation with the main GNSS systems in operations today, and the techniques used in aviation to improve (i.e. augment) their performances.
- Foreseen evolution of GNSS systems (both global constellations and augmentation systems).
- Explanation of the principles of PBN, their components, and how this concepts benefits Air Traffic Management.
- Regulatory framework around the implementation of Performance Based Navigation (PBN).
- Status of worldwide implementation and strategies pursued per region.
- Introduction to modern cockpits and presentation of the on-board requirements of PBN.
- PBN Flight Test: flight preparation, pre-flight debrief and simulation.

# Performance-Based Navigation (PBN) for Air Traffic Controllers

## Course Details

<b>Duration</b>	2 days
<b>Type</b>	Classroom
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	Air Traffic Controller license

## Objective

Provide Air Traffic Controllers (ATCOs) with relevant knowledge on Performance Based Navigation (PBN). At the end of the course, participants will understand the high complexity process of PBN implementation and its consequences in ATC. Emphasis will be dedicated to the significance of ATC roles and its involvement before, during and after the implementation of new PBN procedures.

Additionally, participants will have the full picture about the operational impact of PBN in ATC in terms of flight plan requirements, separation minima, radar vectoring techniques, transition between different operating environments, management of PBN/conventional mix traffic, non-radar environments or on-board aspects such as pilot perspective or avionics and phraseologies.

## Learning Objectives

- Main concepts of GNSS systems that support PBN
- PBN applications framework (regulatory and institutional view).
- PBN operational concept and specifications.
- Flight plan and strip marking requirements, specific phraseology, separation minima criteria in non-segregated environment (conventional and PBN traffics at the same time), radar vectoring techniques.
- Transition between different operating environments, management and SOPS of PBN/conventional mix traffic, in particular within non-radar environments, management and SOPS of RNAV transitions (i.e. trombone grids) between arrivals and approach.
- Specific real & practical examples of all kinds of PBN solutions (RNP APCH, RNAV5 routes, RNAV/RNP1 SIDs and STARs, RNP ILS APCH, point merge procedures).

# Performance-Based Navigation (PBN) for Flight Operations Personnel

## Course Details

Duration	2 days
Type	Classroom
Min. number of trainees	4
Prerequisites	-

## Objective

Provide airlines flight operations personnel with relevant knowledge on Performance Based Navigation (PBN). At the end of the course, participants will understand the implications of PBN operations for an airline, comprehending at the same time the benefits it provides in

terms of ATM efficiency and capacity and improved airports accessibility. Additionally, they will be able to apply the acquired knowledge in their professional activities, in areas such as operational documentation development (OMs and SOPs) or flight dispatching.

## Learning Objectives

- Main concepts of GNSS systems that support PBN.
- The PBN operational concept and specifications.
- The PBN applications framework (regulatory and institutional view).
- Status of worldwide implementation and strategies pursued per region.
- Electronic flight navigation databases and criticality of data management processes.
- Introduction to modern cockpits.
- On-board PBN requirements.

# Datalink Communications Basic

## Course Details

<b>Duration</b>	2 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	-

## Objective

Provide technical, operational and management staff with basic knowledge on Data link Communications (DLK). At the end of the course, participants will understand the basics of Aeronautical communications, focused on the Data Link framework, depicting the Data Link architectures and

technologies, applications such as CPDLC or ADS-C, and the current situation and planned evolutions. Additionally, they will be able to apply the acquired knowledge in their professional activities, in areas such as systems design or performances assessment and monitoring.

## Learning Objectives

- Historical and technical aspects of Aeronautical communications, with special focus on the benefits and the fundamentals of how Data Link works.
- Overview of the key concepts related to the environment
- First approach to the different technologies, subnetworks, architectures and applications used in Data Link communications.
- Information on the user level: requirements, infrastructure, equipment and avionics.
- Practical exercises of Data Link communications e.g. simulate two-way messaging using Data Link technology.
- Presentation of main international bodies and involved stakeholders.
- Past, current and foreseen evolution on how all the Data Link communications will evolve in the coming years.

# Datalink Communications Advanced

## Course Details

Duration	4 days
Type	Classroom
Min. number of trainees	5
Prerequisites	-

## Objective

Provide technical, operational and management staff with advanced knowledge on Data link Communications (DLK). At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, in areas such as systems design or performances assessment

and monitoring. Additionally, they will become conversant about Aeronautical communications with special focus on the Data Link framework, with analysis of the Data Link architectures and technologies, applications such as CPDLC or ADS-C, and the current situation and planned evolutions.

## Learning Objectives

- Historical and technical aspects of Aeronautical communications, with special focus on the benefits and the fundamentals of how Data Link works.
- Specific exploration of the key concepts related to the Data Link environment.
- Close look to the different technologies, subnetworks, architectures and applications used in Data Link communications.
- Comprehensive study on the user level: requirements, infrastructure, equipment and avionics.
- Practical exercises of Data Link communications e.g. simulate two-way messaging using Data Link technology
- Thorough breakdown of the main international bodies and involved stakeholders.
- Detailed vision of past, current and foreseen evolution on how all the Data Link communications will evolve in the coming years, detailing all ongoing projects and initiatives.

# ADS-B / Automatic Dependant Surveillance - Broadcast

## Course Details

<b>Duration</b>	2 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	-

## Objective

Provide technical, operational and management with advanced knowledge on ADS-B surveillance. At the end of the course, participants will be able to apply the acquired knowledge in their professional activities, in areas such as systems design or performances assessment and

monitoring. Additionally, they will become conversant about ADS-B surveillance systems (names, types, scope); its characteristics (signal, data, location based); the regulation and roles surrounding its use (service provider, EU regulation); and its future evolutions (e.g. space based)

## Learning Objectives

- Background on current and future Surveillance Systems
- ADS-B General overview (what ADS-B is and what other functionalities ADS has).
- ADS-B parameters and characteristics (versions, data, technologies).
- ADS-B Ground Systems (how the message is used and captured by ground systems).
- Quality Indicators of the ADS-B message (Performance and System monitoring).
- ADS-B applications (IN-OUT) (applications it enables and future developments).
- Regulatory Framework including International Implementation and Deployment.
- Space based initiatives.
- ADS-B (DATA) Service Provider Roles.



# FPD AND AERONAUTICAL DATA

# PANS-OPS: Introduction to Flight Procedures Design

## Course Details

Duration	5 days
Type	Classroom
Min. number of trainees	5
Prerequisites	-

## Objective

Provide ATM experts, ATCOs, navigation data specialists, aerodrome operations staff, aviation authorities staff, or even pilots, with initial knowledge on the principles of Flight Procedure Design (FPD). At the end of the course,

participants will understand the principles of instrument flight procedures, and be able to apply the acquired knowledge in their professional activities, in areas such ATM planning, flight procedures design or airport operations.

## Learning Objectives

- The instrument flight procedures design process: from its early data acquisition, validation and verification processes, through their intermediate conceptual definition and until its final implementation and publication in the AIP.
- The general principles on which construction of flight procedures are based.
- Construction of both conventional and PBN flight procedures.
- The basics of charting: how to prepare and interpret instrument departure, arrival and approach charts.

# PANS-OPS Advanced: Performance-Based Navigation

## Course Details

<b>Duration</b>	2 weeks
<b>Type</b>	Classroom
<b>Min. number of trainees</b>	5
<b>Prerequisites</b>	Initial training in PANS-OPS (i.e. Conventional)

## Objective

Provide training on instrument flight procedure design, applying Performance-Based Navigation (PBN) criteria, as defined in ICAO PANS OPS Volume 2 Part III. The participant will understand the benefits provided by PBN in terms of efficiency and flexibility for flight operations, and be able to apply the acquired knowledge in their daily

flight procedures design activities. The course is offered to flight procedure designers who have already received Initial Training in PANS-OPS (i.e. Conventional navigation). It is highly recommended to also possess practical flight procedure design experience (on-the-job training in conventional navigation) prior to enrolling in this course.

## Learning Objectives

- Quality Assurance in Airspace Design.
- Global Navigation Satellite Systems (GNSS).
- The PBN concept (RNAV vs RNP).
- Airspace Design Methodology.
- General concepts of PBN procedure construction
- Path Terminators.
- RNAV/RNP departures and arrivals.
- RNP approaches, including SBAS and Baro-VNAV.
- GBAS approaches.
- Charting.
- Flight Simulations.

# PANS-OPS Oversight

## Course Details

Duration	5 days
Type	Classroom
Min. number of trainees	5
Prerequisites	Initial training in PANS-OPS (i.e. Conventional navigation)

## Objective

Provide guidance to authorities competent in Airspace Design Oversight. In addition, the course would be interesting for airspace design entities looking for an improvement in their production process. The participant will understand how a flight procedure is conceived, from its

early data acquisition, validation and verification processes, through their intermediate conceptual definition and until its final implementation and publication in the AIP, and be able to apply the acquired knowledge in their airspace and flight procedures oversight activities.

## Learning Objectives

- Describe the complete FPD lifetime, focusing on the issues directly related with flight procedure design quality and the way to achieve and maintain the highest levels of quality.
- FPD provider audit simulation.
- Real-case audit.

# Helicopter PinS procedures

## Course Details

<b>Duration</b>	3 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	Training in PANS-OPS (conventional and PBN)

## Objective

Provide training on instrument flight procedure design and helicopter procedures in particular, applying design criteria as defined in ICAO PANS OPS Volume 2 Part IV. The participant will understand the benefits derived from the combination of PBN and the helicopter flight dynamics

and manoeuvrability, and be able to apply the acquired knowledge in their daily flight procedures design activities. The course can also be of interest for existing or future helicopter flight validation pilots.

## Learning Objectives

- Supported by CAD tools, apply design criteria as defined in ICAO PANS OPS Volume II, for the construction of Category H and Point-in-Space (PinS) departures and approach procedures (LNAV and LPV minima).
- Proceed VFR and Proceed Visually concepts.
- Direct and Manoeuvring Visual Segments.
- Charting of helicopter procedures.
- Considerations for the validation of helicopter Instrumental Flight Procedures.

A photograph of a whiteboard in a meeting room. The whiteboard has several yellow sticky notes attached to it, some with handwritten text. A marker tray is visible at the bottom of the whiteboard, containing several markers. The text is overlaid on the whiteboard in a large, white, sans-serif font.

**CUSTOMISED  
TRAININGS  
REPRESENT MORE  
THAN 50% OF OUR  
ACTIVITY**

# Adaptation to In-flight Navigation Procedures

## Course Details

Duration	1 day
Type	Classroom
Min. number of trainees	4
Prerequisites	Familiar with PANS-OPS and ADQ

## Objective

This course is offered to flight procedure designers and is aimed to complement their knowledge in the area of flight operations. Explains the next steps in the lifecycle of flight

procedures once they abandon the flight procedure design office, how they end up on-board a Flight Management System and how pilots make use of them.

## Learning Objectives

- List the navigation data chain steps: from procedures' design, to applicability, going through AIS process, data houses coding in ARINC 424, aircraft operator FMS load, and air operation.
- Explain modern cockpits' systems configuration, of both commercial jets and general aviation aircraft, with a special focus on on-board systems as FMGC, FMS, FCU, FD vs AP.
- Show knowledge about how to fly VOR radials, DME arcs, holdings, LOC+GP interception, and on board PBN functions.
- Summarise the flight preparation phase, considering the navigation systems checks, QNH adjustment, NOTAMs check, routes and procedures preparation, etc.
- Understand the execution of a flight and the different instrument procedures composing each segment.

# AICM / AIXM 5.1 Basic

## Course Details

<b>Duration</b>	5 days
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	-

## Objective

With the completion of this course, participants will be familiar with today's data models for Aeronautical Information storage and exchange as well as created their own model.

Also, participants will be introduced to the basics of UML, focusing on Class Diagrams, as well as to AIXM 5.1 and analyse its requirements. They will study the AIXM 5.1 UML

Model and create their own xml code based on their own model to the basics of GML. Additionally, participants will receive an introduction to the basics of XML and GML and will create their own GML code based on their own model. The AIXM 5.1 XML Model/Schema will also be studied.

## Learning Objectives

### Data models for aeronautical information storage and exchange

- AICM and AIXM Overview
- Airport Mapping Exchange Model (AMXM)
- Weather Information Exchange Model (WXXM)
- Airport Network Information Exchange Model (ANXM)
- Flight Information Exchange Model (FIXM)
- Terrain Information Exchange Specification (TIXS)
- System Wide Information Management (SWIM)
- ATM Information Reference Model (AIRM)
- The Future of the data exchange models

### Introduction to AIXM

- Current and future AIM information flows
- Version update to AIXM 5.1
- Future AIXM versions

### AIXM 5.1 Requirements and approach

- Approach
- Architecture
- Requirements Analysis and Design
- AIXM 5.1 and GML

### UML Basic Concepts

- The class model
- Database modelling

### AIXM 5.1 UML Model

- UML Modelling conventions
- Other aspects of the model

### XML Basic Concepts

- Getting to know XML
- Well-formed XML File
- Valid XML file

### Geography Markup Language

- Geometries in GML
- GML Core and application schemas
- Dictionaries
- XML and GML

### AIXM 5.1 XML Model/Schema

- AIXM – core XSD
- Mapping inheritance
- Mapping Name of Classes
- Mapping Features
- Mapping Objects
- Mapping Choices
- Mapping relationship to Objects
- Mapping relationship to Features
- Mapping Data Types

# AICM / AIXM 5.1 Advanced

## Course Details

<b>Duration</b>	5 day
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	AICM/AIXM 5.1 Basic Course

## Objective

Participants will study AIXM 5.1 Temporality Model. Additionally, the course will provide participants with introduction to AIXM 5.1 Feature Identification and references, AIXM 5.1 Metadata profile, GML

recommendations for aviation data as well as AIXM 5.1 Business Rules and the basics of data edition and processing using Excel. Participants will be able to map raw data to AIXM 5.1 using Altova MapForce, and edit and validate AIXM 5.1 using Altova XML Spy.

## Learning Objectives

### Temporality Model

- Building the temporality model
- Properties with schedule
- Application aspects
- Usage examples

### AIXM 5.1 Feature Identification and Reference

- UUID definition
- Namespace
- Uniform Resource Identifier (URI)
- AIXM 5.1 Feature Identification using UUID
- Feature Reference

### Use of GML for aviation data

- Geographical data in Aeronautical Information
- WGS-84
- Positions
- Lines and Surfaces
- Airspace aggregation
- Point references and annotations
- Geographical border references
- AIXM GML Profile

### AIXM 5.1 Metadata Profile

- Aviation Profile of ISO 19115
- Metadata requirements

### AIXM 5.1 Business Rules

- Semantic of business vocabulary and business rules (SBVR)
- Schematron
- XML Schema vs. Schematron
- AIXM business rules

### Data Edition and Processing

- Compilation of the data received
- Edition of Raw Aeronautical Data

### Mapping data to XML using Altova MapForce

- Overview
- Common mappings for aeronautical data
- Saving results AIXM/XML file

### Edition and validation of AIXM/XML files using Altova XMLSpy

- Overview
- Edition of AIXM/XML message files
- Schema view
- Check well-formedness of AIXM files
- Validate AIXM messages

# electronic Terrain and Obstacle Data (eTOD)

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	5
Prerequisites	-

## Objective

Provide guidance to ATM personnel, general ANSP staff, data houses' experts, authorities involved in eTOD and any other professional involved in the aeronautical data and information chain.

The participant will understand the basic underlying principles that are supported by eTOD, and apply the acquired knowledge in areas such as AIS, flight procedures design, airport operations or flight charting.

## Learning Objectives

- The eTOD's justification, need and regulatory and institutional framework.
- Digital terrain models, obstacles, data modelling, digital terrain models, metadata, reference systems, spatial data quality, data product specification (DPS), geographic information systems data and provision using Web services
- The main stakeholders and their eTOD needs in the AIM data chain.
- The applications in which the obstacle and terrain data sets can be used as these in accordance with the data quality requirements, providing a high level review of those applications.
- The main requirements specified by the relevant institutions, as ICAO and supporting material from other sources as Eurocontrol and EASA.
- The generic approach to planning and implementing eTOD in the national scope of a European State.

# Aeronautical Data Quality (ADQ)

## Course Details

<b>Duration</b>	1 day
<b>Type</b>	Classroom or virtual training
<b>Min. number of trainees</b>	4
<b>Prerequisites</b>	-

## Objective

This training represents the background assistance to those professionals involved in the aeronautical data chain, from the origination to the publication of aeronautical data and

information, providing the necessary guidance for a range of stakeholders.

## Learning Objectives

- Purpose and importance of Aeronautical data quality management.
- ADQ Regulatory framework (Regulation 2017/373 vs Regulation 73/2010).
- Requirements for organizations originating, processing or transmitting data to the AIS provider.
- Requirements for AIS providers.
- Examples of the aeronautical data chain.

# ADQ Requirements & Implementation

## Course Details

Duration	5 days
Type	Classroom or virtual training
Min. number of trainees	4
Prerequisites	AIS Knowledge

## Objective

This course will provide the participant with a deep knowledge related to the Aeronautical Data Quality regulation, the different processes to comply with it. The course will support surveyors of data, airports, and AIM

officers to apply the requirements of the Aeronautical Data Chain, the quality assurance of the data management to grant the required levels of accuracy, resolution and integrity.

## Learning Objectives

With a complete study of the ADQ Regulation (EC 73/2010), the participant will have a guidance on the planning of the implementation and different strategies followed by different actors.

The deep analysis of the regulation, the list of citations and recitals, how to establish an audit and check the compliance level.

List the Means of Compliance and Specifications from EUROCONTROL, Analyse the Data Assurance Levels, Data Quality Levels, Aeronautical Information Conceptual Model (AICM), state the most important aspects for Data Originators, including the SLA and SLS related to ADQ.



# UNMANNED AERIAL SYSTEMS

# UAS: Specific Operations Risk Assessment (SORA)

## Course Details

Duration	1 day
Type	Classroom or virtual training
Min. number of trainees	4
Prerequisites	-

## Objective

This course is a must-have for personnel in charge of conducting safety or risk assessments of UAS operations. On the one hand, the course provides detailed knowledge of SORA, a risk assessment methodology developed by JARUS aimed at supporting an application for authorization

to operate a UAS within the specific category. Then the participant is shown on how to apply the methodology by means of an example. During the sessions, the instructor will stimulate active participation from trainees.

## Learning Objectives

- The fundamentals necessary for the proper understanding of SORA: safety and risk concepts, UAS generalities and air navigation basics.
- Purpose of SORA, scope, stakeholders and regulatory framework.
- SORA 10-step description.
- The Ground Risk Process.
- The Air Risk Process.
- SAIL: meaning and determination.
- Operational Safety Objectives.

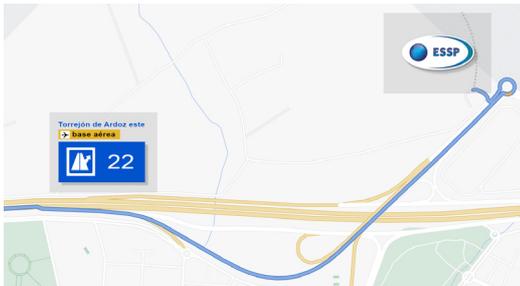


**OVERALL  
AVERAGE  
CUSTOMER  
SATISFACTION  
SCORE**

**9.3/10**

# Arriving to ESSP

ESSP is located at the ENAIRE Air Traffic Control centre, right next to Torrejón de Ardoz Air Base.



## By car or taxi:

If coming from Madrid, leave the city to the East on the A-2 highway and follow directions to Torrejón Air Base. If coming from Adolfo Suárez Madrid Barajas airport, you will want to head South until joining A-2 highway. Again, from there follow directions to Torrejón Air Base.

## By public transport:

It will take 25 minutes from Atocha (Madrid City Center Station) to Torrejón. Take regional train lines C2 or C7. Once in Torrejón station, you can grab a taxi or take the bus line number 6\*, which has a stop in front of the ATC Center.

*\*restricted schedule: 6:50; 7:30; 8:00; 8:30*

Once you have reached the Security Check of ENAIRE ATC Center, you will be required to show your ID or Passport.

Take into account that your luggage and laptop will be scanned. You will be provided with a Visitor badge and instructions to arrive to our offices.

We will be pleased to provide you with hotel recommendations upon confirmation of your registration.



Trust, from space to cockpit,  
for one clever sky.

[www.essp-sas.eu](http://www.essp-sas.eu)

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