Strategic Airport Master Planning and Development Training Course



13 - 17 Dec 2026

Manama

4400 € (Per Person)

Ref: #AIR4350_219288

Course Introduction / Overview:

The global aviation industry is characterized by rapid growth, technological disruption, and increasing environmental scrutiny, making strategic airport master planning more critical than ever. This comprehensive training course provides a deep dive into the multifaceted process of developing and implementing successful airport master plans and infrastructure projects. Moving beyond basic theory, this program, offered by BIG BEN Training Center, equips participants with the practical skills needed to navigate the complexities of modern airport development. Drawing on principles outlined by leading academics like Robert Horonjeff in his seminal work, "Planning and Design of Airports," the course integrates key disciplines including air traffic forecasting, sustainable design, financial modeling, and stakeholder engagement. Participants will learn to create long-term, flexible, and resilient master plans that accommodate future growth, enhance operational efficiency, and meet stringent regulatory requirements. This course is designed to transform your understanding of airport development, enabling you to lead projects that are not only technically sound but also economically viable and environmentally responsible, ensuring the airport serves as a powerful engine for regional growth.

Target Audience / This training course is suitable for:

- Airport Planners and Managers.
- Civil Engineers and Architects.
- Aviation Consultants and Analysts.
- Government Aviation Authority Officials.
- Urban and Regional Planners.
- Airport Operations and Development Directors.
- Project Managers in Aviation and Construction.
- Investment and Finance Professionals in Infrastructure.

Target Sectors and Industries:

- Aviation and Aerospace.
- Engineering and Construction.
- Government and Public Administration.
- Transportation and Logistics.
- Consulting Services.
- Real Estate and Urban Development.
- Financial Services and Investment Banking.

Target Organizations Departments:

- Planning and Development.
- Engineering and Infrastructure.
- Operations Management.
- Strategic Planning.
- Finance and Investment.
- Regulatory Compliance and Government Affairs.
- Project Management Office (PMO).
- Sustainability and Environmental Affairs.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop a comprehensive airport master plan that aligns with ICAO and ACI standards.
- Conduct detailed air traffic forecasting and airport capacity analysis.
- Design efficient airside and landside facilities, including runways, terminals, and ground access systems.
- Integrate principles of sustainability and environmental management into airport planning.
- Evaluate various airport financing models, including public-private partnerships (PPPs).
- Manage complex stakeholder relationships and navigate the regulatory approval process.
- Develop phased implementation strategies for long-term infrastructure projects.
- Apply risk management techniques to airport development projects.
- Incorporate emerging technologies and smart airport concepts into master plans.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, practical, and engaging, ensuring participants can immediately apply their learning in a professional context. This course moves beyond traditional lectures to foster a dynamic learning environment built on real-world application. A cornerstone of our approach is the extensive use of case studies from major international airports, allowing participants to analyze successful strategies and learn from the challenges faced in complex projects. Interactive workshops and group exercises will form a significant part of the curriculum, where attendees will collaborate on tasks such as developing a mock master plan component or conducting a stakeholder analysis. Expert-led sessions will break down complex topics like air traffic forecasting and financial modeling into manageable components. Ample time is allocated for Q&A sessions, peer-to-peer discussions, and direct feedback from the instructor, creating a rich, collaborative atmosphere that enhances knowledge retention and builds professional networks. This hands-on, problem-solving approach ensures a deep and lasting understanding of airport master planning.

Course Agenda (Course Units):

Unit One: Foundations of Airport Master Planning

- Introduction to the Airport Master Planning Process.
- The Role of ICAO, IATA, and ACI in Airport Development.
- Key Components of a Comprehensive Master Plan.
- Air Traffic Forecasting and Demand Analysis Techniques.
- Stakeholder Identification and Engagement Strategies.
- Regulatory Frameworks and Environmental Compliance.
- Initial Data Collection and Existing Conditions Inventory.

Unit Two: Airside Planning and Design

- Airfield and Runway System Configuration.
- Taxiway Design and Airfield Geometry Standards.
- Airspace Analysis and Obstruction Limitation Surfaces.
- Navigational Aids (NAVAIDs) and Air Traffic Control Integration.
- Airfield Capacity and Delay Analysis.
- Apron and Gate Planning for Different Aircraft Types.
- Safety Management Systems (SMS) in Airside Design.

Unit Three: Landside and Terminal Area Planning

- Passenger Terminal Building Concepts and Configuration.
- Passenger Flow Modeling and Level of Service (LoS) Analysis.
- Baggage Handling System Design and Technology.
- Ground Transportation and Airport Access Planning.
- Parking Facilities and Curb-side Management.
- Airport Commercial Development and Non-Aeronautical Revenue.
- Airport Security Planning and Integration.

Unit Four: Sustainable Infrastructure and Environmental Planning

- Environmental Impact Assessment (EIA) Process.
- Strategies for Noise Abatement and Air Quality Management.
- Sustainable Airport Design and Green Building Principles.
- Climate Change Adaptation and Airport Resilience.
- Airport Utilities and Energy Infrastructure Planning.
- Pavement Design and Materials for Runways and Taxiways.
- Waste Management and Water Resource Planning.

Unit Five: Implementation, Finance, and Future Trends

- Phasing and Implementation Strategy for Development Projects.
- Airport Financial Planning and Economic Feasibility.
- Public-Private Partnerships (PPPs) and Funding Models.
- Project Management and Construction Logistics.
- The Airport City Concept and Aerotropolis Development.
- Smart Airports, Digitalization, and Emerging Technologies.
- Final Project Workshop and Master Plan Presentation.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can airport master plans evolve from static long-term documents into dynamic, adaptive strategies that respond to disruptive technologies and global uncertainties like pandemics or climate change?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself through a holistic and forward-looking curriculum that bridges the gap between technical planning and strategic management. Unlike programs that focus narrowly on engineering or design specifications, this training provides a 360-degree view of airport development, integrating critical modules on finance, environmental sustainability, stakeholder engagement, and regulatory compliance. A key differentiator is our emphasis on future-proofing airports. We go beyond current standards to explore the impact of emerging technologies, such as autonomous vehicles, biometric processing, and sustainable aviation fuels, challenging participants to design infrastructure that is adaptable and resilient. The methodology is intensely practical, centered on real-world case studies of both successful and challenged airport expansion projects globally. This allows participants to learn from tangible examples rather than abstract theories. The curriculum is designed not just to teach the "how" of master planning but the "why," fostering a deep strategic understanding that empowers leaders to make informed, long-term decisions that balance economic growth with community and environmental responsibilities.