Airport Surface Traffic Management Fundamentals Training Course

Professional Development Training Course Outline

Category	Traffic Management & Road Safety	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Efficient airport surface traffic management is essential to achieving safe, sustainable, and high-performance airport operations in today's fast-growing aviation environment. Airport Surface Traffic Management Fundamentals Training Course provides a strong foundation in the principles, technologies, and operational strategies used to optimize aircraft ground movements, reduce delays, strengthen airside coordination, and enhance decision-making through advanced surveillance, data analytics, and collaborative surface management tools.

Participants will gain insight into modern Airport Collaborative Decision-Making (A-CDM), Surface Movement Guidance and Control Systems (SMGCS), environmental efficiency, and next-generation surface flow optimization technologies used by leading airports worldwide. This fundamentals program is ideal for professionals seeking to elevate operational reliability, runway-taxiway safety, and overall airport throughput.

Programme Curriculum

Airport Surface Traffic Management Fundamentals Training Course

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5 days

Course Objectives

1. Understand key principles of airport surface traffic flow optimization.
2. Apply A-CDM procedures to enhance situational awareness and predictability.
3. Interpret SMGCS and Advanced-SMGCS radar/surveillance data for safe decision-making.
4. Analyze runway capacity, taxiway utilization, and apron congestion.
5. Evaluate the impact of weather disruptions using predictive analytics.
6. Implement real-time surface movement monitoring systems effectively.
7. Identify best practices for airside safety risk management.
8. Improve operational reliability through data-driven performance metrics.
9. Understand NextGen/SESAR surface management technologies.
10. Apply green airport operations strategies to reduce emissions on the ground.
11. Strengthen inter-agency communication using digital coordination platforms.
12. Evaluate airport flow control measures during high-demand periods.
13. Develop continuous improvement strategies for surface traffic efficiency.

Target Audience

1. Air Traffic Controllers
2. Airport Operations Managers
3. Ground Handling Supervisors
4. Airline Operations Center (AOC) Staff
5. Airside Safety Officers
6. Aviation Planners & Engineers
7. Apron Management Personnel
8. Regulatory & Civil Aviation Authority Staff

Course Modules

Module 1: Foundations of Airport Surface Traffic Management

- Overview of airport ground operations
- Key terminology and operational concepts
- Interactions between ATC, apron control, and ground units
- Surface traffic performance indicators
- Regulatory and safety frameworks

  Case Study: Surface operations overview at a major international hub

Module 2: Airside Infrastructure & Layout Optimization

- Runway–taxiway system design
- Apron and stand allocation principles
- Hotspot identification and mitigation

- Bottleneck and congestion mapping
- Safety-critical geometry assessment

  Case Study: Taxiway redesign impact analysis at a high-traffic Asian airport.

Module 3: Surface Surveillance Systems (SMGCS & A-SMGCS)

- Ground radar and multilateration systems
- GPS-based aircraft/vehicle tracking
- Visual guidance and routing technologies
- Alerting systems for incursion prevention
- Integration with tower systems

  Case Study: SMGCS Level 3 implementation in low-visibility operations.

Module 4: Collaborative Decision-Making (A-CDM)

- A-CDM milestones and turnaround processes
- Data sharing and interoperability
- DPI and TOBT/TSAT management
- Predictability and delay minimization
- Stakeholder communication strategies

  Case Study: A-CDM rollout at a European airport improving departure sequencing.

Module 5: Surface Flow Optimization & Slot Management

- Strategic vs. tactical surface flow decisions
- Departure and arrival sequencing tools
- Slot allocation and management
- Taxi-out delay reduction methods
- Holding and staging strategies

  Case Study: Departure metering success at a busy U.S. airport.

Module 6: Adverse Weather & Disruption Management

- Low-visibility procedures (LVP)
- Snow, fog, and thunderstorm impact mitigation
- Use of predictive weather analytics
- Tactical rerouting strategies
- Surface capacity reduction planning

  Case Study: Winter operations resilience plan from a northern-latitude airport.

Module 7: Environmental & Sustainability Strategies

- Ground emissions reduction
- Reduced-engine taxi operations
- Electrification of ground support equipment
- Noise exposure and mitigation
- Sustainable airside development strategies

  Case Study: Green-taxi initiatives implemented at a major eco-focused airport.

Module 8: Future Technologies & Digital Transformation

- AI-based surface movement prediction

- Digital towers and remote surface monitoring
- Autonomous airside vehicles
- Integration with NextGen/SESAR programs
- Big-data analytics for performance optimization
  Case Study: Trial deployment of autonomous airside vehicle operations at an innovative tech-driven airport.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call +254769199797

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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