

Design and Operation of Space Systems

Istanbul (Turkey)

8 - 12 February 2026

UK Training

PARTNER



Design and Operation of Space Systems

Code: AV28 From: 8 - 12 February 2026 City: Istanbul (Turkey) Fees: 4600 Pound

Introduction

As global reliance on satellite technology increases, mastering the principles of space mission design and operations has become a strategic imperative.

This course offers a comprehensive and advanced-level exploration of how space systems are designed, operated, and managed in both commercial and military contexts.

Participants will explore the architecture of modern satellites, delve into orbital mechanics, analyze Non-Geostationary Orbit (NGSO) satellites, and evaluate the role of space communications, AI in space systems, and emerging technologies in driving next-generation space capabilities.

The course also addresses pressing issues such as space sustainability and space domain awareness.

Course Objectives

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

- Grasp the fundamentals of space mission design and understand the impact of the space environment.
- Identify and analyze key satellite subsystems and their operational functions.
- Understand the dual-use nature of space technology for military and commercial applications.
- Evaluate the architecture, advantages, and limitations of NGSO satellites, including LEO, MEO, and polar orbits.
- Explain the structure and challenges of non-GEO satellite communications and supporting ground infrastructure.
- Review current and future trends such as AI in space, autonomous systems, and space sustainability regulations.

Course Outlines

Day 1: Introduction to Space Mission Design

- Overview of space system components.
- Basics of orbital mechanics and trajectory planning.
- Environmental factors affecting spacecraft design.
- Fundamentals of mission planning and launch dynamics.

Day 2: Spacecraft Technology

- Satellite structures and thermal control systems.
- Propulsion systems: chemical, electric, and hybrid.
- Satellite communication and power systems.
- Trade-offs in subsystem design and selection.

Day 3: Subsystems and Integration



- Attitude Determination and Control System ADCS.
- Onboard computers and space-grade electronics.
- Payload design and system integration strategies.
- Reliability, fault tolerance, and redundancy management.

Day 4: NGSO Satellites and Military Applications

- Comparing NGSO vs. GEO satellites.
- LEO, MEO, and polar orbit dynamics.
- Coverage, latency, and mega-constellation implications.
- Non-GEO satellite communication architecture: frequency bands and infrastructure.
- Applications: satellite internet, intelligence, surveillance, and reconnaissance.
- Strategic use of space in defense and cybersecurity operations.

Day 5: Operations and Future Trends

- Mission operations: telemetry, monitoring, and control.
- Space domain awareness and tracking systems.
- Integration of artificial intelligence in space systems and autonomous spacecraft.
- Space sustainability: debris mitigation, regulatory frameworks, and environmental stewardship.
- Case studies from real-world space missions.

Why Attend This Course? Wins & Losses!

- Master the full lifecycle of space mission design from planning to operations.
- Gain deep insights into satellite subsystems, including propulsion, payload, and communication.
- Understand the value and strategic use of NGSO satellites in modern space networks.
- Stay ahead with trends in AI in space and autonomous spacecraft management.
- Learn about the future of space sustainability, regulations, and orbital debris handling.
- Apply knowledge through real-world case studies in military and commercial missions.

Conclusion

This course is a gateway to mastering the art and science of space mission design and operations.

Whether you're involved in engineering, defense, policy, or technology development, you'll leave equipped with critical tools to shape the future of space systems architecture, drive innovation in satellite communication, and contribute to a more sustainable space environment.

Step into the future of aerospace leadership—where systems thinking meets AI-driven orbital precision.



Blackbird Training Cities

Europe



Malaga (Spain)



Sarajevo (Bosnia and Herzegovina)



Oporto (Portugal)



Glasgow (Scotland)



Edinburgh (UK)



Oslo (Norway)



Annecy (France)



Bordeaux (France)



Copenhagen (Denmark)



Birmingham (UK)



Lyon (France)



Moscow (Russia)



Stockholm (Sweden)



Podgorica (Montenegro)



Batumi (Georgia)



London (UK)



Istanbul (Turkey)



Amsterdam



Düsseldorf (Germany)
(Switzerland)



Paris (France)



Athens (Greece)



Barcelona (Spain)



Munich (Germany)



Geneva



Prague (Czech)



Vienna (Austria)



Rome (Italy)



Brussels



Madrid (Spain)



Berlin (Germany)



Lisbon (Portugal)



Zurich



Manchester (UK)



Milan (Italy)



Blackbird Training Cities

USA & Canada



Los Angeles (USA)



Orlando, Florida (USA)



Online



Phoenix, Arizona (USA)



Houston, Texas (USA)



Boston, MA (USA)



Washington (USA)



Miami, Florida (USA)



New York City (USA)



Seattle, Washington (USA)



Washington DC (USA)



In House



Jersey, New Jersey (USA)



Toronto (Canada)

ASIA



Baku (Azerbaijan)
(Thailand)



Maldives (Maldives)



Doha (Qatar)



Manila (Philippines)



Bali (Indonesia)



Bangkok



Beijing (China)



Singapore (Singapore)



Sydney



Tokyo (Japan)



Jeddah (KSA)



Riyadh (KSA)



Melbourne (Australia)
Korea



Phuket (Thailand)



Dubai (UAE)



Kuala Lumpur (Malaysia)



Kuwait City (Kuwait)



Seoul (South)



Pulau Ujong (Singapore)



Irbid (Jordan)



Jakarta (Indonesia)



Amman (Jordan)



Beirut



Blackbird Training Cities

AFRICA



Kigali (Rwanda)



Cape Town (South Africa)



Accra (Ghana)



Lagos (Nigeria)



Marrakesh (Morocco)



Nairobi (Kenya)



Zanzibar (Tanzania)



Tangier (Morocco)



Cairo (Egypt)



Sharm El-Sheikh (Egypt)



Casablanca (Morocco)



Tunis (Tunisia)



Blackbird Training Clients



MANNAI Trading
Company WLL,
Qatar



Alumina Corporation
Guinea



Booking.com
Netherlands



Oxfam GB International
Organization,
Yemen



Capital Markets
Authority,
Kuwait



Waltersmith Petroman Oil Limited
Nigeria



Qatar National Bank
(QNB),
Qatar



Qatar Foundation,
Qatar



AFRICAN UNION ADVISORY
BOARD ON CORRUPTION,
Tanzania



KFAS
Kuwait



Reserve Bank of
Malawi,
Malawi



Central Bank of Nigeria
Nigeria



Ministry of Interior
Kingdom of Saudi Arabia
KSA



Mabruk Oil Company
Libya



Saudi Electricity
Company,
KSA



BADAN PENGELOLA
KEUANGAN Haji,
Indonesia



NATO
Italy



ENI CORPORATE
UNIVERSITY,
Italy



Gulf Bank
Kuwait



General Organization for
Social Insurance
KSA



Defence Space Administration
Nigeria



National Industries
Group (Holding),
Kuwait



Hamad Medical
Corporation,
Qatar



USAID
Pakistan



STC Solutions,
KSA



North Oil company,



EKO Electricity



Oman Broadband



UNITED NATIONS
UN.



Authority for

UK Training
PARTNER



Blackbird Training Categories

Management & Admin

Entertainment & Leisure
Professional Skills
Finance, Accounting, Budgeting
Media & Public Relations
Project Management
Human Resources
Audit & Quality Assurance
Marketing, Sales, Customer Service
Secretary & Admin
Supply Chain & Logistics
Management & Leadership
Agile and Elevation

Technical Courses

Artificial Intelligence (AI)
Hospital Management
Public Sector
Special Workshops
Oil & Gas Engineering
Telecom Engineering
IT & IT Engineering
Health & Safety
Law and Contract Management
Customs & Safety
Aviation
C-Suite Training



International House 185 Tower Bridge
Road London SE1 2UF United Kingdom



+44 7401 1773 35
+44 7480 775526



Sales@blackbird-training.com



www.blackbird-training.com

