

Fundamentals of Mechanical Technology

Malaga (Spain)

1 - 5 December 2025

UK Traininig

PARTNER



Fundamentals of Mechanical Technology

Code: OG28 From: 1 - 5 December 2025 City: Malaga (Spain) Fees: 5100 Pound

Introduction

Mechanical technology is the cornerstone for the development and design of systems and devices that rely on mechanics. In this training course, part of our specialized basic mechanical training courses, we will explore the fundamental concepts in mechanical engineering, focusing on understanding forces, motions, and materials, and how to use this knowledge to design and manufacture mechanical components. The course will also cover how to apply these principles to improve the performance and efficiency of mechanical systems across various applications. This program is designed to help you understand the fundamentals of mechanical design principles and equip you with the tools to implement advanced mechanical technologies effectively.

Course Objectives

- Perform Non-Destructive Examination NDE for both static and rotating equipment.
- Select appropriate materials for static and rotating equipment.
- Understand the operation and design principles for mechanical systems.
- Protect equipment from corrosion using advanced methods.
- Identify failure modes for both static and rotating equipment.
- Apply basic mechanical engineering concepts to enhance the performance and efficiency of systems.

Course Outlines

Day 1: Introduction & Basics of Mechanical Engineering

- Mechanical Engineering Material Properties: Focus on various materials like carbon steels and alloy steels.
- Stress and Strain: Understanding the relationship between forces and deformations in mechanical systems.
- Fracture Failure and Stress Concentration: Studying the effects of stress and failure in materials.
- Fatigue Failure and Mechanisms: How repeated loading affects materials and leads to fatigue.
- Temperature Considerations and Creep Failure: Understanding the effects of high temperatures on materials.
- Damage Mechanism Identification: Analyzing common failure modes in mechanical systems.

Day 2: Materials Selection and Inspection

- Materials Selection: Choosing the right materials based on engineering needs.
- Non-Destructive Testing NDT: Learning techniques such as visual inspection, magnetic flux, and eddy current testing.
- X-ray & Gamma-ray Inspection: Using advanced inspection technologies to ensure equipment reliability.
- Ultrasonic Testing: Application of TOFD and Pulse-Echo methods for defect detection.

Day 3: Valves, Piping & Fitness for Service

- Valve Types and Characteristics: Understanding the various types of valves and their applications in

PARTNER



mechanical systems.

- Piping and Pipeline Design: Exploring piping materials and standards like ASME B31.
- Fitness for Service: Evaluating the mechanical integrity of equipment and identifying when it can continue in service.

Day 4: Corrosion & Mechanical Equipment

- Corrosion Fundamentals: Understanding the causes and types of corrosion in mechanical systems.
- Corrosion Inspection and Minimization: Techniques for monitoring and preventing corrosion.
- Compressors: Exploring the different types of compressors, their performance, and applications.

Day 5: Mechanical Technology Maintenance & Performance Monitoring

- Maintenance Strategies and Optimization: Learning how to improve mechanical system efficiency and reliability.
- Condition Monitoring and Vibration Analysis: Using advanced techniques to monitor mechanical systems and predict failures.
- Shaft Alignment: Understanding the importance of precise alignment for system performance.

Why Attend This Course: The Wins & Losses!

- Master the Basics of Mechanical Engineering: This course will provide you with the fundamental principles necessary for designing, operating, and maintaining mechanical systems.
- Practical application of knowledge: Gain hands-on experience in mechanical design principles, material selection, and NDE techniques, which are crucial for real-world applications.
- Advanced technologies at your fingertips: Learn about advanced mechanical technologies and how to apply them in mechanical systems to ensure efficiency and reliability.
- Boost your career potential: With a solid foundation in mechanical technology and fitness for service, you'll be well-equipped to tackle engineering challenges and enhance your career prospects.
- Corrosion control and maintenance techniques: Master strategies to protect equipment, improve system reliability, and reduce downtime through effective maintenance and inspection practices.

Conclusion

This course provides a unique opportunity to gain in-depth knowledge of mechanical technology, from the basics of mechanical engineering to advanced mechanical technologies. You will learn how to enhance the efficiency and reliability of mechanical systems, develop mechanical design solutions, and apply advanced inspection techniques to ensure the long-term performance of equipment. Whether you are looking to expand your skills in mechanical design principles or implement cutting-edge mechanical technologies, this course will set you on the path to success.



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)



Salzburg (Austria)



London (UK)



Istanbul (Turkey)



Amsterdam



Düsseldorf (Germany)



Paris (France)



Athens (Greece)



Barcelona (Spain)



Munich (Germany)



Geneva (Switzerland)



Prague (Czech)



Vienna (Austria)



Rome (Italy)



Brussels (Belgium)



Madrid (Spain)



Berlin (Germany)



Lisbon (Portugal)



Zurich (Switzerland)



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)
(Kuwait)



Phuket (Thailand)



Shanghai (China)



Dubai (UAE)



Kuala Lumpur (Malaysia)



Kuwait City



Seoul (South Korea)



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



المؤسسة العامة للتأمينات الاجتماعية
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.



هيئة تنظيم الكهرباء - عمان
AUTHORITY FOR ELECTRICITY REGULATION, OMAN
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

