

Advanced Developments in Process Engineering: Innovations and Applications

Amman (Jordan)

6 - 10 June 2027

UK Training

PARTNER



Advanced Developments in Process Engineering: Innovations and Applications

Code: OG32 From: 6 - 10 June 2027 City: Amman (Jordan) Fees: 4900 Pound

Introduction

This intensive program delivers a deeper and more sophisticated exploration of modern chemical engineering practices, with a clear focus on advanced process optimization, high-efficiency powder technologies, and next-generation industrial solutions. It goes beyond foundational knowledge to examine how complex systems behave under real operational conditions and how engineers can enhance performance using integrated, data-driven approaches.

Particular attention is given to powder processing operations—one of the most technically demanding areas in chemical industries. The course addresses not only the mechanics of grinding, classification, and material handling, but also the underlying process dynamics, scale-up challenges, and performance limitations that impact productivity and product quality.

By combining advanced engineering principles with sustainability strategies and digital transformation tools, this course equips participants to design, analyze, and optimize highly efficient, resilient, and future-ready processing systems.

Course Objectives

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

- Critically evaluate emerging technologies and innovations in chemical engineering.
- Design and optimize sustainable and energy-efficient chemical processes.
- Analyze complex powder processing systems and identify performance bottlenecks.
- Apply advanced grinding, classification, and separation techniques in industrial contexts.
- Interpret particle behavior and its impact on system efficiency and product characteristics.
- Utilize advanced simulation tools and data analytics for process optimization.
- Integrate digital solutions into chemical and solid-processing operations.
- Develop strategic approaches to improve operational reliability and industrial scalability.

Course Outlines

Day 1: Advanced Trends and Industrial Challenges

- Evolution of chemical engineering in high-performance industries.
- Advanced process design and system integration concepts.
- Global industrial challenges: efficiency, emissions, and resource constraints.
- Process intensification and optimization methodologies.
- Performance benchmarking and key industrial metrics.

Day 2: Sustainable Process Engineering & Energy Optimization



- Advanced concepts in sustainable and green process design.
- Energy integration and heat recovery systems.
- Carbon reduction strategies in process industries.
- Lifecycle analysis and resource efficiency optimization.
- Case studies on large-scale sustainable chemical operations.

Day 3: Advanced Powder Processing & Grinding Technologies

- In-depth analysis of particle mechanics and powder behavior.
- High-efficiency grinding technologies and performance modeling.
- Process scale-up challenges and equipment optimization.
- Advanced classification systems and separation efficiency analysis.
- Powder flow dynamics, agglomeration, and handling complexities.
- Industrial troubleshooting and performance improvement strategies.
- Workshop: Process optimization in grinding and classification systems.

Day 4: Digital Transformation & Smart Process Optimization

- Integration of digital technologies in chemical processing systems.
- Advanced data analytics for predictive performance and maintenance.
- Machine learning applications in process optimization.
- Dynamic simulation and digital twins in chemical engineering.
- Real-time monitoring and intelligent control systems.
- Case studies of fully optimized smart processing plants.

Day 5: Industrial Implementation & Strategic Optimization

- Frameworks for deploying advanced technologies in existing operations.
- Process integration and system redesign for maximum efficiency.
- Risk analysis and operational reliability in complex systems.
- Continuous improvement models and performance sustainability.
- Development of strategic action plans for industrial application.
- Final integrated case study and technical evaluation.

Why Attend this Course: Wins & Losses!

- Build a deeper, more analytical understanding of complex chemical processes.
- Master advanced powder processing and high-efficiency grinding systems.
- Enhance your ability to solve real industrial challenges with practical solutions.
- Gain expertise in integrating sustainability within process design.
- Leverage digital tools and analytics to optimize performance.
- Strengthen your capability to lead process improvement and innovation initiatives.

Conclusion

This advanced course provides a comprehensive and technically rich perspective on modern chemical engineering, focusing on high-impact areas such as powder processing, sustainability, and digital transformation. It is designed to strengthen both analytical thinking and practical problem-solving in complex industrial environments.



Participants leave with the ability to critically assess processes, implement advanced optimization techniques, and drive measurable improvements in efficiency, reliability, and product quality. The knowledge gained supports not only immediate operational enhancements but also long-term strategic development in evolving industrial landscapes.

Head Office: +44 7480 775 526
Email: Sales@blackbird-training.com
Website: www.blackbird-training.com

UK Training

PARTNER



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,
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)
Sustainability, ESG & Corporate Responsibility
Advanced Courses
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

