Net-Zero Strategies for Chemical Industries Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The global chemical industry is undergoing a rapid transformation driven by Net-Zero carbon emissions targets, ESG compliance, decarbonization mandates, and sustainable manufacturing pressures. As one of the highest energy-consuming industrial sectors, chemical production contributes significantly to global greenhouse gas emissions through feedstock processing, steam cracking, hydrogen production, and energy-intensive reactions. Net-Zero Strategies for Chemical Industries Training Course is designed to equip professionals with advanced knowledge of carbon neutrality strategies, green chemistry principles, process electrification, carbon capture utilization and storage, and circular economy integration to accelerate the transition toward Net-Zero operations.

With increasing regulatory frameworks such as carbon pricing, EU Green Deal policies, Scope 1-3 emissions reporting, and science-based targets, chemical companies must adopt robust sustainability roadmaps. This program provides a practical and strategic understanding of decarbonization technologies, renewable feedstocks, energy efficiency optimization, digital twin modeling, lifecycle assessment, and hydrogen economy integration. Participants will gain actionable insights into real-world industrial transformations, enabling them to design, implement, and scale Net-Zero strategies across petrochemicals, specialty chemicals, fertilizers, and downstream manufacturing systems.

Programme Curriculum

Net-Zero Strategies for Chemical Industries Training Course

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Course Duration

5 days

Course Objectives

1. Understand Net-Zero transition frameworks for chemical industries
2. Analyze Scope 1, 2, and 3 emissions in chemical value chains
3. Apply carbon footprinting and lifecycle assessment (LCA) tools
4. Evaluate decarbonization technologies in chemical processing units
5. Design energy efficiency optimization strategies for plants
6. Integrate renewable energy into chemical manufacturing systems
7. Explore green hydrogen and electrification pathways
8. Implement carbon capture, utilization, and storage (CCUS) solutions
9. Develop circular economy models for chemical production
10. Assess bio-based and sustainable feedstock alternatives
11. Utilize digital twins and AI for emissions monitoring
12. Align operations with ESG reporting and sustainability standards
13. Build Net-Zero roadmaps for industrial transformation

Target Audience

1. Chemical Plant Managers
2. Process Engineers & Production Engineers
3. Sustainability & ESG Officers
4. Energy Managers in Industrial Plants
5. Environmental Compliance Professionals
6. R&D Scientists in Chemical Manufacturing
7. Policy Makers & Regulatory Consultants
8. Supply Chain & Operations Leaders in Petrochemical Sector

Course Modules

Module 1: Net-Zero Fundamentals in Chemical Industry

- Global emissions landscape in chemicals
- Net-Zero frameworks

- Carbon accounting principles
- Industrial decarbonization pathways
- **Case Study:** BASF climate neutrality roadmap transformation

Module 2: Carbon Footprinting & Lifecycle Assessment (LCA)

- Product-level carbon footprinting
- LCA methodologies
- Emissions hotspot identification
- Digital LCA tools and software
- **Case Study:** Dow Chemicals product sustainability scoring system

Module 3: Energy Efficiency & Process Optimization

- Heat integration and recovery systems
- Advanced process control (APC) systems
- Energy benchmarking in chemical plants
- Waste heat recovery technologies
- **Case Study:** SABIC energy optimization in petrochemical complexes

Module 4: Renewable Energy Integration

- Solar and wind integration in industrial sites
- Electrification of chemical processes
- Power-to-chemicals systems
- Grid decarbonization strategies
- **Case Study:** Yara renewable ammonia production initiative

Module 5: Green Hydrogen & Alternative Feedstocks

- Hydrogen economy fundamentals
- Electrolysis technologies
- Bio-based feedstock transition
- Synthetic fuels and e-chemicals
- **Case Study:** Siemens Energy green hydrogen pilot projects

Module 6: Carbon Capture, Utilization & Storage (CCUS)

- CO? capture technologies
- Carbon utilization pathways
- Geological storage mechanisms
- Economic feasibility of CCUS
- **Case Study:** Shell Quest CCS facility in Canada

Module 7: Circular Economy in Chemical Manufacturing

- Waste-to-value systems
- Chemical recycling technologies
- Closed-loop manufacturing systems
- Industrial symbiosis models
- **Case Study:** Unilever circular plastics recovery model

Module 8: Digital Transformation for Net-Zero

- AI-driven emissions tracking
- Digital twins in chemical plants
- Predictive sustainability analytics
- Smart sensors & IoT for energy monitoring
- **Case Study:** Siemens digital twin deployment in chemical operations

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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