Anaerobic Digestion Technologies Training Course

Professional Development Training Course Outline

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

Course Introduction

Anaerobic Digestion (AD) Technologies are at the forefront of the global transition toward renewable energy, circular economy solutions, and sustainable waste management systems. Anaerobic Digestion Technologies Training Course is designed to equip participants with cutting-edge knowledge and practical skills in biogas production, organic waste valorization, and low-carbon energy technologies. With increasing global demand for clean energy alternatives, AD has emerged as a highly efficient solution for converting organic waste into biomethane, biofertilizers, and green energy, contributing significantly to climate change mitigation and net-zero emissions goals.

This course integrates innovative engineering practices, smart waste-to-energy systems, and digital monitoring technologies to provide a comprehensive understanding of anaerobic digestion processes. Participants will gain insights into advanced bioreactor design, feedstock optimization, and sustainable infrastructure development, enabling them to implement scalable and economically viable AD projects. The program emphasizes real-world applications through case studies, ensuring alignment with current industry trends, ESG frameworks, and green technology advancements.

Programme Curriculum

Anaerobic Digestion Technologies Training Course

Introduction

Anaerobic Digestion (AD) Technologies are at the forefront of the global transition toward renewable energy, circular economy solutions, and sustainable waste management systems. Anaerobic Digestion Technologies Training Course is designed to equip participants with cutting-edge knowledge and practical skills in biogas production, organic waste valorization, and low-carbon energy technologies. With increasing global demand for clean energy alternatives, AD has emerged as a highly efficient solution for converting organic waste into biomethane, biofertilizers, and green energy, contributing significantly to climate change mitigation and net-zero

emissions goals.

This course integrates innovative engineering practices, smart waste-to-energy systems, and digital monitoring technologies to provide a comprehensive understanding of anaerobic digestion processes. Participants will gain insights into advanced bioreactor design, feedstock optimization, and sustainable infrastructure development, enabling them to implement scalable and economically viable AD projects. The program emphasizes real-world applications through case studies, ensuring alignment with current industry trends, ESG frameworks, and green technology advancements.

Course Duration

5 days

Course Objectives

1. Understand anaerobic digestion fundamentals and biogas technology innovations
2. Analyze organic waste streams for optimal biogas yield optimization
3. Design advanced biogas plants using sustainable engineering principles
4. Apply circular economy models in waste-to-energy systems
5. Evaluate renewable energy integration strategies
6. Implement smart monitoring systems
7. Optimize biomethane upgrading technologies
8. Assess environmental impact and carbon footprint reduction
9. Develop financial models for green energy projects
10. Ensure compliance with global environmental regulations and ESG standards
11. Enhance operational efficiency using AI-driven analytics
12. Explore emerging trends in bioenergy and green hydrogen integration
13. Strengthen project management skills for sustainable infrastructure

Target Audience

1. Renewable Energy Engineers
2. Environmental Scientists & Sustainability Professionals
3. Waste Management Experts
4. Government & Policy Makers
5. Project Developers & Investors in Green Energy
6. Agricultural & Agro-processing Professionals
7. Industrial Plant Managers
8. Researchers & Academics in Bioenergy

Course Modules

Module 1: Fundamentals of Anaerobic Digestion

- AD process stages-Hydrolysis, Acidogenesis, Acetogenesis, Methanogenesis
- Microbial communities and their roles
- Types of digesters
- Feedstock characteristics
- **Case Study:** Small-scale rural biogas system implementation

Module 2: Feedstock Management & Pre-treatment

- Organic waste classification
- Pre-treatment technologies
- Co-digestion strategies
- Feedstock optimization
- **Case Study:** Food waste co-digestion plant

Module 3: Biogas Plant Design

- Reactor design principles
- Material selection
- Process flow diagrams
- Design software tools
- **Case Study:** Industrial-scale AD plant design

Module 4: Biogas Production & Optimization

- Process parameters (pH, temperature, retention time)
- Yield improvement techniques
- Process stability control
- Troubleshooting
- **Case Study:** Yield improvement in municipal plants

Module 5: Biogas Upgrading Technologies

- CO? removal methods
- Biomethane purification
- Compression & storage
- Grid injection standards
- **Case Study:** Biomethane upgrading facility

Module 6: Digestate Management

- Nutrient recovery
- Biofertilizer production
- Environmental compliance
- Market applications
- **Case Study:** Agricultural digestate reuse

Module 7: Smart Monitoring & Automation

- IoT in AD plants
- Sensors and data analytics
- SCADA systems
- Predictive maintenance
- **Case Study:** Smart biogas plant using AI

Module 8: Environmental & Sustainability Impact

- Life Cycle Assessment (LCA)
- Carbon credits and offsets
- ESG integration
- Climate change mitigation

- **Case Study:** Carbon-neutral waste facility

Training Methodology

- 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

Start Date	End Date	Location	Price
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:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com