Innovation and Technology Commercialization in Chemical Engineering 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 chemical engineering industry is undergoing a profound transformation driven by Industry 4.0, Artificial Intelligence (AI), Digital Transformation, Green Chemistry, Circular Economy, Advanced Materials, Sustainable Manufacturing, and Clean Energy Technologies. Organizations are increasingly seeking innovative approaches to convert research findings, laboratory discoveries, and emerging technologies into commercially viable products and scalable industrial solutions. Successful technology commercialization requires a combination of technical expertise, innovation management, intellectual property protection, market validation, regulatory compliance, and strategic business development.

Innovation and Technology Commercialization in Chemical Engineering Training Course equips professionals with the knowledge and practical tools needed to accelerate technology transfer, startup incubation, innovation ecosystems, smart manufacturing, process optimization, sustainability innovation, digital innovation, and commercialization strategies within the chemical engineering sector. Through real-world case studies, interactive workshops, and industry best practices, participants will learn how to transform innovative chemical technologies into market-ready solutions that generate economic value, competitive advantage, and sustainable growth.

Programme Curriculum

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5 days

Course Objectives

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

1. Understand modern Innovation Management frameworks in chemical engineering.
2. Develop effective Technology Commercialization Strategies for emerging technologies.
3. Apply Artificial Intelligence and Machine Learning in process innovation.
4. Evaluate opportunities within the Circular Economy and sustainable manufacturing.
5. Conduct Technology Readiness Level (TRL) assessments.
6. Design robust Technology Transfer and Scaling-Up roadmaps.
7. Implement Intellectual Property (IP) Management and patent strategies.
8. Perform Market Validation and Customer Discovery for chemical innovations.
9. Develop Digital Transformation initiatives in chemical process industries.
10. Integrate Green Chemistry and ESG Sustainability principles into innovation projects.
11. Analyze investment opportunities and Venture Capital Funding Models.
12. Build innovation-driven Research & Development (R&D) Commercialization pipelines.
13. Lead cross-functional teams in Open Innovation and Industry-Academia Collaboration projects.

Target Audience

1. Chemical Engineers
2. Process Engineers
3. R&D Scientists and Researchers
4. Innovation and Technology Managers
5. Product Development Specialists
6. University Researchers and Academics
7. Startup Founders and Entrepreneurs
8. Government, Regulatory, and Industrial Development Professionals

Course Modules

Module 1: Innovation Ecosystems and Emerging Technology Trends

- Innovation frameworks in chemical engineering
- Industry 4.0 and Smart Manufacturing
- Artificial Intelligence applications

- Digital innovation platforms
- Future technology forecasting
- **Case Study:** AI-driven predictive maintenance implementation in a petrochemical plant.

Module 2: Technology Commercialization Fundamentals

- Technology commercialization lifecycle
- Technology Readiness Levels (TRL)
- Market opportunity assessment
- Commercial feasibility analysis
- Product-market fit strategies
- **Case Study:** Commercialization journey of advanced membrane separation technology.

Module 3: Intellectual Property and Patent Management

- Patent landscape analysis
- Intellectual property protection
- Licensing strategies
- Technology valuation methods
- IP commercialization pathways
- **Case Study:** Patent portfolio development for specialty chemical innovations.

Module 4: Market Validation and Business Model Innovation

- Customer discovery methodologies
- Lean startup principles
- Value proposition design
- Business model innovation
- Competitive market analysis
- **Case Study:** Successful launch of bio-based chemical products into global markets.

Module 5: Sustainable Innovation and Green Technology Development

- Green chemistry principles
- Circular economy implementation
- ESG and sustainability frameworks
- Carbon reduction technologies
- Renewable energy integration
- **Case Study:** Commercial deployment of carbon capture and utilization technologies.

Module 6: Scale-Up Engineering and Technology Transfer

- Pilot plant development
- Process scale-up strategies
- Manufacturing readiness assessment
- Risk management and mitigation
- Industrial deployment planning
- **Case Study:** Scaling laboratory catalyst technology to commercial production.

Module 7: Financing Innovation and Strategic Partnerships

- Venture capital and private equity

- Innovation funding mechanisms
- Public-private partnerships
- Startup incubation and acceleration
- Strategic alliance development
- **Case Study:** Funding and commercialization of clean hydrogen technologies.

Module 8: Leadership, Digital Transformation, and Innovation Execution

- Innovation leadership skills
- Change management strategies
- Digital transformation roadmaps
- Data-driven decision-making
- Innovation performance metrics
- **Case Study:** Digital transformation and smart chemical plant implementation.

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:

Register Online Now

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