Industrial Drying in Food Processing 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

Industrial drying in food processing is a critical preservation and value-addition technology that enhances shelf life, food safety, product quality, and supply chain efficiency. Industrial Drying in Food Processing Training Course provides in-depth knowledge of modern drying technologies such as spray drying, freeze drying, drum drying, vacuum drying, and hot air dehydration systems used across global food industries. Participants will gain strong technical competence in heat and mass transfer, moisture reduction kinetics, energy optimization, and process control systems, enabling them to improve operational efficiency and product consistency in food manufacturing environments.

With increasing global demand for processed foods, clean-label products, and sustainable food production, industrial drying has become a core competency for food engineers and technologists. This course integrates HACCP food safety principles, energy-efficient drying systems, automation in food processing, and quality retention strategies to ensure compliance with international standards. Learners will also explore real-world applications in fruit and vegetable drying, dairy powders, instant foods, meat dehydration, and herbal product processing, equipping them with industry-ready skills for modern food production systems.

Programme Curriculum

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Course Duration

5 days

Course Objectives

1. Understand principles of heat and mass transfer in food drying systems
2. Analyze moisture content reduction and water activity control
3. Evaluate performance of spray drying and freeze-drying technologies
4. Apply energy-efficient drying optimization techniques
5. Implement HACCP-based food safety in drying operations
6. Improve shelf life extension and food preservation strategies
7. Optimize drying kinetics for industrial food production
8. Identify and reduce thermal degradation and nutrient loss
9. Design continuous and batch drying systems
10. Enhance product quality retention in dehydration processes
11. Integrate automation and smart sensors in drying systems
12. Assess carbon footprint and sustainability in food drying
13. Develop troubleshooting skills for industrial drying equipment failures

Target Audience

1. Food Processing Engineers
2. Food Technologists and Scientists
3. Quality Assurance & HACCP Managers
4. Dairy Industry Professionals
5. Fruit & Vegetable Processing Manufacturers
6. FMCG Production Managers
7. Agricultural Product Exporters
8. Technical Students in Food Engineering & Biotechnology

Course Modules

Module 1: Fundamentals of Industrial Food Drying

- Principles of drying: heat & mass transfer
- Moisture content and water activity
- Drying rate curve analysis
- Types of drying methods overview
- Thermodynamics in food dehydration

- **Case Study:** Mango drying industry in India improving shelf stability through controlled dehydration systems.

Module 2: Drying Technologies in Food Processing

- Hot air drying systems
- Spray drying technology
- Freeze drying
- Vacuum and drum drying
- Solar-assisted drying systems
- **Case Study:** Instant coffee production using spray drying in large-scale FMCG manufacturing.

Module 3: Process Optimization & Energy Efficiency

- Energy consumption analysis
- Heat recovery systems
- Optimization of drying cycles
- Airflow and temperature control
- Cost reduction strategies
- **Case Study:** Energy optimization in vegetable dehydration plants reducing operational cost by 25%.

Module 4: Quality Preservation in Dried Foods

- Nutrient retention techniques
- Color, flavor, and texture preservation
- Anti-browning technologies
- Rehydration quality analysis
- Shelf-life prediction models
- **Case Study:** Freeze-dried strawberry production maintaining 95% nutrient retention for export markets.

Module 5: Food Safety & Regulatory Compliance

- HACCP implementation in drying plants
- Microbial control in dehydration
- ISO food safety standards
- Contamination prevention methods
- Traceability systems
- **Case Study:** Herbal tea drying facility achieving international export certification through HACCP compliance.

Module 6: Industrial Equipment & Automation

- Industrial dryers design and components
- Sensors and monitoring systems
- PLC and SCADA integration
- Maintenance and troubleshooting
- Smart factory concepts
- **Case Study:** Automated milk powder drying plant improving consistency and reducing downtime.

Module 7: Advanced Drying Innovations

- Nano-drying technologies

- Microwave-assisted drying
- Infrared drying systems
- Hybrid drying technologies
- AI-driven process control
- **Case Study:** Hybrid solar-microwave drying system for spices improving drying speed by 40%.

Module 8: Sustainability & Green Drying Technologies

- Carbon footprint reduction
- Renewable energy integration
- Waste heat utilization
- Sustainable packaging integration
- Eco-friendly processing systems
- **Case Study:** Coffee drying facility using biomass energy reducing emissions by 30%.

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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