Cereal Science and Baking Technology Training Course

Professional Development Training Course Outline

Category	Food processing and Technology	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Cereal Science and Baking Technology is a dynamic and specialized field that integrates food science, food engineering, and innovative baking practices to improve the quality, safety, and nutrition of cereal-based products. With increasing consumer demand for healthy, sustainable, and functional bakery foods, professionals must gain advanced skills in cereal chemistry, grain technology, and baking operations to remain competitive in the food and beverage industry. Cereal Science and Baking Technology Training Course provides an in-depth understanding of cereal grains, milling processes, dough rheology, bread-making science, and the latest trends in gluten-free, high-fiber, and plant-based bakery products.

This course has been designed to empower food technologists, bakers, nutritionists, and quality control professionals with applied knowledge and modern technological insights. Participants will benefit from practical learning through industry case studies, advanced baking techniques, cereal quality assessment, and innovative formulation methods. By the end of this course, learners will be well-prepared to apply scientific principles, meet industry standards, and lead innovation in cereal-based food processing and bakery technology.

Programme Curriculum

Cereal Science and Baking Technology Training Course

Introduction

Cereal Science and Baking Technology is a dynamic and specialized field that integrates food science, food engineering, and innovative baking practices to improve the quality, safety, and nutrition of cereal-based products. With increasing consumer demand for healthy, sustainable, and functional bakery foods, professionals must gain advanced skills in cereal chemistry, grain technology, and baking operations to remain

competitive in the food and beverage industry. Cereal Science and Baking Technology Training Course provides an in-depth understanding of cereal grains, milling processes, dough rheology, bread-making science, and the latest trends in gluten-free, high-fiber, and plant-based bakery products.

This course has been designed to empower food technologists, bakers, nutritionists, and quality control professionals with applied knowledge and modern technological insights. Participants will benefit from practical learning through industry case studies, advanced baking techniques, cereal quality assessment, and innovative formulation methods. By the end of this course, learners will be well-prepared to apply scientific principles, meet industry standards, and lead innovation in cereal-based food processing and bakery technology.

Course Objectives

1. Understand the fundamentals of cereal chemistry and grain science.
2. Analyze the nutritional composition and functional properties of cereals.
3. Explore modern cereal processing technologies and milling systems.
4. Apply dough rheology principles to baking applications.
5. Gain expertise in bread-making science and advanced bakery formulations.
6. Study gluten-free and functional bakery product innovations.
7. Evaluate cereal-based product quality and sensory analysis.
8. Understand food safety, shelf-life, and packaging in bakery technology.
9. Apply fermentation science and enzymatic technologies in baking.
10. Implement sustainable practices in cereal science and baking operations.
11. Develop innovative product design strategies in bakery technology.
12. Learn industry regulations, HACCP, and food quality management systems.
13. Gain practical exposure through real-world bakery industry case studies.

Organizational Benefits

- Enhanced food production efficiency and quality control.
- Increased innovation in bakery and cereal-based product development.
- Improved compliance with global food safety regulations.
- Stronger competitive advantage in the food and beverage industry.
- Cost-effective cereal processing and bakery management.
- Reduced food waste through improved process optimization.
- Higher consumer satisfaction with healthier product options.
- Adoption of sustainable practices for long-term growth.
- Stronger R&D capabilities in cereal and bakery technology.
- Empowered workforce with practical industry-ready skills.

Target Audiences

- Food technologists and scientists
- Bakery industry professionals
- Quality assurance and control specialists
- Nutritionists and dieticians
- R&D professionals in food processing
- Milling and cereal technology experts
- Entrepreneurs in bakery startups
- Students and academicians in food science

Course Duration: 10 days

Course Modules

Module 1: Introduction to Cereal Science

- Fundamentals of cereal chemistry and biology
- Grain structure and composition
- Role of cereals in nutrition and health
- Classification of major cereals
- Cereal utilization in global food systems
- Case study: Wheat and rice production trends

Module 2: Cereal Processing Technologies

- Milling techniques and grain processing systems
- Conditioning and tempering methods
- Roller milling vs. stone milling
- By-product utilization in cereal processing
- Impact of processing on nutrition
- Case study: Modern flour milling innovations

Module 3: Dough Rheology and Baking Science

- Gluten formation and protein interactions
- Water absorption and dough development
- Mixing, kneading, and fermentation principles
- Role of enzymes in dough processing
- Impact on final product quality
- Case study: Rheology testing in bread production

Module 4: Bread-Making Technology

- Ingredients and formulation science
- Yeast fermentation and proofing techniques
- Baking temperature and time optimization
- Defects in bread production and solutions
- Sensory and texture evaluation
- Case study: Artisanal bread-making methods

Module 5: Functional and Specialty Baked Products

- Gluten-free bakery product formulation
- High-fiber and fortified bakery items
- Plant-based and protein-enriched breads
- Sugar and fat reduction strategies
- Consumer trends in functional foods
- Case study: Gluten-free product success stories

Module 6: Enzymes and Fermentation in Baking

- Types of enzymes used in baking
- Role of amylases and proteases
- Lactic acid fermentation processes

- Advances in sourdough technology
- Flavor development in baking
- Case study: Sourdough fermentation innovations

Module 7: Cereal Product Quality Evaluation

- Physical and chemical analysis methods
- Rheological and thermal testing
- Sensory evaluation techniques
- Quality grading of cereals
- International standards for cereal products
- Case study: Quality assessment of bakery products

Module 8: Food Safety and Quality Systems

- HACCP principles and applications
- Food safety management systems
- Allergen management in bakery products
- Shelf-life determination
- Packaging solutions for bakery products
- Case study: Food safety audit in a bakery plant

Module 9: Bakery Equipment and Automation

- Overview of bakery machinery
- Mixing and fermentation equipment
- Baking ovens and cooling systems
- Process automation and digital monitoring
- Energy-efficient bakery equipment
- Case study: Smart bakery technology adoption

Module 10: Sustainable Cereal and Baking Practices

- Green processing technologies
- Waste minimization and recycling
- Sustainable ingredient sourcing
- Energy-efficient baking operations
- Circular economy in bakery industry
- Case study: Sustainability in global baking companies

Module 11: Innovative Product Development

- Bakery product design process
- Consumer-driven product innovation
- Novel ingredients and technologies
- Prototyping and pilot plant testing
- Launching new bakery products
- Case study: Development of fortified bread

Module 12: Sensory and Consumer Research

- Consumer preference analysis

- Sensory evaluation techniques
- Hedonic and descriptive testing
- Consumer behavior in bakery markets
- Product reformulation strategies
- Case study: Sensory testing of new bakery products

Module 13: Packaging and Shelf-Life of Bakery Products

- Packaging materials for cereal and bakery items
- Modified atmosphere packaging
- Shelf-life prediction models
- Packaging sustainability trends
- Labeling and regulatory compliance
- Case study: Shelf-life extension in bread products

Module 14: Regulations and Industry Standards

- Global food laws and compliance
- ISO and Codex Alimentarius standards
- Allergen labeling regulations
- Food additive regulations
- Export and import compliance in bakery industry
- Case study: Regulatory challenges in bakery exports

Module 15: Industry Case Studies and Practical Applications

- Review of bakery industry success stories
- Problem-solving in bakery operations
- Innovation in cereal-based product development
- Trends shaping the future of bakery industry
- Lessons from global bakery leaders
- Case study: Market expansion of bakery startups

Training Methodology

- Instructor-led interactive lectures with multimedia presentations
- Practical demonstrations and hands-on baking sessions
- Group discussions and brainstorming activities
- Real-world industry case studies for applied learning
- Assessments, quizzes, and knowledge checks

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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