Industrial Bakery Science and Dough Rheology Training Course

Professional Development Training Course Outline

Category	Food processing and Technology	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Industrial Bakery Science and Dough Rheology Training Course is designed to equip professionals with advanced knowledge and practical expertise in bakery technology, dough processing, and modern baking innovations. This comprehensive training emphasizes dough rheology, baking performance, ingredient interactions, and quality control in bakery production lines. Participants will gain insights into dough mixing, fermentation, proofing, and baking technologies while mastering techniques for optimizing product consistency, texture, and shelf life.

With industry-driven learning modules, the program integrates real-world case studies, hands-on sessions, and scientific methodologies that highlight the latest trends in industrial bakery innovation. By focusing on gluten development, dough extensibility, hydration, and flour quality analysis, this training course prepares professionals to manage large-scale production environments. It also supports the application of sustainable baking practices, clean-label product development, and advanced rheological testing methods.

Programme Curriculum

Industrial Bakery Science and Dough Rheology Training Course

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Course Objectives

1. Develop expertise in bakery science and dough rheology fundamentals.
2. Understand dough hydration, gluten network formation, and elasticity control.
3. Apply industrial mixing, fermentation, and proofing techniques effectively.
4. Optimize dough handling and machinability in production environments.
5. Explore advanced methods of rheological testing and analysis.
6. Strengthen knowledge of flour quality and ingredient functionality.
7. Learn innovative approaches to clean-label bakery formulation.
8. Enhance bakery product shelf life and texture consistency.
9. Utilize sensory evaluation in bakery quality assessment.
10. Implement sustainable and energy-efficient bakery practices.
11. Improve problem-solving skills for industrial dough processing.
12. Apply case-based learning from global industrial bakeries.
13. Bridge scientific knowledge with bakery industry applications.

Organizational Benefits

- Enhanced workforce expertise in industrial bakery technology.
- Improved consistency and efficiency in bakery production lines.
- Reduction of production losses and ingredient waste.
- Greater adaptability to consumer trends and clean-label demands.
- Increased product quality and customer satisfaction.
- Strengthened compliance with international bakery standards.
- Application of sustainable and eco-friendly baking practices.
- Improved problem-solving for bakery production challenges.
- Enhanced competitive advantage in global bakery markets.
- Stronger innovation pipeline for new product development.

Target Audiences

1. Bakery technologists and food scientists.
2. Quality assurance and R&D professionals.
3. Production and plant managers in bakery industries.
4. Entrepreneurs in the baking sector.
5. Ingredient and flour technologists.
6. Food engineering professionals.
7. Product development specialists.
8. Academic researchers in food science.

Course Duration: 5 days

Course Modules

Module 1: Fundamentals of Bakery Science

- Introduction to bakery science and dough rheology
- Role of flour, water, yeast, and other ingredients
- Gluten structure and dough elasticity
- Interaction of fats, enzymes, and improvers
- Quality assessment of raw materials
- Case study: Flour quality and its impact on bread volume

Module 2: Dough Rheology and Testing

- Rheological principles in dough development
- Dough extensibility and viscoelasticity
- Mixolab, farinograph, and alveograph analysis
- Predicting dough behavior in production lines
- Troubleshooting common rheology issues
- Case study: Dough extensibility in large-scale bread baking

Module 3: Dough Mixing and Hydration Techniques

- Mixing stages and energy input effects
- Hydration optimization in dough systems
- Impact of mixing on gluten network formation
- Continuous vs. batch mixing systems
- Mixing-related product quality control
- Case study: Mixer selection in high-speed bread production

Module 4: Fermentation and Proofing Science

- Yeast activity and gas production mechanisms
- Fermentation time, temperature, and control factors
- Dough proofing and expansion dynamics
- Role of fermentation in flavor and texture
- Managing over-proofed and under-proofed dough
- Case study: Impact of fermentation on croissant layers

Module 5: Baking Technology and Heat Transfer

- Principles of baking in industrial ovens
- Heat and mass transfer in dough systems
- Maillard reaction and crust formation
- Baking defects and corrective actions
- Innovations in industrial oven technology
- Case study: Oven profile optimization for consistent loaf color

Module 6: Ingredient Functionality and Interactions

- Role of functional ingredients in dough stability
- Impact of emulsifiers, enzymes, and improvers
- Protein and starch modifications during baking
- Sugar and fat interactions in dough systems
- Natural additives for clean-label products
- Case study: Enzyme optimization in industrial sponge cakes

Module 7: Sensory Evaluation in Bakery Products

- Principles of sensory testing
- Texture, flavor, and appearance analysis
- Consumer preference mapping
- Linking rheology to sensory outcomes
- Designing sensory panels for bakery products
- Case study: Sensory profiling in artisan bread production

Module 8: Sustainability and Innovation in Bakery Science

- Energy-efficient bakery operations
- Waste reduction and ingredient utilization
- Sustainable sourcing of raw materials
- Innovation in bakery packaging solutions
- Trends in plant-based and clean-label baking
- Case study: Sustainable practices in global bakery industries

Training Methodology

- Interactive classroom sessions with expert trainers
- Case study presentations and discussions
- Practical demonstrations of dough rheology testing
- Group activities and problem-solving workshops
- Hands-on exposure to bakery processing equipment
- Continuous evaluation through Q&A and feedback sessions

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

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