Principles of Food Microbiology for Non-Microbiologists 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

The field of food microbiology plays a vital role in ensuring food safety, quality, and shelf-life in today?ÇÖs globalized supply chains. Principles of Food Microbiology for Non-Microbiologists Training Course is designed specifically for non-microbiologists who are directly or indirectly involved in food processing, handling, quality assurance, or regulatory functions. Participants will gain an in-depth understanding of foodborne pathogens, spoilage organisms, and contamination control while learning practical applications for food safety management.

With the rise of global food safety standards and consumer demands for transparency, it is essential to equip professionals with the knowledge of microbial risks and effective control measures. This course combines theoretical insights with case-based learning to provide actionable skills for maintaining high food safety standards, preventing recalls, and supporting regulatory compliance across food industries.

Programme Curriculum

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Course Objectives

1. Understand the fundamentals of food microbiology and its significance in food safety.
2. Identify common foodborne pathogens and spoilage microorganisms.
3. Explore microbial growth conditions and their impact on food quality.
4. Learn microbial detection and enumeration methods used in food industries.
5. Apply principles of contamination control and hygiene management.
6. Assess microbiological risks in different food categories.
7. Gain knowledge of international food safety standards and regulations.
8. Understand predictive microbiology and shelf-life estimation.
9. Recognize the role of microbiology in Hazard Analysis Critical Control Point (HACCP).
10. Analyze case studies on foodborne outbreaks and industry responses.
11. Develop strategies for effective food safety culture in organizations.
12. Integrate microbiological principles with quality assurance systems.
13. Acquire skills to communicate microbiological concepts to non-technical stakeholders.

Organizational Benefits

1. Improved compliance with global food safety regulations.
2. Reduced risk of foodborne outbreaks and recalls.
3. Enhanced food safety culture within the organization.
4. Strengthened customer trust and brand reputation.
5. Increased efficiency in quality assurance practices.
6. Cost reduction through better contamination control.
7. Improved shelf-life management of food products.
8. Enhanced staff knowledge and competency in food safety.
9. Streamlined integration of microbiology with HACCP and ISO standards.
10. Competitive advantage in food safety certification and audits.

Target Audiences

1. Food production supervisors
2. Quality assurance professionals
3. Regulatory officers in food safety
4. Food technologists
5. Supply chain managers in the food industry
6. Food safety consultants
7. Research and development personnel
8. Non-microbiologist managers in food organizations

Course Duration: 10 days

Course Modules

Module 1: Introduction to Food Microbiology

- Basics of microorganisms in food systems
- Classification of foodborne microbes
- Significance of microorganisms in food safety
- Historical perspectives of food microbiology
- Emerging trends in microbial food safety
- Case study: The role of microbiology in the 2011 E. coli outbreak in Europe

Module 2: Microbial Growth and Control Factors

- Conditions influencing microbial growth
- Temperature and pH effects on microorganisms
- Moisture and water activity considerations
- Growth control through preservatives
- Environmental factors in microbial development
- Case study: Growth control in ready-to-eat meals

Module 3: Foodborne Pathogens

- Overview of major bacterial pathogens
- Viral agents in foodborne illness
- Parasitic organisms in food systems
- Symptoms and health impacts of infections
- Detection of pathogens in food samples
- Case study: Salmonella outbreak in peanut butter

Module 4: Spoilage Microorganisms

- Classification of spoilage organisms
- Spoilage in meat and poultry
- Spoilage in dairy products
- Spoilage in fruits and vegetables
- Economic impact of food spoilage
- Case study: Spoilage issues in packaged salads

Module 5: Microbial Detection Methods

- Traditional culture-based methods
- Rapid detection technologies
- Molecular methods in food microbiology
- Advantages and limitations of techniques
- Industry applications of detection systems
- Case study: PCR testing in detecting Listeria

Module 6: Food Preservation and Microbial Control

- Heat treatments and pasteurization
- Cold storage and freezing effects
- Fermentation and preservation techniques
- Packaging technologies and shelf-life extension
- Natural antimicrobials in preservation
- Case study: Preservation methods in dairy industry

Module 7: Hygiene and Sanitation Practices

- Good Manufacturing Practices (GMPs)
- Cleaning and sanitation protocols
- Role of personnel hygiene in food safety
- Cross-contamination prevention strategies
- Environmental monitoring programs
- Case study: Hygiene failures in food processing plant

Module 8: Predictive Microbiology

- Concept of predictive modeling
- Factors influencing predictive outcomes
- Shelf-life prediction through modeling
- Applications in food product development
- Limitations of predictive microbiology
- Case study: Predictive modeling in seafood industry

Module 9: HACCP and Microbiology

- Role of microbiology in HACCP principles
- Critical control points and microbial hazards
- Validation and verification processes
- Integration with microbiological testing
- Regulatory significance of HACCP systems
- Case study: HACCP implementation in poultry industry

Module 10: International Food Safety Standards

- Overview of Codex Alimentarius
- ISO 22000 and food microbiology relevance
- Global Food Safety Initiative (GFSI) schemes
- Compliance with FDA and EU standards
- Certification processes and audits
- Case study: ISO 22000 implementation in beverage company

Module 11: Food Categories and Microbial Risks

- Microbiology of meat and seafood
- Microbiology of dairy products
- Microbiology of bakery and cereals
- Microbiology of fresh produce
- Microbiology of beverages
- Case study: Microbial risks in ready-to-drink juices

Module 12: Microbiological Risk Assessment

- Principles of risk assessment
- Hazard identification and analysis
- Risk characterization and evaluation
- Tools for microbiological risk assessment
- Decision-making based on risk outcomes

- Case study: Risk assessment in infant formula production

Module 13: Emerging Trends in Food Microbiology

- Advances in genomics and sequencing
- Microbiome analysis in food systems
- Nanotechnology in microbial control
- Big data and artificial intelligence applications
- Global trends in food safety innovation
- Case study: Use of WGS in outbreak investigations

Module 14: Building Food Safety Culture

- Definition and importance of food safety culture
- Leadership role in fostering safety practices
- Training and competency development
- Employee engagement in food safety
- Sustaining safety culture in organizations
- Case study: Improving safety culture in a multinational food company

Module 15: Communicating Microbiology to Non-Experts

- Simplifying microbiological concepts
- Tools for effective communication
- Bridging technical and non-technical language
- Role of training and workshops
- Strategies for stakeholder engagement
- Case study: Communication of microbiology in public health campaigns

Training Methodology

- Interactive lectures and expert-led presentations
- Group discussions and collaborative learning activities
- Case study analysis from real-world food safety incidents
- Hands-on exercises for detection methods and risk assessments
- Practical demonstrations on hygiene and sanitation practices
- Role-play and scenario-based simulations

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

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