Food Safety and Biotech Application (ISO 22000) Training Course

Professional Development Training Course Outline

Category	Biotechnology and Pharmaceutical Development	**Duration**	10 Days
Base Fee	$4,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In the evolving landscape of food safety and biotechnology, the importance of adhering to global standards has never been more critical. ISO 22000 is a leading certification that ensures organizations meet internationally recognized food safety management systems (FSMS). Food Safety and Biotech Application (ISO 22000) Training Course equips professionals with the knowledge and skills required to implement, manage, and audit ISO 22000. This course dives deep into food safety principles, biotech applications, and risk management techniques to provide participants with a solid understanding of the processes that protect public health and meet regulatory requirements. With an ever-growing focus on consumer safety, sustainability, and quality assurance, this course is designed to help individuals and organizations achieve compliance while enhancing operational efficiency and food safety outcomes.

ISO 22000 is not only a necessity for food production and biotechnology organizations, but also a stepping stone to achieving operational excellence and mitigating risks in the supply chain. This course covers a range of critical concepts such as food safety hazard control, quality management, and biotechnology regulatory frameworks. Through this training, participants will learn how to integrate risk-based thinking, documentation practices, and continuous improvement into their organizations. With a focus on practical application, real-world case studies, and expert-led sessions, this course empowers professionals to optimize food safety systems while meeting stringent global requirements, ensuring both the safety of consumers and the competitiveness of businesses in the marketplace.

Programme Curriculum

Food Safety and Biotech Applications (ISO 22000) Training Course

Introduction

In an increasingly complex global food supply chain, ensuring the safety and quality of food products from farm to fork has never been more critical. Food Safety and Biotech Applications (ISO 22000) Training Course provides a comprehensive understanding of the ISO 22000 standard, the **international benchmark for food safety management systems (FSMS)**. It goes beyond the basics to integrate cutting-edge **biotechnological applications** that enhance food safety, traceability, and quality control. By leveraging **risk-based thinking** and the **Plan-Do-Check-Act (PDCA) cycle**, participants will gain the expertise to implement, maintain, and continually improve an FSMS that not only meets regulatory requirements but also builds consumer trust and brand reputation.

This course is designed to equip professionals with the practical skills and theoretical knowledge needed to navigate modern food safety challenges. We'll explore the synergistic relationship between traditional food safety principles like **HACCP (Hazard Analysis and Critical Control Points)** and innovative **biotech solutions**, including **genomic sequencing**, **biosensors**, and **bio-preservation** techniques. Participants will learn how to identify, assess, and mitigate food safety risks through a structured, proactive approach, ensuring their organizations are at the forefront of food safety excellence and **regulatory compliance**.

Course Duration

10 days

Course Objectives

Upon completion of this course, participants will be able to:

1. Interpret and apply the requirements of the ISO 22000:2018 standard.
2. Develop and implement a robust Food Safety Management System (FSMS).
3. Conduct Hazard Analysis and establish Critical Control Points (CCPs).
4. Understand the role of biotechnology in modern food safety and quality assurance.
5. Implement traceability systems using biotechnological tools like DNA barcoding.
6. Identify and control emerging food safety risks in the global supply chain.
7. Perform effective internal audits to ensure ISO 22000 compliance.
8. Master the principles of Good Manufacturing Practices (GMP) and Prerequisite Programs (PRPs).
9. Integrate risk-based thinking and the PDCA cycle into FSMS operations.
10. Analyze the impact of food fraud and authenticity and use biotech applications to combat it.
11. Foster a strong food safety culture within their organization.
12. Prepare their organization for a third-party ISO 22000 certification audit.
13. Enhance operational performance and business resilience through an effective FSMS.

Organizational Benefits

- Demonstrates a commitment to **food safety and quality**, leading to increased consumer confidence and loyalty.
- Ensures the organization meets national and international food safety regulations and standards, reducing the risk of penalties and legal issues.
- ISO 22000 certification is often a prerequisite for doing business with major retailers and international partners, opening new market opportunities.
- Proactive hazard control and efficient processes minimize product recalls, food waste, and the financial impact of food safety incidents.

- Differentiates the organization in the market by showcasing a superior commitment to safety and leveraging **biotech innovation**.
- Establishes a transparent and controlled supply chain, enhancing communication and accountability.
- Promotes a culture of safety and provides employees with the skills and knowledge to perform their roles confidently.

Target Audience

- Food Safety and Quality Managers.
- HACCP Team Members.
- Production and Operations Supervisors.
- Supply Chain and Logistics Professionals.
- Internal Auditors.
- Quality Assurance and Control Personnel.
- Food Scientists and R&D Personnel.
- Aspiring Food Safety Consultants.

Course Modules

Module 1: Introduction to Food Safety Management & ISO 22000

- Understanding the global food safety landscape and the importance of an FSMS.
- Overview of the ISO 22000:2018 standard and its high-level structure.
- The principles of food safety, including **risk-based thinking** and the **PDCA cycle**.
- Key terminology: FSMS, PRPs, OPRPs, CCPs, and hazards.
- **Case Study**: Analyzing a major foodborne illness outbreak and how an effective FSMS could have prevented it.

Module 2: Context of the Organization and Leadership

- Defining the scope of the FSMS and understanding internal and external issues.
- Leadership's role in establishing a **food safety culture** and policy.
- Assigning roles, responsibilities, and authorities within the FSMS.
- Ensuring adequate resources for effective FSMS implementation.
- **Case Study**: A company's journey in achieving leadership buy-in for their ISO 22000 implementation.

Module 3: Planning the FSMS

- Identifying and addressing food safety risks and opportunities.
- Establishing measurable food safety objectives and plans to achieve them.
- Understanding and meeting legal and other regulatory requirements.
- Planning for changes and emergencies within the FSMS.
- **Case Study**: Developing a risk mitigation plan for a new product launch, considering supply chain vulnerabilities.

Module 4: Support and Documentation

- Ensuring the competence of personnel through training and awareness.
- Managing documented information: creation, updating, and control.
- Understanding the importance of internal and external communication.
- Maintaining a robust traceability system from raw materials to finished goods.

- **Case Study**: A major retailer's use of blockchain technology to enhance **food traceability** and consumer trust.

Module 5: Hazard Analysis and the HACCP Plan

- Conducting a thorough **hazard analysis** to identify biological, chemical, and physical hazards.
- Determining **Critical Control Points (CCPs)** and establishing critical limits.
- Developing and implementing the **HACCP plan** and a system of **monitoring**.
- Defining corrective actions for non-conformities at CCPs.
- **Case Study**: Creating a HACCP plan for a gluten-free bakery to prevent cross-contamination.

Module 6: Prerequisite Programs (PRPs) and OPRPs

- Defining and establishing effective **Prerequisite Programs (PRPs)** for hygienic production.
- Examples of PRPs: sanitation, pest control, personal hygiene, and equipment maintenance.
- Differentiating between **PRPs** and **Operational Prerequisite Programs (OPRPs)**.
- Establishing and monitoring OPRPs to control significant food safety hazards.
- **Case Study**: Auditing a manufacturing facility's PRPs to identify weaknesses and implement improvements.

Module 7: Biotechnological Applications in Food Safety

- Introduction to **biotechnology** in the food industry.
- Using **genomic sequencing** and **PCR testing** for rapid pathogen detection.
- The application of **biosensors** for real-time monitoring of contaminants.
- **Bio-preservation** and its role in extending shelf life and ensuring safety.
- **Case Study**: How a company used rapid biotech testing to prevent a product recall due to an *E. coli* outbreak.

Module 8: Food Fraud and Authenticity

- Understanding the motivations and types of **food fraud** (adulteration, mislabeling).
- The role of **biotechnology** in authenticating food products, such as **DNA barcoding**.
- Developing a **food fraud vulnerability assessment** and mitigation plan.
- Implementing systems to protect brand integrity and consumer health.
- **Case Study**: Tracing counterfeit olive oil using **biomolecular markers** to verify its origin and purity.

Module 9: Performance Evaluation and Auditing

- Monitoring, measurement, analysis, and evaluation of FSMS performance.
- Planning, conducting, and reporting on effective **internal audits** in line with ISO 19011.
- Preparing for a successful **third-party certification audit**.
- Analyzing audit findings and determining non-conformities.
- **Case Study**: A simulated internal audit of a food packaging company's FSMS, identifying areas for improvement.

Module 10: Improvement and Corrective Actions

- Managing non-conformities and implementing **corrective actions**.
- Continual improvement of the FSMS to enhance overall performance.
- The importance of data analysis and management review.
- Updating the FSMS to reflect changes in the organization or regulations.

- **Case Study**: A food manufacturer's continuous improvement initiative that reduced microbial contamination by 30%.

Module 11: Food Safety in the Supply Chain

- Managing food safety throughout the entire supply chain, from farm to retail.
- Supplier selection and evaluation based on food safety criteria.
- Ensuring the safety of transported and stored food products.
- Handling and managing product recalls and withdrawals.
- **Case Study**: A large-scale product recall triggered by a supplier issue and the steps taken to prevent recurrence.

Module 12: Advanced Topics and Future Trends

- Exploring the integration of ISO 22000 with other standards like ISO 9001 and FSSC 22000.
- The impact of **IoT (Internet of Things)** and **AI** on food safety.
- **Future trends** in food safety and biotechnology, including personalized nutrition and sustainable food systems.
- Navigating the **regulatory landscape** and anticipating changes.
- **Case Study**: The use of smart packaging with integrated **biosensors** to monitor product freshness.

Module 13: The Role of Food Safety in Global Commerce

- How ISO 22000 facilitates international trade and market access.
- Compliance with international regulations and standards.
- Building a reputation as a trusted global food supplier.
- The economic impact of food safety and recalls on businesses and countries.
- **Case Study**: A company's successful entry into a new international market, leveraging its ISO 22000 certification.

Module 14: Practical Application and Workshop

- Interactive workshops on drafting an FSMS manual and procedures.
- Group exercises on developing a complete HACCP plan for a specific product.
- Role-playing a certification audit with a Q&A session.
- Problem-solving scenarios related to food safety incidents.
- **Case Study**: A hands-on simulation of a food safety incident response, from investigation to corrective action.

Module 15: Certification and Next Steps

- Reviewing the certification process and preparing a certification roadmap.
- Maintaining certification and continuous improvement.
- Discussion of careers and professional development in food safety.
- Q&A with a certified lead auditor.
- **Case Study**: A company?ÇÖs successful third-party audit and its subsequent business growth

Training Methodology

Our training employs a blended learning approach to maximize engagement and knowledge retention. The methodology includes:

- Instructor-led presentations and interactive lectures.
- Practical workshops and group exercises.
- Real-world case studies and discussions.
- Interactive quizzes and knowledge checks.
- Role-playing and audit simulations.
- Q&A sessions with industry experts.
- Practical templates and tools for FSMS documentation.

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

Start Date	End Date	Location	Price
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:

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