

INDUSTRIAL MICROBIOLOGY INTERNSHIP SYLLABUS



Industrial Food Microbiology Techniques

Introduction to Food Microbiology and ISO Standards

- Overview of foodborne microorganisms
- Introduction to relevant ISO standards (e.g., ISO 17025, ISO 22000)

Microbial Hazards in Food

- Identification and classification of microbial hazards
- Risk assessment and management in food production

Sampling Techniques According to ISO Guidelines

- Proper sampling methods
- Statistical considerations in sampling

Microbiological Analysis Methods

- Enumeration and identification techniques
- Application of ISO methods for microbial analysis

To learn the Detection and Identification of Food microbes/ Pathogens using International Industrial Standards with biochemical techniques.

- E. coli
- Salmonella
- Bacillus
- Shigella
- Listeria monocytogenes
- S. aureus
- Clostridium sp.
- Vibrio sp.
- etc...

Industrial Water Microbiology Techniques

Introduction to Water Microbiology and ISO Standards

- Overview of waterborne microorganisms
- Introduction to relevant ISO standards (e.g., ISO 17025, ISO 22000)

Microbial Hazards in Water

- Identification and classification of microbial hazards
- Risk assessment and management in food production and water processing

Sampling Techniques According to ISO Guidelines

- Proper sampling methods
- Statistical considerations in sampling

Microbiological Analysis Methods

- Enumeration and identification techniques
- Application of ISO methods for microbial analysis

To learn Detection and Identification of Waterborne Pathogens using International Industrial Standards with biochemical techniques.

Test Methods for Drinking Water

1. Aerobic Microbial count/Standard plate count
2. Detection of E. coli and Coliform
3. Detection of Coliform (Alternative Method)
4. Detection of Enterococci (Faecal Streptococci)
5. Detection of Salmonella
6. Detection of Shigella sp.
7. Detection of Pseudomonas aeruginosa
8. Detection of Yeast & Mould
9. Detection of Sulphite-Reducing anaerobes (Clostridia)
10. Detection of Vibrio cholerae
11. Detection of Vibrio parahaemolyticus
12. Detection of Staphylococcus aureus

- 13. Detection of Viruses

Test Methods for Water for Processed Food Industry

- 1. Standard Plate Count
 - 2. Proteolytic Plate Count
 - 3. Lipolytic Plate Count
 - 4. Test for Coliform
 - 5. Thermophilic Bacterial Count (For Dairy Industry- Processing)
 - 6. Slime Forming Bacteria (For Dairy industry- Hot water)
-

Industrial Cosmetics Microbiology Techniques

Introduction to Cosmetics Microbiology and ISO Standards

- Overview of waterborne microorganisms
- Introduction to relevant ISO standards (e.g., ISO 17025)

Microbial Hazards in Cosmetics

- Identification and classification of microbial hazards
- Risk assessment and management in food production and water processing

Sampling Techniques According to ISO Guidelines

- Proper sampling methods
- Statistical considerations in sampling

Microbiological Analysis Methods

- Enumeration and identification techniques
- Application of ISO methods for microbial analysis

To learn Detection and Identification of Pathogens in cosmetics products using International Industrial Standards with biochemical techniques.

ENUMERATION AND DETECTION (TOTAL VIABLE COUNT)

- Aerobic plate count (APC)
- Fungi, yeast, and mould plate count
- Anaerobic plate count

METHODS FOR DETECTION OF SPECIFIC ORGANISMS

- *Pseudomonas aeruginosa*
 - *Escherichia coli*
 - *Staphylococcus aureus*
 - *Candida Albicans*
-

Medical Microbiology Techniques

Routine Microscopy Introduction

Laboratory professionals should have basic knowledge and understanding of routine microscopy procedures. This course is designed to explore the processes, methods, and techniques necessary for completing routine microscopic examinations of laboratory specimens.

This course will introduce laboratory professionals to microscopy procedures for smear preparation, as well as preparing and interpreting the results of Gram stain, wet mount, potassium hydroxide (KOH), and India Ink procedures.

Basic Culture Media and Isolation Techniques

1. Explain the different types and forms of cultural media.
2. Correlate culture media with specimen type.
3. Describe the critical steps in the inoculation of media to obtain isolated colonies
4. Identify commonly encountered problems with culture media and isolation techniques.

Identification of Gram-Positive and Gram-Negative Organism

1. Identify different types of bacterial morphology seen on a Gram stain
 2. Identify the different types of colonial characteristics
 3. Use flowcharts and identification charts to identify some common aerobic Gram-positive microorganisms
 4. Associate various biochemical tests with their correct applications
 5. Interpret the results of biochemical methods
- Identification of Gram-positive microorganisms

(*Bacillus* Sp. *Streptococcus* sp., *Staphylococcus* sp., *Listeria* Sp., etc...)

- Identification of Gram-negative microorganisms
(E. coli, Salmonella, Shigella, Vibrio, Yersinia pestis, etc...)
 - Identification of Budding Yeasts
 - Identification of protozoan Trichomonas vaginalis
 - Identification of Parasites
 - Identification of Cryptococcus or Bacillus anthracis
-

Course Highlights

- ✓ 100% Job-oriented
- ✓ 100% Online
- ✓ Certificate included (INTERNATIONAL RECOGNIZED CERTIFICATE)
- ✓ Free Manual
- ✓ Interview guidance