IBT-927 FOOD SAFETY AND PUBLIC HEALTH (3-0)

Educational Objectives

1. Food pathogens their metabolites and other non-biological agents are a growing cause of concern in food industry. The background knowledge of pathogen control will help students to understand the biological and non-biological agents in the domain of food safety. The students will learn about the hazards related to these agents, moreover management practices necessary for food safety will be studied.

a. Introduction to food safety
b. Food safety and micro organisms
c. Abiotic food safety concerns
d. food safety management

2. Course Outcomes

- After the completion of this course, the students will be able to
- Understand the biotic and abiotic threats relevant to food safety
- Understand the major concerns of food safety
- Lay down a strategies and management practices to counter these threats
- Contents with suggested contact hours
- Overview of Food safety and food borne illnesses
- Food pathogens and spoilers
- Food Pathogens: Safety perspective
- Global food pathogen outbreaks
- Abiotic hazards in food
- Physical hazards
- Chemical hazards
- Toxins
- Food allergens
- Biotic hazards and food safety

- Viruses in foods
- Hepatitis , Rotavirus, Influenza
- Major bacterial food pathogens
- *E. coli, Salmonella, Campylobacter, Listeria monocytogenes*
- Fungi and food safety
- Parasites in foods
- Environment human behavior and transmission of food pathogens
- Antimicrobial resistance to food pathogens
- Resistance spread between ecosystems
- Antimicrobial resistance in E coli, Shigella and Listeria
- Antibiotic resistance in salmonella, E coli
- Pathogen control and food processing
- Strategies for pathogen control
- Analytical techniques for safety assessment
- Challenges in pathogen control
- Development and application of novel antimicrobial
- Why there is a need of novel antimicrobials
- Novel antimicrobials
- Batceriocins
- Essential oils
- Chitosan
- Synergistic approach
- Emerging concerns
- Processing and safety
- Additives
- Environment
- Food safety management
- Food handling, cleaning and sanitation
- HACCP
- Risk management and risk assessment system

3. **Recommended readings Text Books**

a. **Advances in Microbial Food safety**, volume 2, Woodhead Publishing, 2014.
b. **Microbial Food Safety: An Introduction**, volume 1, Published by Springer-Verlag, 2014.
c. **Analytical Tools for Assessing the Chemical Safety of Meat and Poultry**, Published by Springer US, 2012.