

Food Safety and Hygiene (140502335)

Course Description:

This course is designed to address food safety and hygienic practices. This course will introduce the students to the prospective of foodborne illnesses and food poisoning, including biological, chemical and physical hazards that could be contracted via food. In addition, it will focus on the vehicles, processes and food handling practices that could lead to a foodborne illness. It will cover some topics related to the role of food processing, handling, packaging, and storage on food wholesomeness. Part of this course will concentrate on the foodborne diseases that affect populations at high risk. Moreover, the principles of hazard analysis critical control point (HACCP) system and its importance in reducing the prevalence of food borne poisoning will also be demonstrated. Food safety concerns in large-scale and small-scale food production areas will be discussed.

Course Objectives:

1. Understand the significance of producing, keeping, and serving a safe food.
2. Identify biological, chemical and physical hazards.
3. Understand why certain hazards are commonly associated with certain food types.
4. Realize the importance of food preservation in preventing and inhibiting pathogens and spoilage microorganisms' growth in foods.
5. Be aware of major microbes involved in foodborne illness.
6. Be familiar with personnel hygienic practices and good manufacturing practices.
7. Discuss some food safety concerns in large-scale and small-scale food production areas.
8. Comprehend the principles of Hazard Analysis of Critical Control Point System concept and relate it to a variety of food systems.

Tentative Course Contents:

- Definition of food safety
- Structure and taxonomy of microorganisms: Bacteria, fungi, viruses
- Characterization of food hazards:
 1. Biological hazards:
 - Bacteria: types, sources, symptoms and avoidance
 - Fungi: types, sources, symptoms and avoidance
 - Viruses: types, sources, symptoms and avoidance
 - Parasites: types, sources, symptoms and avoidance

First Exam

2. Chemical and physical hazards: Naturally occurring food toxicants, heavy metals, incidental contaminants, environmental contaminants, agricultural contaminants
- Factors affecting the growth of microorganisms in food
 - How food processing and preservation affect food safety
 - Safe handling of food products
 - Food safety concerns for consumers at high risk

Second Exam

- Good manufacturing practices
- Genetically modified foods
- Food sanitation
- Training on personnel hygiene
- Hazard Analysis of Critical Control Point System

Final Exam

References:

1. **Doyle M.P., Diez-Gonzalez F., Hill C. 2019. Food Microbiology: Fundamentals And Frontiers, 5th Edition, ASM Press, Washington, DC., USA.**
2. **Ray, B., and Bhunia, A.K. 2014. *Fundamental Food Microbiology*, 5th Edition, CRC Press (Taylor and. Francis group), Boca Raton, FL, USA.**
3. **Jay, J.M. 2005. *Modern Food Microbiology*. Aspen Publishers, Inc. Gaithersburg, Md, USA.**