

OBJECTIVES: To understand the following:

1. Food safety and hygiene
2. Types of hazards associated with food
3. Food regulations (national as well as international)
4. Design and implementation of food safety management systems such as ISO series, HACCP and its prerequisites such as GMP, GHP etc.
5. Emerging concerns

UNIT – I: A. INTRODUCTION TO FOOD SAFETY (3 Lectures)

Definition, Types of hazards, biological, chemical, physical hazards, Factors affecting Food Safety, Importance of Safe Foods

B. Food Hazards of Physical Chemical and Biological Origin (5 Lectures)

Introduction, Physical Hazards with common examples, Chemical Hazards(naturally occurring ,environmental and intentionally added) Impact on health Control measures, Indicator Organisms, Food borne pathogens: bacteria, Food borne pathogens: viruses, Food borne pathogens: eukaryotes, Seafood and Shell fish poisoning, Mycotoxins

UNIT – II: A. Management of hazards 5 Lectures

Need, Control of parameters, Temperature control, Food storage

B. Hygiene and Sanitation in Food Service Establishments 8 Lectures

Introduction, Sources of contamination, Control methods using physical and chemical agents, Waste Disposal, Pest and Rodent Control Personnel Hygiene Food Safety Measures.

UNIT – III: Food laws, Food Standards and Recent concerns 4 Lectures

Indian Food Regulatory Regime, Global Scenario History, National and International laws & Regulations:USFDA, EU, Codex alimentarius, World Trade Organization (Sanitary and Phyto Sanitary agreement, Technical Barriers in Trade), -Standards of Identity, Standards of Quality, Standards of fill of the container. Packaging ,Product labelling and Nutritional labeling, Organic foods, Newer approaches to food safety

UNIT – IV: Food Quality (8 Lectures)

1. Introduction to food quality management – Definition, quality concepts, quality, quality perception, quality attributes, safety, health, sensory, shelf life, convenience, extrinsic attributes, factors affecting food behavior.
2. Quality in the Agri- food production chain-Techno- managerial approach, food quality relationship and food quality management functions. Dynamics on the agri- food production chain, core developments in food quality management.

UNIT – V: Food Additives (12 Lectures)

1. Chemical, technological and toxicological aspects
2. Risk assessment studies- Safety and quality evaluation of additives and contaminants, Acute and chronic studies, NOEL, ADI, LD50
3. Introduction, need of food additives in food processing and preservation.Characteristics and classification of food additives.
4. Antimicrobial agents. -Nitrites, sulphides, sulphur di oxide, sodium chloride, hydrogen peroxide.
5. Antioxidants - Introduction, mechanism of action, natural and synthetic anti-oxidants, technological aspect of antioxidants.
6. Sweeteners- Introduction, importance, classification- natural and artificial, chemistry, technology and toxicology, consideration for choosing sweetening agents.
7. Colors- Introduction, importance, classification- natural, artificial, and natural identical, FD&C Dyes and Lakes. Use of plant tissue culture, polymeric colors etc for color

RECOMMENDED READINGS:

1. Lawley, R., Curtis L. and Davis,J. The Food Safety Hazard Guidebook , RSC publishing, 2004
2. De Vries. Food Safety and Toxicity, CRC, New York, 1997
3. Marriott, Norman G. Principles of Food Sanitation, AVI, New York, 1985
4. Forsythe, S J. Microbiology of Safe Food, Blackwell Science, Oxford, 2000 & Sons; USA, 1987
5. Pieterneel A, Luning, Willem J. Marcelis, Food Quality Management Technological and Managerial principles and practices, Wageningen,2009.
6. Brannen and etal,Food Additives, Marcel Dekker,New York,1990
7. Shalton , Principles and Practices for the safe processing of Foods.
8. DeMan, 3rd edition, Principles of Food Chemistry, Springer, 2007.

** ** **

1. Microbiological Examination of different food sample
- 2.. Bacteriological Analysis of Water
3. Assessment of surface sanitation by swab/rinse method
4. Biochemical tests for identification of bacteria
5. Scheme for the detection of food borne pathogens
6. Qualitative tests for fats and oils, spices and condiments.
7. Inspection of quality as per National and International standards for various food
stuffs- pulses, spices,etc
8. Estimation of residual sulphur dioxide in beverages.
9. Estimation of pesticide residues in food/water.
10. Estimation of benzoic acid in foods.

** ** **

