

21ELCT172 FOOD SAFETY ISSUES

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30



Source:

<https://w.theindependentbd.com/arcprint/details/136904/2018-02-12>

COURSE DESCRIPTION AND OBJECTIVES:

The main objective of this course is to know about the food safety and standards

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Students will understand the food safety, hazards and risks, types of hazards - biological, chemical, physical hazards
2	Students will understand food storage, product design. Hygiene and sanitation
3	Students will understand food laws and standards Indian food regulatory regime

SKILLS:

- ✓ *Depth knowledge on FSSAI rules and regulations*
- ✓ *Quality analysis of edible fats and oils*
- ✓ *Identity and recommended micro and macro nutrients profile for balanced diet and health*
- ✓ *Enzyme activity measurement and determining the mechanism of the reaction*
- ✓ *Separation and molecular weight estimation of proteins*

ACTIVITIES:

- o Assess quality of the food
- o Visit to Food-Industry
- o Estimation of water, carbohydrates, proteins, fats, vitamins and minerals etc. in food material
- o Depth understanding of preservatives and additives used in food preservation

UNIT - 1

Introduction: Food Safety - definition, importance, scope and factors affecting food safety. Hazards and risks, types of hazards - biological, chemical, physical hazards

UNIT - 2

Contamination and control: Management of hazards – need, control of parameters. Temperature control. Food storage. Product design. Hygiene and Sanitation in Food Service. Establishments- introduction. Sources of contamination and their control. Waste disposal - pest and rodent control. Personnel hygiene. SPS measures - Codex standards

UNIT - 3

Food safety measures: Food safety measures. Food safety management tools - basic concepts. PRPs, GHPs, GMPs, SSOPs etc. HACCP. ISO series. TQM - concept and need for quality, components of TQM, kaizen. Risk analysis. Accreditation and auditing, water analysis, surface sanitation and personal hygiene

UNIT - 4

Food laws and standards: Food laws and standards - Indian Food Regulatory Regime, FSSAI. Global Scenario CAC. Other laws and standards related to food. Recent concerns - new and emerging pathogens

UNIT - 5

Labelling and packaging: Packaging, Product labelling and nutritional labelling. Genetically modified foods \ transgenics. Organic foods. Newer approaches to food safety. Recent outbreaks

LABORATORY EXPERIMENTS**LIST OF EXPERIMENTS**

1. Water quality analysis - Physicochemical: Determination of Temperature, pH, turbidity, odour, colour, taste, pH, conductivity, TDS, TS, TSS, chloride and total alkalinity
2. Water quality analysis - Minerals: Determination of elements – Aluminum, Boron, magnesium and Zinc
3. Water quality analysis - Minerals: Determination of elements – Aluminum, Boron, magnesium and Zinc
4. Water quality analysis - Minerals: Determination of Elements – Copper, Iron, Lead, Arsenic, Nickel and Cadmium
5. Water quality analysis - Minerals: Determination of Elements – Copper, Iron, Lead, Arsenic, Nickel and Cadmium
6. Water quality analysis - Minerals: Determination of Elements – Copper, Iron, Lead, Arsenic, Nickel and Cadmium
7. Water quality analysis - Minerals: Determination of Elements – Copper, Iron, Lead, Arsenic, Nickel and Cadmium
8. Water quality analysis - Chemical: Determination of dissolved oxygen, nitrate levels in drinking water samples
9. Water quality analysis - Microbiological analyses: *Salmonella* and *E. coli*

10. Preparation of different types of media: Nutrient broth, nutrient agar, blood agar etc
11. Microscopic examination of bacteria, and yeast and molds- Standard plate count; yeast and mould count; Spore count
12. Microbiological examination of different food samples- Evaluation of microbiological quality of cereals, grains, fruits and vegetables
13. Assessment of surface sanitation by swab / rinse method - Assessment of personal hygiene
14. Biochemical tests for identification of bacteria. Scheme for the detection of food borne pathogens
15. Preparation of plans for implementation of FSMS - HACCP, ISO: 22000 – Establish a HACCP team - Describe the product - Identify the product's intended use – Draw up the commodity flow diagram - On site confirmation of flow diagram – Identify and analyse hazard(s)- Determine the critical control points - Establish a monitoring procedure - Establish corrective action - Verify the HACCP plan - Keep record Successful Farmers Field visits, case studies of organic farming and integrated pest management

REFERENCES:

1. Inteaz Alli. 2004. Food Quality Assurance : Principles and Practices. CRC Press, Boca Raton, Ronald, H. Schmidt and Gary E. Rodrick. 2003. Food Safety Handbook. John Wiley & Sons, Inc., Hoboken. New Jersey, USA
2. Hester, R.E. and Harrison R.M. 2001. Food Safety and Food Quality. Royal Society of Chemistry, Cambridge, UK
3. Michael, M. Cramer. 2013. Food Plant Sanitation : Design, Maintenance, and Good Manufacturing Practices. CRC Press, Boca Raton, FL, USA
4. Norman, G. Marriott, and Robert, B. Gravani. 2006. Principles of Food Sanitation, 5th Ed. Springer Science Business Media, Inc., NY, USA

