

**I-Year, I-Semester**

**L      T      P      Credits: 4**  
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## **CH555 FOOD QUALITY AND SAFETY ENGINEERING**

### **UNIT-I**

Criteria for quality control: Principles of food safety – Historical developments - need for quality control and safety- impact of food safety on world trade issues - strategy and criteria for food safety - microbiological criteria for safety and quality-sources of micro organisms for food spoilage –food borne diseases and their control - sampling plans and criteria for microbial assessments in foods food contaminants – physical, biological and chemical contaminants-factors affecting toxicity of compounds- quality control and food safety

### **UNIT-II**

Source of contamination: Causes of major failure of food safety – clothing and personal hygiene —test for food safety. Quality control tools. Quality control chart – Quality factors in food – Nutritional labeling – Specification – Rules and Regulations - need for food plant sanitation — cleaning and cleaners – Water supply- Good Manufacturing Practice. Metal contaminants- Sources of health hazard of metallic contaminants

### **UNIT-III**

Assessment of food safety: General and acute toxicity – Mutagenicity and carcinogenicity. Additives (Intention – direct) – Preservatives – antioxidants, sweeteners, flavors, colours, vitamins, stabilizers – indirect additives – organic residues – inorganic residues and contaminants. Food allergy, food intolerance, contaminants of processed foods, solvent residue, contaminants of smoked foods. Cleaner production in food industry-fruit and vegetable processing, sea food processing, brewing and wine processing.

### **UNIT-IV**

Analytical Techniques in Foods: Application and operating parameters of Spectrophotometry, AAS, GC, HPLC.

### **UNIT-V**

Hygienic practices: Process equipment and machinery auditing, consideration of risk, environmental consideration, mechanical quality control - personnel hygienic standards-preventative pest control, cleaning and disinfecting system, biological factors underlying food safety.

### **Text Books:**

1. David A.Shapton and Norah F. Shapton. 1991. Principles and Practices for the Safe Processing of Foods. Butterworth-Heinemann Ltd, Oxford.
2. Chesworth, N. 1997. Food Hygiene Auditing. Blackie Academic Professional, Chapman and Hall.
3. Jose M. Concon. 1988. Food Toxicology, Part-A-Principles and concepts Part B-Contaminants and Additives, Marreel Dekkar Inc. Newyork and Brazil.
4. Jacob, M. 2004. Safe Food Handling. CBS Publishers and Distributors, New Delhi.
5. Quality control in food industry (Vol. I and II), Kramer and Twigg
6. Food analysis and quality control , M.Jacob , CBS, New Delhi