

20FT003 - Food Safety and Quality Management

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45	15	-

WA/RA	SSH/HSB	CS	SA	S	BS
15	30	-	5	5	-

Course Description and Objectives:

The course deals with global food safety laws, standards and regulations. The objective of the course is to impart knowledge to students on national and international food standards along with application of ISO and HACCP in food processing industries. The course also provides opportunities to learn about food safety auditing programs.

Course Outcomes:

Upon successful completion of this course student should be able to:

- Critically evaluate the factors that are constraining the quality of food and feed products and use the concept of Process Quality Management to achieve and maintain high quality and safe outputs throughout food and feed production systems
- Implement quality systems including, ISO 9001 - 2015, ISO 22,000, ISO 17025, total quality management and Hazard Analysis Critical Control Point (HACCP) systems
- Reflect upon risk analysis and its role in the development of Food Safety Objectives (FSOs)
- Have critical insight into the development and enforcement of legislation and related standards.

SKILLS:

- Identify the different sources of food contamination
- Categorize the contaminants on the basis of severity
- Prepare quality control charts for a given process

UNIT - I

Introduction to Food Safety and Quality: 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. Quality of raw materials, quality checks on flours, building inspection and routine cleaning programs, process control- microbial and fungal contaminants. Ingredients, equipments, bakery quality assurance, ingredient inspection, process control, assessing products for quality, concepts of Deterioration Engineering.

UNIT - II

Hazards and Source of hazard contamination: Causes of major failure of food safety, clothing and personal hygiene, test for food safety. Taste Panels for hazards. Food related hazards – biological hazards, chemical hazards, physical hazards, trace chemicals and how to minimize

them using different food safety managements and regulations such as GMP GHP. HACCP, Codex Alimentarius, ISO 17205, FSMS, ISO, BRC, HACCP (VACCP, TACCP).

UNIT - III

Assessment of food safety: General and acute toxicity, Mutagenicity and carcinogenicity. Additives (Intention – direct) – Preservatives – antioxidants, sweeteners, flavors, colors, 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 is 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, GC-MS MS, LC MS MS, ICP, DSC, TGA, SEM, Colorimeter.

UNIT - V

FSSAI REGULATIONS: FSMS plan development for bakery and confectionery industries, Meat industries, Dairy industries and Fruit and Vegetable processing industries- GAP, GHP and GMP pertaining food products manufacturing- Health and safety- Code for hygiene condition in different food manufacturing unit.

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, Marrcel Dekkar Inc. Newyork and Brazil.
4. Jacob, M. 2004. Safe Food Handling. CBS Publishers and Distributors, New Delhi.