



FACULTY OF ENGINEERING & TECHNOLOGY

First Year Master of Technology

Semester I

Course Code: 102380110

Course Title: Food Safety and Quality Assurance

Type of Course: Program Elective II

Course Objectives: To illustrate the importance of food safety, food quality, food laws and regulations in Food Industry

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Internal		External		Total
				Theory	J/V/P*	Theory	J/V/P*	
3	0	2	4	30 / 15	20 / 10	70 / 35	30 / 15	150 / 75

* J: Jury; V: Viva; P: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Introduction to Food Safety: definition, food safety issues, factors affecting food safety, importance of safe foods. Shelf life of food products: factors affecting shelf life and methods to check the shelf life	6
2	Food Safety Considerations Food Contaminants (Microbial, Chemical, Physical), Food Adulteration (Common adulterants), Food Additives (functional role, safety issues), Food Packaging & labeling. Sanitation in warehousing, storage, shipping, receiving, containers and packaging materials; Hygienic design of food plants and equipment's; Cleaning and Disinfection	8
3	Food Quality: Basic concept of Quality control & Quality Assurance; Various quality attributes of food; Instrumental, chemical and microbial Quality control; Sensory evaluation of food and statistical analysis; Current Good Manufacturing Practices (GMP), Standard Sanitary Operation Procedures, Good Laboratory Practices (GLP)	6
4	Food Safety and Quality Management Tools Basic concept, Prerequisites- GHPs ,GMPs; HACCP; ISO series; TQM - concept and need for quality, components of TQM, Kaizen; Risk Analysis; Accreditation and Auditing, Food traceability and recall system.	7
5	Food Laws and Regulations Indian food laws and regulations, Food safety acts, Regulations for waste disposals, Codex alimentarius, World Trade Organization, Food and Agricultural Organization, World Health Organization, Food safety and legislation in USA and Europe, Technical Barriers in Trade, Enforcers of food laws approval process for food additives, additives food labeling, Intellectual Property Right.	12



Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks						R: Remembering; U: Understanding; A: Application, N: Analyze; E: Evaluate; C: Create
R	U	A	N	E	C	
25	35	20	15	05	0	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1	Handbook of food toxicology by S. S. Deshpande
2	The food safety information handbook by Cynthia A. Robert, 2009
3	Nutritional and safety aspects of food processing by Tannenbaum SR
4	Microbiological safety of food by Hobbs BC, 1973
5	Food Safety Handbook by Ronald H. Schmidt, Gary E. Rodrick
6	Principles and Practice for the Safe Processing of Foods: Heinemann, Oxford. by Shapton, D. A. and Shapton, N. F. (1993).
7	Food Safety Handbook: John Wiley, New Jersey by Schmidt, R. H. and Rodrick, G. E. (2003).
8	International Standards for Food Safety: Aspen, America by Rees, N. and Watson, D. (2000).

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand various areas of Food Safety & Quality Assurance	20
CO-2	Grasp knowledge of the quality assessments of food products	30
CO-3	Comprehend food quality managements systems.	30
CO-4	Apprehend the Indian and International food laws	20

List of Practicals / Tutorials: [Click or tap here to enter text.](#)

1	Techniques of sampling and quality assessment of fruits, vegetable, cereals, dairy products, meat, poultry, milk and other processed products
2	Measurement of the water activity (aw) of raw and cooked food using Water activity meter
3	Assessing the texture of raw and cooked food using penetrometer
4	Extraction of pigments from various fruits and vegetables
5	Performance of the sensitivity tests for four basic tests (Sweet, salty, sour and bitter),
6	Identification and ranking of food product attributes using Sensory evaluation scales (Hedonic rating, Ranking difference, Triangle test),
7	Qualitative tests for fats and oils, spices and condiments
8	Inspection of quality as per National and International standards for various foodstuffs- pulses, spices etc
9	Detection of adulteration in food products viz. honey, other sweetening agents, spices (whole and powder), pulses, oils, cereals, sweets, tea, coffee,
10	Study of application of HACCP to products
11	Preparation of HACCP documentation, charts and records



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Supplementary learning Material:

Curriculum Revision:

Version:	1
Drafted on (Month-Year):	Apr-20
Last Reviewed on (Month-Year):	Jul-20
Next Review on (Month-Year):	Apr-22