



FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: Bachelor of Technology (Food Processing Technology)

Semester: VII

Course Code: 202070702

Course Title: Food Standards and Quality Assurance

Course Group: Professional Core Course

Course Objectives: The general objective of the course is to acquaint the student with the basic concepts and tools required in providing quality and safe foods. This course provides an introduction to the concepts and principles of food quality standards and assurance, food legislation, food standards, sensory and objective evaluation of foods and conduct of objective and sensory evaluation tests on foods. The course aims to cover: Concept of quality and standards; sensory analysis: sensory perception, use of sensory and objective evaluation in quality control and product development, statistical quality control techniques, experimental design and analysis, questionnaire design, taste panels, shelf-life assessment; food laws: Indian and International food standards codes, food hygiene regulations, micro-biological standards and codes of practice, the development and underlying principles of food standards, Codex standards, export standards; quality assurance principles and systems, parameters of food quality and its evaluation and control, role of quality assurance, concepts of total quality control (TQC) and total quality management (TQM).

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
3	0	2	4	50/18	50/17	25/9	25/9	150/53

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

Detailed Syllabus:

Sr.	Contents	Hours
1	Introduction: Definition of Quality, Quality in Food Products, Quality Control Laboratory Requirements: Layout and requirements of quality control laboratory.	04
2	Statutory & Voluntary Food Standards: FSSAI, AGMARK, APHA, FDA, BIS, Codex Alimentarius.	04
3	Quality Concepts: Quality Control, Quality Assurance, Quality Policy, Quality Analysis.	04



4	Total Quality Management (TQM): Principles of TQM, TQM Transition Model, Integrated TQM Model, Customer Satisfaction, Continuous Improvement Programme, Six Sigma Technique, Kaizen, 5's Concept, Strategic Grid, Customer Window.	07
5	Quality Management Systems and Auditing: ISO 9000, 22000, 14000, HACCP, SQF.	04
6	Sampling and Estimation for Quality Evaluation: Sensory evaluation and its need. Criteria for selection of taste panel members, Determination of threshold level. Outline of taste panel methods: Difference tests and Rating tests. Unbiasedness, Consistency, Efficiency, Sufficiency and Completeness of a Statstic. UMVUE, Method of moments and Method of maximum likelihood, Interval estimation procedure.	10
7	Statistical Quality Control: Probability Theory, Conditional probability and independence, Frequency distribution, Measures of dispersion, Standard Deviation, Normal, Binomial, Poisson & X ² -Distributions, Testing of Hypothesis, Neyman-Pearson Lemma, Degrees of freedom, Null Hypothesis, t-test, Chi-Square test, Analysis of Variance (ANOVA), Simple Regression, Correlation coefficients.	12
	Total	45

List of Practicals / Tutorials:

1	Tests for wheat flour to detect chalk powder or NaHCO ₃ , lime powder (CaCO ₃), sand, grits and mineral additions (bicarbonates, phosphates, tartarates and calcium etc.
2	Test for sterilized milk.
3	Determination of peroxide value of given samples of oils/fats.
4	Sensory Evaluation of 04-samples of food products using Ranking Analysis Method & 09-Point Hedonic Scale Score Analysis.
5	Determination of total residual chlorine in water sample.
6	Evaluation of Butter for AGMARK standards through chemical analysis.
7	To evaluate food labels of market samples as per PFA / FSSAI standards.
8	To establish difference between two different samples using a Triangle Test of Sensory Evaluation.
9	Sensory Evaluation of Food samples by different techniques.
10	To perform test to establish adulteration in Ghee.
11	To determine BAR (Brix acid ratio) in a given beverage sample.

Reference Books:

1	Quality Control for Food Industry. Vol I and II by A. Krammer. AVI Publications.
2	Food Quality Assurance by W.A. Gould. AVI Publications.
3	Handbook of Analysis and Quality Control of fruits & Vegetables Products by Dr. S. Ramgama. Tata Mc Grow Hill Publications
4	Fundamentals of Statistics by S.C. Gupta. Himalaya Publishing House.
5	Probability and Statistics for Engineers. Miller and Freund's. Prentice Hall of India.
6	Guidelines for sensory analysis in food product development and quality control (2nd ed.). . Carpenter, R. P., Lyon, D. H., & Hasdell, T. A. (2000). NY: Springer Publishers.
7	Statistical quality control for the food industry. Hubbard, M. R. (1996). NY: Chapman and Hall



Supplementary learning Material:

1	www.fao.org/activities http://www.foodscience.org/publications .
2	www.fssai.gov.in/
3	www.foodqualitynews.com/
4	foodsafetynews.com
5	www.foodquality.com/

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Industrial/ Field visits
- Course Projects

Internal Evaluation:

The internal evaluation comprised of written exam (40% weightage) along with combination of various components such as Certification courses, Assignments, Mini Project, Simulation, Model making, Case study, Group activity, Seminar, Poster Presentation, Unit test, Quiz, Class Participation, Attendance, Achievements etc. where individual component weightage should not exceed 20%.

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

Distribution of Theory Marks in %						R: Remembering; U: Understanding; A: Applying; N: Analyzing; E: Evaluating; C: Creating
R	U	A	N	E	C	
20%	25%	25%	10%	10%	10%	

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.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Define and differentiate between quality assurance and quality control of foods.	15
CO-2	Explain the importance of food quality control systems in satisfying the requirements of both the consumer and legislation.	15
CO-3	Determine food quality using methods such as instrumentation, microbiological, physical, chemical and Sensory evaluation.	20
CO-4	Describe and detect food adulteration, detection and prevention.	15
CO-5	Develop an effective quality plan for a given food production system.	15
CO-5	Recall appropriate food standards code as applicable to a particular food group at the national and international level.	20



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Curriculum Revision:	
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Drafted on (Month-Year):	June-2022
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Next Review on (Month-Year):	June-2025