

Bachelors in Arts with With Community Science
Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-FN 3-HSC:
FOOD SAFETY AND QUALITY TESTING**

CREDIT DISTRIBUTION, ELIGIBILITY, PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical		
Food Safety and Quality Testing	4	2	0	2	Class XII	NIL

Learning Objectives

- To sensitize students regarding the significance of testing in ensuring food safety and quality.
- To provide knowledge of regulatory aspects of food safety and quality testing.
- To facilitate understanding of some commonly used methods of testing.

Learning Outcomes

The students would be able to:

- Explain the scope of regulations governing food safety and quality testing.
- Describe various methods of objective and subjective evaluation of food.
- Perform key food safety and quality testing methods.

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Food Safety and Quality Testing

10 Hours

It will introduce to the students the concept of quality and the scope of quality testing and for ensuring food safety. It will also help them understand the various physical, chemical and biological parameters based on which safety/quality of food can be judged.

- Key terms, significance of quality testing and ensuring food safety
- Types of hazards present in food and food spoilage- its types
- Characteristics, quality of food
- Objective and subjective evaluation of food

UNIT II: Sensory Evaluation of Food

5 Hours

This unit will help students learn and apply various sensory evaluation tests at laboratory as well as industry level.

- Sensory characteristics of food
- Human senses in sensory evaluation
- Applications of sensory evaluation
- Pre-requisites for sensory testing procedure
- Methods of sensory evaluation

UNIT III: Safety and Quality Testing-Commonly used Methods

10 Hours

In this unit, the student will learn about salient methods commonly employed for assessing physical, chemical and microbiological quality of ingredients/food products.

- Commonly assessed parameters for quality testing - physical, chemical, biological
- Physical methods such as olfactometer, electronic nose and tongue, viscometer, penetrometer, farinograph, amylograph, biscuit texture meter, bake-spread
- Chemical or proximate analysis such as moisture, ash, protein, fat content, presence of adulterants, pH, TSS, acidity
- Microbiological: morphological characteristics of microbes, MBRT

UNIT IV: Food Safety Regulations

5 Hours

In this unit, the student will learn about role of FSSAI in food safety surveillance system. The student will also know salient FSSAI regulations.

- FSSAI and the food safety surveillance system - brief concept
- FSSAI regulations and standards (licensing and registration, food recall procedures, food safety auditing)

PRACTICAL (Credit 2; Hours 60)

1. Develop a checklist to assess hygiene and sanitation status of college canteen/ food service unit.
2. Assess adulteration in commonly consumed foods.
3. Learn to perform various types of sensory evaluation of food.
4. Conduct consumer acceptability trial for any one canteen dish.
5. Perform any two tests for assessing physical characteristics of food/ water.
6. Perform any two tests for assessing chemical characteristics of food/ water.
7. Perform any two tests for assessing microbial contamination of food/ water.

Essential Readings

UNIT I

This unit introduces students to the concept and scope of food quality and quality testing in ensuring food safety. It also provides an understanding of the physical, chemical, and biological parameters used to evaluate the safety and quality of food.

- **Suri, S. & Malhotra, A.** (2014). *Food Science Nutrition and Safety*. Delhi: Pearson India Ltd.
- **Mathur, P.** (2018). *Food Safety and Quality Control*. Delhi: Orient Blackswan.

UNIT II

This unit enables students to learn and apply various sensory evaluation techniques used to assess food quality in both laboratory and industrial settings.

- **Suri, S. & Malhotra, A.** (2014). *Food Science Nutrition and Safety*. Delhi: Pearson India Ltd.
- **Rao, E.S.** (2013). *Food Quality Evaluation*. First Edition. Variety Books Publisher's Distributors.

UNIT III

This unit familiarizes students with key methods used to assess the physical, chemical, and microbiological quality of food ingredients and products.

- **Rao, M.K.** (2007). *Food and Dairy Microbiology*. Manglam Publishers and Distributors Pvt. Ltd.
- **FSSAI.** (2019). *Compendium of the Food Safety and Standards Act, 2006*. Universal India Publishers.

UNIT IV

This unit will help students position FSSAI in the food safety surveillance system. It will help students know the scope of some salient regulations that can help in maintaining food safety standards at industry level

- **FSSAI.** Internet: <https://fssai.gov.in/cms/food-safety-and-standards-regulations.php> (Accessed on 26 February 2026).

Suggested Readings

- **Kumar, A.** (2024). *Fundamentals of Food Hygiene, Safety and Quality*. Wiley India.
- **Kuddus, M., Ashraf, S.A. & Rahman, P.** (2024). *Food Safety: Quality Control and Management*. CRC Press LLC.
- **Ahmad, R.S., Munawar, H., Saima, H. & Siddique, F.** (2023). *Food Safety- New Insights*. Intech Open.
- **Ali, I.** (2004). *Food Quality Assurance: Principles and Practices*. CRC Press LLC.
- **Food Safety and Standards (Laboratory and Sampling Analysis) regulations,** 2011. Internet: https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Lab_Sample_Regulations_04_03_2021.pdf (Accessed on 20 February 2026).
- **Food Safety and Standards (Food Recall Procedures) regulations,** 2017. Internet: https://www.fssai.gov.in/upload/uploadfiles/files/Guidelines_Food_Recall_28_11_2017.pdf (Accessed on 20 February 2026).
- **Food Safety and Standards (Food Safety Auditing) regulations,** 2018. Internet: https://fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Food_Safety_Auditing_07_09_2018.pdf (Accessed on 20 February 2026)
- **FSSAI.** (2024). *FSSAI Manual on Methods of analysis- Microbiological examination of food and water*. https://fssai.gov.in/upload/uploadfiles/files/Manual%20on%20Microbiological%20Examination%20of%20Food%20and%20Water_compressed.pdf [(Accessed on 20 February 2026)
- **Association of Official Chemical Analysts (AOAC).** (1990). *Official Methods of Analysis*. 15th Edition. Internet: <https://law.resource.org/pub/us/cfr/ibr/002/aoac.methods.1.1990.pdf> (Accessed on 20 February 2026).
- **International Union for Pure and Applied Chemistry (IUPAC).** (2017). *IUPAC Standards*. Internet: <https://iupac.org/iupac-standards-online/> (Accessed on 20 February 2026).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.