

As Per NEP 2020

AC: 20/04/2024

Item No: 6.6 Sem. II (11a)

University of Mumbai



Syllabus for Basket of OE	
Board of Studies in Chemistry	
UG First Year Programme	
Semester	II
Title of Paper	Credits 2/ 4
Food Safety and Hygiene	2
	2
	2
	2
From the Academic Year	2024-2025

Semester II
Food Safety and Hygiene

Sr. No.	Heading	Particulars
1	Description of the Course	The course aims to provide knowledge of food safety, its contamination and adulteration and its storage
2	Vertical	Open Elective (OE)
3	Type	Theory
4	Credits	2 Credits (1 Credit = 15 Hours for Theory)
5	Hours Allotted	30 Hours
6	Marks Allotted	50 Marks
7	Course Objectives (CO): To disseminate the- CO 1: Fundamental aspects of food safety and hygiene CO 2: Information on common contaminants in food CO 3: Importance of foodborne diseases CO 4: Knowledge on food safety management systems and its regulations	
8	Course Outcomes (OC): Students shall be able to- OC 1: Practice and promote good systems for food safety and hygiene OC 2: Identify the sources of food contamination and will be able to take preventive measures to avoid contamination OC 3: Recognize the signs and causes of foodborne diseases OC 4: Give an overview of perishable supply chain management	

9	Modules
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Semester	Module	Description	Credits
I	I	Food Safety	02
	II	Food Storage, Transportation and Food Safety Management Systems	

Module I	Food Safety (15L)
1.1	Introduction to Food Safety and Hygiene (07L) • Overview of food safety principles and importance (01L) • Types of food hazards (01L) • Introduction to food hygiene (01L) • Personal hygiene in food handling (01L) • Food storage and temperature control (01L) • Reading and interpreting food labels (02L)
1.2	Food Contamination and Food Adulteration (08L) Food Contamination (04L) • Organisms responsible for food contamination (<i>E.coli</i>, <i>Penicillium spp</i>, <i>Amoeba</i>) (01L) • Factors influencing microbial growth in food and sources of contamination in the food supply chain (03L) Food Adulteration (04L) • Concept of food adulteration and types of adulterants (chemical, biological and physical) (02L) • Commonly adulterated foods and their methods of detection (Milk, Turmeric and Tea) (02L)

Module II	Food Storage, Transportation and Food Safety Management Systems (15L)
2.1	Food Storage and Transportation (07L) • Overview of production, processing and perishable supply chain of milk and milk products (03L) • Temperature control and cold chain management (02L) • Best practices for storage, transportation and handling of perishable goods (02L)
2.2	Food Safety Management Systems (08L) • Introduction to food safety management systems (FSMS) (02L) • Implementation of HACCP in the food industry (02L) • ISO 22000 standards and their application in ensuring food safety (02L) • Auditing and certification of food safety management systems (02L)

References books and Articles:

1. Ronald H. Schmidt and Gary E. Rodrick. 2002. "Food Safety Handbook", Wiley; 1st edition.
2. Norman G. Marriott and Robert B. Gravani. 2006. "Principles of Food Sanitation", Springer; 5th edition
3. Haji, M.; Kerbache, L.; Muhammad, M.; Al-Ansari, T. Roles of Technology in Improving Perishable Food Supply Chains. Logistics 2020, 4, 33. <https://doi.org/10.3390/logistics4040033>
4. Zhong, R., Xu, X. and Wang, L. (2017), "Food supply chain management: systems, implementations, and future research", Industrial Management & Data Systems, Vol. 117 No. 9, pp. 2085-2114. <https://doi.org/10.1108/IMDS-09-2016-0391>

QUESTION PAPER PATTERN

Theory	Credit	No. of Hours	Marks
	02	30	50

Internal Continuous Assessment: 40% (20 Marks)	External, Semester End Examination: 60% Individual Passing in Internal and External Examination (30 Marks)
Continuous Evaluation through: Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc.(at least 3)	As per the Format of Question Paper
Format of Question Paper: for the final examination	

Question Paper Pattern for 30 Marks:

Semester End Theory Examination:

1. Duration - These examinations shall be of **one-hour** duration.
2. Theory question paper pattern:
 - a. There shall be **02** questions, Question 1 carries 15 Marks based on Unit I and Question 2 carries 15 Marks based on Unit II.
 - b. All questions shall be compulsory with internal choice within the questions.

Question	Particulars	Marks	Questions Based on
Q.1	A) Objective Questions 06 out of 10	06	Unit I
	B) Subjective Questions 03 out of 05	09	
Q.2	A) Objective Questions 06 out of 10	06	Unit II
	B) Subjective Questions 03 out of 05	09	
Total		30	---

**Sign of the
Dr. Sunil Patil
Co-ordinator,
Board of Studies in
Chemistry**

**Sign of the
Prin. (Dr.) Madhav Rajwade
Offg. Associate Dean,
Faculty of Science and
Technology**

**Sign of the
Prof. (Dr.) Shivram Garje
Offg. Dean,
Faculty of Science and
Technology**