



National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	Master of Technology	Year of Regulation	2025
Department	Civil Engineering	Semester	I

Course Code	Course Name	Pre-requisite	Credit Structure				Marks Distribution			
			L	T	P	C	INT	MID	END	Total
CE 541	Food Safety and Hygiene Management	NIL	3	0	0	3	50	50	100	200

Course Objectives	Course Outcomes	CO1		CO2		CO3		CO4		CO5	
		1. To understand the principles and importance of food safety and hygiene in environmental health. 2. To identify sources and types of food contamination and associated health risks. 3. To explore the frameworks of food safety laws, standards, and quality control systems. 4. To examine the role of environmental conditions in food safety across the supply chain. 5. To apply monitoring and risk management strategies for food safety assurance.	Able to explain the importance of food safety and hygiene in protecting public health and ensuring environmental sustainability. Able to identify and assess different types of food hazards, including biological, chemical, and physical contaminants. Able to Interpret and apply national and international food safety standards, regulations, and quality control frameworks Able to recommend appropriate hygiene practices and sanitation measures in food handling, processing, and storage environments Able to design food safety management plans integrating risk assessment tools and sustainable waste management strategies.								

SYLLABUS

No.	Content	Hours	COs
I	Introduction to Food Safety and Hygiene: Definitions and concepts: food safety, food hygiene, food quality; Importance of food safety in public and environmental health; Types and sources of food contamination (biological, chemical, physical); Foodborne diseases and outbreaks	6	CO1, CO2
II	Microbiology and Foodborne Pathogens: Microbial growth and food spoilage; Common foodborne pathogens: bacteria, viruses, parasites; Factors influencing microbial contamination; Control strategies: temperature control, sterilization, preservatives.	6	CO2, CO3, CO4
III	Hygiene in Food Handling and Processing: Personal hygiene and training of food handlers; Sanitary design of food facilities and equipment; Cleaning and disinfection protocols; Safe food handling practices in catering and industrial kitchens	5	CO2, CO3, CO4
IV	Food Safety Management Systems: Principles of Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP); Hazard Analysis and Critical Control Points (HACCP) – structure, implementation; ISO 22000 and Food Safety Management Systems; Quality Assurance and Quality Control in the food industry	7	CO2, CO3, CO4
V	Legal Framework and Standards: Indian food safety regulations: FSSAI Act, BIS standards; International frameworks: Codex Alimentarius, WHO, FAO guidelines; Food labeling, traceability, and recall procedures; Food import/export regulations and compliance	9	CO4, CO5
VI	Sustainable Practices and Waste Management: Environmental conditions and their impact on food safety (air, water, waste, pests); Food waste management: reduction, segregation, treatment; Eco-labeling and sustainable packaging practices; Case studies on successful hygiene management in food industries	9	CO4, CO5
Total Hours		42	

Essential Readings

1. Marriott, N.G. & Gravani, R.B. – Principles of Food Sanitation, Springer, 2018
2. Forsythe, S.J. – Microbiology of Safe Food, Wiley-Blackwell, 2020
3. FSSAI Manuals – Food Safety and Standards Authority of India

Supplementary Readings

1. **WHO & FAO Guidelines** – Food Safety and Public Health Reports