

# FOOD QUALITY MANAGEMENT

## THEORY

<b>Paper No.</b>	:	<b>7.1</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Credits</b>	:	<b>4</b>
<b>Teaching Period</b>	:	<b>4 Theory + 1 Students Presentation/ Week</b>
<b>Teaching Load</b>	:	<b>48 Theory Periods + 12 Students Presentation/ Semester</b>

### Objectives

- To learn about quality management in food production chain.
- To learn about physical, chemical contaminants in foods
- To learn about latest trends and techniques in food science
- To understand the significance of safe processing of foods.

### CONTENTS

#### UNIT 1 FOOD QUALITY (Ch-1, Pieterel) (10 Lectures)

Introduction to food quality management – Definition, quality concepts, quality, quality perception, quality attributes, safety, health, sensory, shelf life, convenience, extrinsic attributes, factors affecting food behavior.

Quality in the Agri- food production chain, Techno- managerial approach, food quality relationship and food quality management functions. Dynamics on the agri- food production chain, core developments in food quality management.

#### UNIT 2 FOOD CONTAMINATION AND ADULTERANTS (Ch-11 DeMan, Shalton & FSSAI regulations) (10 lectures)

Contamination in Foods - Physical (stones, glass, dust, dirt), chemical (heavy metals, pesticide residues, antibiotics, veterinary drug residues, dioxins, environmental pollutants, radionuclides, solvent residues, chemicals), Natural toxins.

Contaminants formed during processing – nitrosamines, acrylamide etc. natural food contaminants and contaminants from packaging materials. Contamination with intention-adulterants

### **UNIT 3 Food Additives (Ch-11 DeMan, Ch-1,2,3,4,5,6,8,9,15,17Barren ) (14 Lectures)**

Chemical, technological and toxicological aspects

Risk assessment studies- Safety and quality evaluation of additives and contaminants, Acute and chronic studies, NOEL, ADI, LD50

Introduction, need of food additives in food processing and preservation. Characteristics and classification of food additives.

Antimicrobial agents. -Nitrites, sulphides, sulphur di oxide, sodium chloride, hydrogen peroxide.

Antioxidants - Introduction, mechanism of action, natural and synthetic anti-oxidants, technological aspect of antioxidants.

Sweeteners- Introduction, importance, classification- natural and artificial, chemistry, technology and toxicology, consideration for choosing sweetening agents.

Colors- Introduction, importance, classification- natural, artificial, and natural identical, FD&C Dyes and Lakes. Use of plant tissue culture, polymeric colors etc for color

### **UNIT 4 BASIC PRINCIPLES AND APPLICATION OF PROCESSING TECHNIQUES (Journals) (14 Lectures)**

Microwave processing, high fructose corn syrup, extrusion cooking, vacuum evaporation, cryogenic freezing, supercritical fluid extraction, fat mimetics, flavour encapsulation, use of nano technology in foods etc.

#### **Recommended Readings:**

1. Pieterneel A, Luning, Willem J. Marcelis, Food Quality Management Technological and Managerial principles and practices, Wageningen,2009.
2. Brannen and et al., Food Additives, Marcel Dekker, New York,1990
3. Shalton, Principles and Practices for the Safe processing of Foods.
4. DeMan, 3<sup>rd</sup> edition, Principles of Food Chemistry, Springer, 2007.

## **(DC I) RESEARCH METHODOLOGY**

**THEORY**

<b>Paper No.</b>	<b>:</b>	<b>7.3</b>
<b>Maximum Marks</b>	<b>:</b>	<b>100</b>
<b>Credits</b>	<b>:</b>	<b>4</b>
<b>Teaching Period</b>	<b>:</b>	<b>4 Theory + 1 Students' Presentation</b>
<b>Teaching Load</b>	<b>:</b>	<b>48 Theory Periods + 12 Presentations / Semester</b>

### **Objectives**

- To gain insights into how scientific research is conducted.
- To learn and understand the basic statistics involved in data presentation

### **CONTENTS**

#### **UNIT I INITIATION OF RESEARCH**

**(10 Lectures)**

Historical account of research in food technology, Identification of areas of research, literature databases-mode of their use and retrieval of literature, Search of journal websites for specific topics, inculcation of habit of scientific reading