



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

DEPARTMENT OF BIOTECHNOLOGY

VALUE ADDED COURSE – SYLLABUS

PAPER I- INTRODUCTION TO FOOD PROCESSING AND SAFETY

Course Objective:

- ❖ To get familiarized with basic concepts of food and its safety concerns
- ❖ To understand the techniques adopted for food processing and to develop their skills to meet the requirements in food industries.

UNIT I	Fundamentals of Food Science	4 Hours
Introduction to concept of food, Classification of food, Functions of food. Methods of Cooking. Food and Nutrition – Nutritional Content in foods of plant and animal origin and its biochemical changes during cooking.		
UNIT II	Food Microbes and Spoilage	4 Hours
. Microorganisms associated with foods- bacteria, yeast and mold, perishable, non-perishable food and causes of food spoilage. Factors contributing to physical, chemical and biological contamination in food, sources of contamination, Food adulteration: common adulterants, simple tests for detection of adulteration.		
UNIT III	Processing of Foods	4 Hours
Handling and Processing of foods - Meat, Fish, Eggs, fruits and vegetables. Primary processing of major cereals -Milling of cereals-Dry and Wet milling		
UNIT IV	Processing in Food Industries	4 Hours
Processing of milk -Pasteurization -sterilization –Dehydration. Processing in Dairy Products. Processing in Bakery Products: Chocolate Processing, Processing in Sweet and Confectionaries		
UNIT V	Food Safety and Standard	4 Hours
Standard tests for quality assessment Physical Tests, Chemical tests, Microbiological tests and Sensory analysis. Existing food laws and standards in India -Concept and application of ISO and HACCP. Nutritional labeling - Specification - rules and regulation- ISI certification- Principles - Role of AGMARK.		
Total Hours		20 Hours



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PRINCIPAL,
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Reference Books:

1. Fundamentals of Food and Nutrition, R. Mudami and M.V. Rajagopal, New Age International (P) Ltd, 2001
2. Food Science, B. Srilakshmi, III Edition, New Age International (P) Ltd, 2003
3. Food Microbiology, William C. Frazier, Dennis C. Westhoff, IV Edition, Tata McGraw Hill Publishing Company, New Delhi
4. Food Processing Management, Dr. R.K. Verma, Pearl Books Publication, New Delhi, 2011
5. Food Processing and Preservation, G. Subbulakshmi, New Age International (P) Ltd, 2006

Course Outcomes

- CO1 Understand the Nutritive value of food and its fundamental concepts
- CO2 Get familiarized with the causatives for food spoilage
- CO3 Upgrade their insights in the methods involved in food processing
- CO4 Have an overview in processing techniques employed in Food Industries
- CO5 Gain an awareness about the Safety Standards and Food related Law in action



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PAPER II- FOOD PRESERVATION

OBJECTIVES:

- Learn about the structure, functions and pathology of different organs in the human body system.
- Able to demonstrate a basic understanding of the mechanisms of human body.

UNIT I	Introduction to Food Preservation	3 Hours
Fundamentals and Principles of Food Preservation and its importance. Techniques of Food Preservation. Traditional and modern methods of food preservation. Food additives – definition, types. Flavoring agents, emulsifiers, coloring agents.		
UNIT II	Preservatives	3 Hours
Concept and definition -Types -Natural preservatives -Synthetic preservatives. Permissible limits for preservatives. Benefits and safety facts of preservatives		
UNIT III	Food Preservation by temperature Control	4 Hours
Low Temperature -Freezing and Refrigeration, types of freezing (slow freezing, quick freezing). Thawing. High Temperature Thermal Processing- Commercial heat preservation methods: Sterilization, commercial sterilization, Pasteurization and blanching.		
UNIT IV	Food Preservation by Irradiation	5 Hours
Sources of radiations, applications of food irradiation. Mode of action, effect on microorganisms and different nutrients; dose requirements for radiation preservation of foods.		
UNIT V	Food Preservation by Moisture Control	5 Hours
Drying and dehydration - merits and demerits, factors affecting, different types of drying, Concentration: principles and types of concentrated foods.		
Advanced Preservation Techniques: Edible coating, extrusion cooking, microwave processing, holmic heating, high pressure processing, minimal processing, ultrasound processing		
Total Hours		20 Hours



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Reference Books:


- Food Processing and Preservation, G. Subbulakshmi, New Age International (P) Ltd, 2006
- Food Science, B.Srilakshmi, III Edition, New Age International (P) Ltd, 2003
- Food Science and Nutrition. Sunetra Roday, Oxford University Press, India, 2007
- Food Preservation, William V.Cruess, Axis Books India, 2013.

Course Outcome

On successful completion of the course, the students will be able to:

- CO1 Understand the need for Food preservation and the additives added for product development
- CO2 Strengthen their ideas related to preservatives
- CO3 Improve their knowledge in Temperature based preservation techniques
- CO4 Outline the concept of food preservation by irradiation
- CO5 Summarize the advanced preservation techniques employed in food industries.




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