

Sem	Course Code	Elective - II	Total Marks: 100		Hours Per Week	Credits
IV	17UATET411	Food Safety and Microbiology	CIA: 25	ESE: 75	4	4

OBJECTIVE(S)

1. To acquire knowledge about microorganisms
2. To understand the characteristics of important food borne pathogens and hazards

Course Outcomes:

At the end of the course, students will be able to

- CO1 Will have a basic knowledge about food safety.
 CO2 Will have a good knowledge in role of micro organisms in food.
 CO3 Shall have a knowledge of yeast in food.
 CO4 Will possess a thorough knowledge in contamination of foods
 CO5 Can enrich their skills and knowledge in sanitizing of foods.

UNIT I

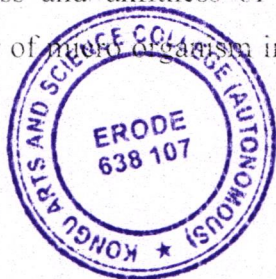
Introduction to Food Safety-Definition, types of hazards, biological, chemical, physical hazards. Factors affecting food safety, importance of safe foods.
 Shelf life of food products - Factors affecting shelf life and methods to check the shelf life.
 Recent concerns on food safety: genetically modified foods.

UNIT II

Introduction to Microbiology: Relation of microbiology to hygiene – Classification of microorganisms. Factors affecting the growth of microorganism.
 Bacteria - Morphology, reproduction, growth curve, nomenclature, genera of bacteria important in food. Motility of bacteria in bottle milk.
 Mold - Morphology, reproduction, physiology and nutrition, genera of mold important in food. Mold growth in bread.

UNIT III

Yeast- Morphology, reproduction, classification and importance of yeast in food. General principles underlying spoilage- Fitness and unfitness of food for consumption, causes for spoilage, factors affecting kinds and number of microorganisms in food, factors affecting the growth of microorganism in food.



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UNIT IV

Contamination and kinds of microorganisms causing spoilage of cereal products - Grains, flour, baked products and cake. Contamination and kinds of microorganisms causing spoilage of fruits and vegetables and their products- fruit juice, pickles. Contamination and kinds of micro organisms causing spoilage of fleshy foods - Meats, poultry and fish.

UNIT V

Microbiology in food sanitation- Bacteriology of water supplies (drinking water and plant water), sewage and waste treatment and disposal. Microbiology of food product - ingredients, packaging materials and equipment (cleaning and sanitizing). Hazard analysis: critical control points (HACCP). Health of employees.

TEXT BOOK

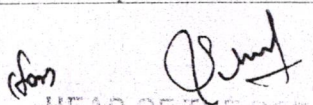
W.C. Frazier, D.C. Westhoff, Food Microbiology, McGraw Hill, New York, 1995.

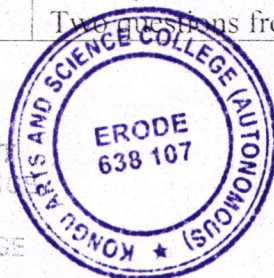
REFERENCES


1. Nicholas Johns, Managing Food Hygiene, MacMillan Publication, United Kingdom, 1991.
2. Michael J. Pelczar, E.C.S. Cahn and Noel. R. Kruef, Microbiology, Tata McGraw- Hill Publication, India, 1993.
3. L. M. Prescott, John P. Harley and D. A. Klein, Microbiology, Mc Graw Hill, New York, 1996.
4. R.C. Dubey and D. K. Maheshwari, Textbook of Microbiology, S. Chand and Company Limited, New Delhi, 1999

QUESTION PAPER PATTERN

Section - A	Section - B	Section - C
10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	3 x 10 = 30 Marks (Answer any three Questions) One Question from each unit


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