

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 4

FOOD PROCESSING TECHNOLOGY

Subject Name: FOOD AND INDUSTRIAL MICROBIOLOGY

Sr.No	Course contents
1.	Microbiology of Fruits and Vegetables, Fruit juices, Beverages and Carbonated drinks: Sources, incidence and types of microbes, microbial spoilage and methods of control.
2.	Microbiology of Milk and Milk Products: Normal and abnormal flora of milk, sources of contamination, pasteurization of milk and defects in milk and milk products.
3.	Microbiology of Cereals and Cereal products: Microbiology of Cereal grains and meals, flour, dough products, cakes and other bakery products.
4.	Microbiology of Canned Foods Causes of spoilage, types of aerobic and anaerobic microbial spoilage.
5.	Food Preservation by use of Chemicals and Radiation: Types of chemical preservatives, mode of action and industrial applications. Use of gamma radiation in food preservation and its industrial applications.
6.	Food Preservation by use of Low Temperature, High temperature and Drying: Types of low temperature preservation methods, mode of action on microbes, Various methods of high temperature preservation, D, F Values, 12D concept. Use of Drying Methods and industrial applications and mode of action on microbes.
7.	Food Borne Diseases and Food Poisoning: Food borne pathogens, Food infections and Food Intoxications.
8.	Isolation and Screening. Isolation techniques, screening methods for industrial applications.
9.	Improvement and Preservation of Industrial cultures: Importance, development of strains, Preservation methods.
10.	Industrial Fermentor: Important parts and their functions and types of fermenter.
11.	Sterilization: Principles, sterilization of equipments, medium, and air.

12.	Recovery and Purification: Procedure and techniques for recovery and purification of fermentation products.
13.	Introduction to microbial growth kinetics and inoculum preparation: Study of batch and fed batch and continuous fermentation processes.
14.	Metabolite and Biomass production: Production details of Ethyl Alcohol, Citric acid, Single Cell Protein, Brewers and Bakers Yeasts.

Reference Books:

1. Modern Food Microbiology , James M. Jay, CBS Publishers & Distributors, Delhi.
2. Food Microbiology, W C Frazier and D C Westhoff, McGraw Hill Book Company, NY.
3. Industrial Microbiology, S C Prescott and C G Dunn, McGraw Hill Book Co.
4. Industrial Microbiology, A H Patel Mac Millan Press.