

B.Tech. Biotechnology: Semester-III	
BBT 301: FOOD BIOTECHNOLOGY	
Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

Course Objective

To impart knowledge about the innovations in food processing technologies and their applications.

To understand changes in the composition of food and comparison with conventional cooking methods.

To know packaging materials, their need according to different foods and to food quality parameters and their maintenance during storage.

Course Learning Outcomes

After completing the course, the student shall be able to:

CO1: Identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods

CO2: Understand the principles involving food processing via fermentation processes.

CO3: Understand the principles that make a food product safe for consumption

CO4: Understand the principles and current practices of preservation techniques and the effects of preservation parameters on product quality

CO5: To look for careers in Food industries.

Unit I: History of Microorganisms

History of Microorganisms in food, Historical Developments. Role and significance of microorganisms in foods. Intrinsic and Extrinsic. Parameters of Foods that affect microbial growth. Basic principles, unit operations, and equipment involved in the commercially important food processing methods and unit operations

Microorganisms

Microorganisms in fresh meats and poultry, processed meats, seafood's, fermented and fermented dairy products and miscellaneous food products. Starter cultures, cheeses, beer, wine and distilled spirits, SCP, medical foods, probiotics and health benefits of fermented milk and

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foods products. Brewing, malting, mashing, hops, primary & secondary fermentation: Biotechnological improvements: catabolic repression, High gravity brewing, B-glucan problem, getting rid of diacetyl. Beer, wine and distilled spirits.

Unit II: Nutritional boosts and flavor enhancers:

Emerging processing and preservation technologies for milk and dairy products. Microbiological Examination of surfaces, Air Sampling, Metabolically Injured Organisms. Enumeration and Detection of Food-borne Organisms. Bioassay and related Methods

Food Preservation-Food Preservation Using Irradiation, Characteristics of Radiations of Interest in Food Preservation. Principles Underlying the Destruction of Microorganisms by Irradiation, Processing of Foods for Irradiation, Application of Radiation, Radappertization, Radicidation, and Radurization of Foods Legal Status of Food Irradiation, Effect of Irradiation of Food constituents.

Unit III: Storage Stability Food-

Preservation with Low Temperatures, Food Preservation with High Temperatures, Preservation of Foods by Drying, Indicator and Food-borne Pathogens, Other Proven and Suspected Food-borne Pathogens. Rheology of Food Production.

Suggested Readings

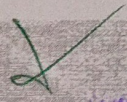
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- Mann & Trusswell, 2007. Essentials of human nutrition. 3rd edition .oxford university press.
- Jay, J.M., 1987. Modern Food Microbiology, CBS Publications, New Delhi.
- Lindsay, 1988. Applied Science Biotechnology. Challenges for the flavour and Food Industry. Willis Elsevier.
- Roger, A., Gordon, B. and John, T., 1989. Food Biotechnology.


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