# MANGALORE UNIVERSITY

## Department of Microbiology

## M.Sc. Microbiology

## MBS- 455: Food Microbiology

**40h**

**OBJECTIVES**

1. Detailed study on factors responsible for microbial food spoilage.
2. Detection of food spoilage methods.
3. Microbial spoilage of milk and fermented dairy products.
4. Food preservation techniques.

## COURSE OUTCOME

CO1: Understanding food processing and packaging hygiene.

CO2: To learn food safety standards at international and national level.

CO3: Employment as food quality controller, in food and sewerage manufacturing industries.

CO5: Understanding importance of microorganisms in food industry.

**UNIT- I**

Food and its constituents: carbohydrates, proteins, fats & oils, vitamins, minerals, fiber and water- properties and significance. Food as substrate for microorganisms, Extrinsic and Intrinsic factors influencing microbial growth, Microbes important in food: molds, yeasts, bacteria. Detection of food spoilage, Food- borne Infection & Intoxication: Bacterial, Fungal, Nematodal, Protozoal. Spoilage of fruits, vegetables, cereals, meat, fish, sea foods, poultry and canned foods.

**UNIT- II**

Milk handling & processing, microbial contamination of milk, Biochemical activities of milk: Souring, Lactosis, Proteolysis. Milk - borne infections, Probiotics and their importance. Fermented dairy products- buttermilk, sour cream, cheese, yoghurt, Pasteurization and its types, Fermented Foods- Bread, Cocoa, Vinegar, Sausage, Oriental foods- Shoyu, Tofu, Idli. Food preservation: Classification- physical, chemical and biological.

**UNIT- III**

Principles of Food Packaging: Types of containers, Food packaging materials and forms, Package testing, Packages with special features, Safety of food packaging. Food Processing and Environment: Food Sanitation in manufacture and Retail trade, Properties and requirements of processing water, Waste water and waste solids disposal, up-gradation and treatment.

**UNIT-IV**

Food Safety, Risks and Hazards: Microbiological consideration in Food Safety, Effects of processing and storage on Microbiological safety, Microbiological methodology, Food Laws and Regulations- HACCP, FSSAI, BIS, Federal Food, Drug and Cosmetic Act, International Food Standards and Codex Alimentarius.

**Note: Each unit is for 10h**