Course code	Course Name	L-T-P - Credits	Year of Introduction
FT201	FOOD MICROBIOLOGY	3-1-0-4	2016

Prerequisite : Nil

Course Objectives

- To give an introduction to microbes and their positive and negative effects.
- To understand food safety and standards related to microbes.

Syllabus

Introduction to food Microbiology- Food Contamination and Spoilage -Food Borne diseases Food Safety and standards - Beneficial roles of micro organisms -Detection of microbes in food

Expected outcome.

The students will be able to know about microbial contamination and their effects.

Text Book:

1. James M.J. *(2000) Modern Food Microbiology,5th Edition, CBS Publishers*
2. Barnart,G .J. *(1997) Basic Food Microbiology, CBS Publishers*

References:

1. Adam M .R. & Moss , M .O. (1995) *Food Microbiology, New Age International Pvt.Ltd. Publishers*
2. Bibek Ray (1996) *Fundamental Food Microbiology, CRC Press*
3. William Carroll Frazier,*1967 Food Microbiology*

Course Plan

Module	Contents	Hours	Sem. Exam Marks
I	**INTRODUCTION TO FOOD MICROBIOLOGY:** History of microbiology of Food, Food microbiology and its Scope, Types of microorganisms normally associated with food: bacteria, fungi, yeast & mold. Isolation, preservation and maintenance of pure cultures. Enumeration of microorganisms, Growth curve	9	15%
II	**FOOD CONTAMINATION AND SPOILAGE:** Factors affecting spoilage of foods Micro flora associated with various food groups, their spoilage potential and control, Microbiological spoilage problems associated with typical food products	10	15%
	FIRST INTERNAL EXAMINATION		
III	**FOOD BORNE DISEASES:** Food poisonings-food poisonings due to pathogens, important features. Bacterial agents of food borne illness-A brief account of various organisms related with food poisoning, Microbial toxins.	10	15%
IV	**FOOD SAFETY AND STANDARDS:** Microbial quality assurance systems in food industry, Codes of Good Manufacturing Practices ,HACCP food standards, Quality control using microbiological criteria	9	15%
	SECOND INTERNAL EXAMINATION		

V	**BENEFICIAL ROLES OF MICROORGANISMS:** Introduction to biotics and probiotics, Microbial enzymes in Food Processing. Fermented milk and milk products, fermented fruits and vegetables, Fermented fish, Fermented meats, Cereal based fermented foods, Fermented beverages-Beer, Vinegar and Wine.	9	20%
VI	**DETECTION OF MICROBES IN FOODS:** Sampling for microbial analysis, Physical, Chemical and immunological methods, Quantitative methods for microbial enumeration in foods, Qualitative methods to isolate microorganisms in foods, Bioassay and related methods, Test for bacterial toxins in foods, Rapid methods and automation.	9	20%
END SEMESTER EXAM			

QUESTION PAPER PATTERN

Max. marks: 100, Time: 3 hours

The question paper shall consist of three parts

Part A

4 questions uniformly covering modules I and II. Each question carries 10 marks

Students will have to answer any three questions out of 4 (3X10 marks =30 marks)

Part B

4 questions uniformly covering modules III and IV. Each question carries 10 marks

Students will have to answer any three questions out of 4 (3X10 marks =30 marks)

Part C

6 questions uniformly covering modules V and VI. Each question carries 10 marks

Students will have to answer any four questions out of 6 (4X10 marks =40 marks)

Note: In all parts, each question can have a maximum of four sub questions, if needed.