





**Course  
Outline  
Form**

**ODD SEMESTER**  
**2021**

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*Dear Student: Course outlines are intended to provide students with an overall plan for a course to enable them to function efficiently and effectively in the course.*

*Academic  
Programs  
BSc Microbiology  
EMEA College  
Kondotty*

# Course Outline : FOOD AND DAIRY MICROBIOLOGY (2021-22)

Name of the Stream	Science
Name of the Programme	BSc Microbiology
Name of the Course	FOOD AND DAIRY MICROBIOLOGY
Nature of the Course	Core Course
Semester	Fifth
Lecturer(s)	DUFAIDA K.M.
Name of the Coordinator	
Year	<b>2021-22</b>
No of Credits	4
No of Contact Hours	72
Course Description	To study the nature ,physiology and interactions of microorganisms in foods.Introductions to differnt types of foodborne diseases,effects of food processingon the microflora of foods.Principles of diferent food preservation methods,food spoilage and foods produced by different microorganisms includi bacteria,yeasts,funghi,protozoa and viruses
Course Objectives	The course aims to provide instructions in the general principles of food microbiology The course covers various types of microorganisms associated with food,epidemiology&pathogenesis of foodborne microorganism of public health significance including bactria,funghi,protozoa. To undrstand food spoilage microorganisms,Microbiology of food preservationand food commodities,frmented micrbial foods,principles and methods for the microbiologicalexamination offoods,microbiological quality control and shemes.
Course Outcome	To learn the principles of microorganisms in various food processing and preervation steps To understand the interactions between microorganisms and the food environment and factors influencing their growth and survival To understand the significance and activities of miroorganisms in food To recognize the characterisitc of food borne spoilage microorganisms,their methodsof isolation,detection and identification of microbiological To analyze the importance of microbiological quality control programmes in foodproduction. To learn the microbiology of different types of food commodities To understand the use of standard methods and proceduressfor the microbiological analysis of food
	Class Tests  Unit Tests

Textbook	
References	<ol style="list-style-type: none"> <li>1. Food Microbiology by Adams, M R . and Moss, M.O.1995.The Royal Society of Chemistry, Cambridge.</li> <li>2. Food Microbiology by Frazier, W.C. and Westhoff, D.C.1988.TATA McGraw HillPublishing company Ltd., New Delhi.</li> <li>3. Modern Food Microbiology by Jay, J.M.1987.CBS Publishers and distributors, New Delhi.</li> <li>4. Basic Food Microbiology by Banwart, G.J.1989.Chapman &amp; Hall New York.</li> <li>5. A Modern Introduction to Food Microbiology by Board, R.C.1983.Blackwell Scientific Publications, Oxford.</li> <li>6. Dairy Microbiology by Robinson, R.K.1990. Elsevier Applied Science, London.</li> <li>7. Food Poisoning and Food Hygiene, Hobbs, B.C. and Roberts, D.1993. Edward Arnold.</li> <li>8. MICROBIOLOGICAL EXAMINATION METHODS OF FOOD AND WATER by SILVA</li> <li>9. Lund BM, Baird Parker AC, and Gould GW. (2000). The Microbiological Safety and Quality of Foods. Vol. 1-2, ASPEN Publication, Gaithersberg, MD.</li> <li>10. Gould GW. (1995). New Methods of Food Preservation. Blackie Academic and Professional, London</li> </ol>
Internet Resources	

### Internal Exam Pattern

Items	Marks/20	Marks/15
Assignment	4	3
Test Paper(s)/Viva voce	8	6
Seminar/Presentation	4	3
Class Room Participation based on Attendance	4	3
<b>Total</b>	<b>20</b>	<b>15</b>

### External Exam Pattern

Question Type	No of Question	Marks/Question	Total Marks
Short Questions(2-3 Sentences)	15	2	Ceiling 25
Paragraph / Problem Type	8	5	Ceiling 35
Essay Type	2 out of 4	10	20
<b>Total</b>			<b>80</b>
<b>Time</b>			<b>2.5 hrs</b>

Graduate Attributes	<b>Name of the Course:</b> FOOD AND DAIRY MICROBIOLOGY
	<b>Knowledge</b>
	<b>Academic and Intellectual Skills</b>
	Self Learning
	<b>Professional Skills</b>
	Problem Solving Skills
	<b>Personal Skills</b>
	Application Skills
	<b>Attitude and Values</b>

## Course Schedule

Unit 1. Food as a substrate for microorganisms. Types of microorganisms in food - Source of contamination - Factors influencing microbial growth in foods (extrinsic and intrinsic) Microbial examination of food- viable colony count, examination of fecal Streptococci.	Week 1
Unit 2. Physical and chemical properties of milk. Milk as a substrate for microorganisms. Types of microorganisms in Milk- bacteria, fungi and yeast. Sources of microbial contamination of milk. Microbiological analysis of milk. Rapid platform testsorganoleptic, Clot on boiling (COB), turntable acidity alcohol test, DMC, sedimentation test and pH. Standard plate count, MBRT.	Week 2
Unit 3. Food fermentations: Cheese, bread, yoghurt, idli, fermented pickles and fermented vegetables, Ice cream, - methods and organisms used. SCP, Probiotics and prebiotics.	Week 3 Week 4 Week 5
Unit 4. General principles underlying spoilage, different kinds of foods, cereals and cereal products - sugar and sugar products - vegetable and fruits - meat and meat products - fish and other sea foods - eggs and poultry - dairy and fermentative products (ice cream/milk/bread/wine).	Week 6 Week 7 Week 8 Week 9
Unit 5. Food Poisoning : food borne infections (a) Bacterial: Staphylococcal, Brucella, Bacillus, Clostridium, Escherichia, Salmonella (b) Fungal : Mycotoxins including aflatoxins. ergotism (c) Viral: Hepatitis. (d) Protozoa - Amoebiasis.	Week 10 Week 11

Unit 6. Food preservation : Principles of food preservation - methods of preservation. a. Physical (irradiation, drying, heat processing, pasteurization, chilling and freezing, high pressure and modification of atmosphere) b. Chemical (Sodium benzoate Class I & II). Food Sanitation: Good manufacturing practices - HACCP, Personnel hygiene.	Week 12
	Week 13
	Week 14
Internal Examinations	Week 15
University Examinations	Week 16

### Contact Details

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