

Monthly Teaching Plans- Odd Semester (Semester I)

Session–(2023-2024)

Name of the Teacher: Dr. Vandana Sharma

Department: Department of Food Science

Class: B.Sc. MFT (I)

Subject: BMF 1001 – GENERAL AND FOOD MICROBIOLOGY

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken *
	From	To		
1.	26.07.2023	31.07.2023	<b>Applications and History of Microbiology</b> <b>Organization of Cell</b> - Concept of Prokaryotic and Eukaryotic cell, extra nuclear and nuclear organization of cell.	Interactive Lecture method, Power Point Presentations, Reference book
2.	01.08.2023	15.08.2023	<b>Characteristics of major groups of microorganisms:</b> Archaeobacteria, Eubacteria, Fungi, Protozoa and Viruses and Bacteriophages. <b>Prokaryotic cell structure and function:</b> Cell morphology; the capsule and slime layer; cell wall; cell membrane <b>Revision Test</b>	Interactive Lecture method, Power Point Presentations, Reference book
<b>Departmental Meeting</b>				
3.	16.08.2023	23.08.2023	<b>Prokaryotic cell structure and function:</b> ribosome; flagella; fimbriae and pili; nuclear region and spores. Microbial classification and nomenclature	Interactive Lecture method, Power Point Presentations Practical demonstration
4.	24.08.2023	31.08.2023	<b>Microbial Nutrition:</b> Nutritional requirements of microbes; Types of culture media	
5.	01.09.2023	12.09.2023	Classification of microbes on the basis of nutritional requirements, Identification of bacteria. <b>Revision Test</b>	
<b>Departmental Meeting</b>				
6.	14.09.2023	30.09.2023	<b>Bacterial Growth</b> - Bacterial growth curve, Methods of measurement of growth, Bacterial growth at high and low temperature; Other environmental factors affecting microbial growth Synchronous and Diauxic growth.	Interactive Lecture method, Power Point Presentations, Audio-visual aid

7.	2.10.2023	09.10.2023	<p><b>Control of microorganisms:-</b> Physical and Chemical methods of sterilization/Disinfection.</p> <p><b>Human-Microbial Interactions:</b> Normal flora –Gastrointestinal tract; Pathogenic mechanisms of food borne bacteria, Brief account of mechanisms of action of chemotherapeutic agents, Introduction to specific and nonspecific defense mechanisms to infections.</p>	Interactive Lecture method, Power Point Presentations, Audio-visual aid
<b>Departmental Meeting</b>				
8.	10.10.2023	31.10.2023	<p><b>Food-borne Pathogens:</b> General characteristics and brief account of food borne diseases caused by- <i>Staphylococcus aureus</i>; <i>Clostridium botulinum</i>; <i>C. perfringen</i>; <i>Listeria monocytogene</i>; <i>Salmonella</i>; <i>Escherichia.coli</i>; <i>Yersinia enterocolitica</i>; <i>Vibrio parahaemolyticus</i>, Mycotoxins.</p> <p><b>Detection of food pathogens:</b> Overview of Conventional and Rapid methods to detect food pathogens.</p>	Interactive Lecture method, Power Point Presentations, Group Discussion, Flipped classroom, Case Studies
9.	01.11.2023	10.11.2023	<p><b>Food Spoilage -</b> Contamination of foods from natural sources, Intrinsic and Extrinsic parameters of food that affect microbial growth, Associations of microorganisms involved in spoilage, Physical and Chemical changes in food caused by micro-organisms.</p> <p><b>Microbiology of different foods</b> –Spoilage of the different food products: a) Cereal and cereal</p>	
10.	11.11.2023	18.11.2023	Remedial Classes and Tests	Discussion

**MCM DAV College for Women, Sector – 36A, Chandigarh**  
**Monthly Teaching Plans (Even Semester)**  
**Session–(2023-24)**

**Name of the Teacher: Dr. Vandana Sharma**  
**Department: Department of Food Science**  
**Class: B.Sc. MFT (II)**

**Subject: BMF 4001- Microbial Genetics and r-DNA Technology**  
**Lesson Plan**

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	09.01.2024	22.01.2024	Introduction to Microbial genetics; Genome organization in prokaryotes	Interactive Lecture method, Power Point Presentations, videos
2.	23.01.2024	25.01.2024	Molecular nature of the genetic material	
3.	27.01.2024	01.02.2024	Composition and structure of prokaryotic DNA and RNA, Types of RNA and DNA	
<b>Departmental Meeting</b>				
4.	02.02.2024	17.02.2024	Replication- DNA replication mechanism in prokaryotes, Enzymes involved in DNA replication, theta and sigma modes of replication	Interactive Lecture method, Power Point Presentations, Flipped classroom
5.	18.02.2024	29.02.2024	Gene Expression I – Prokaryotic transcription process- Initiation, Elongation and Termination. Gene Expression II- General characteristics of the genetic code	
6.	01.03.2024	09.03.2024	Charging of tRNA, Prokaryotic translation process- Initiation, Elongation and Termination. Mutations – Spontaneous and induced mutations, types of mutations, Physical and chemical mutagenic agents, repair of DNA damage, Replica plating, Transposable elements in bacteria, drug resistance.	

<b>Departmental Meeting</b>				
7.	11.03.2024	18.03.2024	<p><b>Genetic Exchange</b> – Gene transfer by Transformation; Generalized and Specialized transduction; Conjugation processes.</p> <p><b>Gene Regulations</b> – Operon concept- Lactose operon and Tryptophan operon in E.coli.</p>	Interactive Lecture method, Power Point Presentations, Audio-visual aid, Practical demonstration
8.	19.03.2024	28.03.2024	<p><b>Recombinant DNA Technology-</b> Tools of genetic engineering- DNA cloning vectors- Plasmids, Cosmids, Phage vectors, Shuttle vectors, Expression vectors, BAC/YAC vectors; Restriction endonuclease, DNA ligase, Alkaline phosphatase, DNA polymerase, Exonuclease.</p>	
9.	29.03.2024	06.04.2024	<p><b>Gene cloning</b> – Basic techniques used to identify, amplify and clone genes; Construction of genomic and cDNA libraries and Screening of DNA libraries.</p> <p>Applications of Recombinant DNA Technology in health and food sector.</p> <p><b>DNA amplification-</b> PCR; Types and Applications.</p>	
<b>Departmental Meeting</b>				
10.	08.04.2024	13.04.2024	<p><b>DNA Transferring Mechanisms</b> – Chemical methods, biolistic gun, Electroporation, Liposome mediated gene transfer and phage transfection.</p>	Interactive Lecture method, Power Point Presentations and Audio-visual aid
11.	15.04.2024	23.04.2024	<p><b>Techniques of molecular biology-</b> Dot- Blot, Southern blotting, Northern blotting and Western blotting techniques, DNA sequencing by Maxam-Gilbert, Dideoxy - chain termination and Automated dideoxy method,</p>	
12.	24.04.2024	29.04.2024	Revision and Remedial Classes	Discussion