

TEACHING PLAN

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh

Session–(2022-2023)

**Name of the Teacher: Dr. Vandana Sharma Department: Department of
Food Science; Class: B.Sc. MFT [I Year]
ODD Semester**

Subject: BMF 1001 – GENERAL AND FOOD MICROBIOLOGY

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	25.08.2022	01.09.2022	Applications and History of Microbiology Organization of Cell - Concept of Prokaryotic and Eukaryotic cell, extra nuclear and nuclear organization of cell.	Interactive Lecture method, Power Point Presentations, Reference book
2.	02.09.2022	30.09.2021	Characteristics of major groups of microorganisms: Archaeobacteria, Eubacteria, Fungi, Protozoa and Viruses and Bacteriophages. Prokaryotic cell structure and function: Cell morphology; the capsule and slime layer; cell wall; cell membrane Revision Test	Interactive Lecture method, Power Point Presentations, Reference book
Departmental Meeting regarding Timetable, MST syllabus and purchasing of books for the library				
3.	01.10.2022	10.10.2022	Prokaryotic cell structure and function: ribosome; flagella; fimbriae and pili; nuclear region and spores. Microbial classification and nomenclature	Interactive Lecture method, Power Point Presentations Practical demonstration
4.	11.10.2022	20.10.2022	Microbial Nutrition: Nutritional requirements of microbes; Types of culture media	
5.	21.10.2022	31.10.2022	Classification of microbes on the basis of nutritional requirements, Identification of bacteria. Revision Test	

Departmental Meeting regarding conduction of skill based courses under Ventel and Review of the Monthly completion of Syllabus as per lesson plans				
6.	01.11.2022	5.11.2022	Bacterial Growth - 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.			Departmental Meeting MST	
8.	6.11.2022	12.11.2022	Control of microorganisms:- Physical and Chemical methods of sterilization/Disinfection. Human-Microbial Interactions: 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.	Interactive Lecture method, Power Point Presentations, Audio-visual aid
Departmental Meeting regarding organizing skill based training for the Model Jail inmates				
9.	13.11.2022	19.11.2022	Food-borne Pathogens: 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. Detection of food pathogens: Overview of Conventional and Rapid methods to detect food pathogens.	Interactive Lecture method, Power Point Presentations, Group Discussion, Flipped classroom
10.	20.11.2022	27.11.2022	Food Spoilage - 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. Microbiology of different	

			foods –Spoilage of the different food products: a) Cereal and cereal	
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**Monthly Teaching Plans- ODD Semester (Semester I)
Session (2022-2023)**

**Name of the Teacher: Dr. Kirti Singla
Department: Food Science
Class: B.Sc. MFT (I)**

Paper II: BMF 1002 – MICROBIAL AND FOOD BIOCHEMISTRY

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	25.08.2022	29.08.2022	Introduction to major Biomolecules	Lecture and Group Discussion
2.	30.08.2022	07.09.2022	Introduction to Carbohydrates, Classification, Structure and Properties.	Lecture and Group Discussion
Departmental Meeting to coordinate and review the monthly completion of syllabus as per lesson plans				
3.	08.09.2022	14.09.2022	Fermentation, Artificial Sweeteners, Browning and Maillard Reaction, Anaerobic respiration.	Lecture and Group Discussion
4.	15.09.2022	21.09.2022	Glycolysis, TCA, ETC, ED, PPP,	Lecture, Online Videos, Cycle slides.
5.	22.09.2022	30.09.2022	Enzyme Classification, Factors Affecting Enzymatic Activity, Kinetics, Inhibitors.	Lecture and Group Discussion
Departmental Meeting to coordinate and review the monthly completion of syllabus as per lesson plans				
6.	01.10.2022	10.10.2022	Classification and Structure of amino acids, physico-chemical properties of proteins, Catabolism of proteins.	Lecture, Cycle slides.
7.	11.10.2022	21.10.2022	Lipids Classification, Structure and Functions, Phospholipids, Catabolism of Fatty Acids.	Lecture, Cycle slides.
8.	22.10.2022	31.10.2022	Biosynthetic Pathways: Biosynthesis of sugars, amino acids, fatty acids.	PPT and Online Sources
Departmental Meeting to coordinate and review the monthly completion of syllabus as per lesson plans				
9.	01.11.2022	07.11.2022	Biological Membranes: Facilitated Diffusion, Active and Passive Transport, Group Translocation.	PPT and Online Sources
10.	08.11.2022	15.11.2022	Vitamins and Minerals: Classification, Sources and Function	Lecture and Group Discussion
11.	16.11.2022	22.11.2022	Pigments and Flavours: Major Types and Sources, Basic Taste Factors.	Lecture and Online Sources

12.	23.11.2022	25.11.2022	Changes in Food Constituents during Processing: Denaturation of Proteins, Oxidative and Hydrolytic Rancidity.	Lecture and Online Sources
13.	26.11.2022	27.11.2022	Remedial Classes	Discussion and Class Test

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc. Other Methods adopted by the teacher – Please write the specific teaching method

**Monthly Teaching Plans - Even semester (Semester - II)
Session – 2022-23**

**Name of the Teacher- Dr. Deepika Malik
Department - Food Science
Class - B.Sc. I (MFT)**

PAPER-I: BMF 2001 – INDUSTRIAL MICROBIOLOGY & FERMENTATION TECHNOLOGY

Month	Date		Topics to be Covered	Academic Activity Undertaken
	From	To		
February & March	16.01.2023	31.01.2023	Introduction – Importance of fermentation technology, Basic steps of industrial fermentation; Primary and Secondary metabolites. Industrially important microbes –Industrially important microbes; Isolation and Screening, Improvement and Preservation of Industrial microorganisms. Fermentation media and inoculum development - Medium formulation and common substrates used in fermentation industry; Methods of media sterilization, Inoculum preparation for	Lecture, PPT, Online Sources

			microbial fermentations.	
Departmental Meeting on 01.02.23 to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
April	01.02.2023	28.02.2023	<p>Fermentation – Types of fermentations- Aerobic and anaerobic fermentation, Submerged and solid-state fermentation, Batch and Continuous fermentation systems.</p> <p>Design of Fermenter – Design and types of fermenter, antifoam agents, sterilization of fermenter, Basic Control Panels (aeration, agitation, pH and temperature).</p> <p>Downstream Processing of industrial fermentations – General procedures for recovery and purification of products- separation of biomass and insolubles; cell disruption and recovery and purification.</p>	Lecture, PPT, Online Sources
Departmental Meeting on 01.03.23 to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
May	01.03.2023	31.03.2023	<p>Alcoholic beverages and Solvent: Industrial production of Beer, Wine and Ethanol</p> <p>Organic acids: Acetic Acid, Citric Acid, Lactic acid.</p> <p>Amino Acids: Industrial production of Glutamic Acid, Lysine and Aspartic acid.</p> <p>MST</p>	Lecture, PPT, Online Sources
Departmental Meeting on 01.04.23 to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

June	01.04.2023	28.04.2023	Microbial Biomass: Single cell protein production Microbial Enzymes : Industrial production of microbial enzymes-amylase and protease; Immobilization of enzymes and their applications. Probiotics: Production of probiotics, Probiotic and Food products. Revision and Class test	Lecture, PPT, Online Sources
Departmental Meeting on 29.04.23 to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

**Monthly Teaching Plans - Even semester (Semester - II)
Session – 2022-23**

**Name of the Teacher- Dr. Geeta Mehra
Department - Food Science
Class - B.Sc. I (MFT)**

PAPER-I: BMF 2002 – PRINCIPLES OF FOOD PRESERVATION AND PACKAGING