

Lesson Plan

Name of the faculty. : Ms Pratima Saini

Discipline : MLT

Semester : Ist

Subject : Basic Microbiology

Lesson Plan Duration : 15 weeks From 01 September 2023 to 29 December 2023

Work Load (Lecture/Practical) per week (in hours): 3+6

Week	Theory		Practical	
	Lecture day		Practical day	Topics
1	1	Definition, history, relationship of microorganisms to man.	1	1. Demonstration of safety rules (Universal precautions) in a microbiology laboratory. 2. Preparation of cleaning agents and techniques of cleaning glasswares.
	2	Safety guideline in a microbiology laboratory. Universal precautions.		
	3	Bio-safety cabinets: principle,		
2	4	Types of bio-safety cabinets and their applications	2	1. Preparation of materials for sterilization in an autoclave and hot air oven. 2. Sterilization in autoclave and hot air oven and placing of the sterilization indicators.
	5	Classification of micro-organisms		
	6	Morphology of Bacteria, Bacterial cell wall		
3	7	Physiology of bacteria, Cell wall structures	3	1. Sterilization by filtration by membrane method. 2. Handling and care of different types of microscopes.
	8	Bacterial growth and nutrition		
	9	Revision		
4	10	Physical methods of sterilization: autoclave and hot air oven,	4	1. Staining techniques: Gram, Albert's staining, 2. Ziehl Neelson staining, Capsule and
	11	sterilization control and sterilization indicators.		
	12	Sterilization by radiation and filtration (membrane)		
5	13	Chemical methods of Sterilization: Antiseptics and disinfectants-	5	1. Bacterial spore staining.

	14	propertie of common Antiseptics and disinfectants (e.g. Formaldehyde, Ethylene oxide, phenol compounds, Alcohol, hypochlorite).		2. Demonstration of bacterial motility by hanging drop technique
	15	Uses of common Antiseptics and disinfectants (e.g. Formaldehyde, Ethylene oxide, phenol compounds, Alcohol, hypochlorite).		
6	16	Revision	6	Preparation of culture media: 1. Nutrient agar, 2. Blood agar,
	17	Test		
	18	Definition of Phenol coefficient and determination Phenol coefficient by Rideal Walker method.		
7	19	Handling of a compound microscope	7	Preparation of culture media: 1. Chocolate agar, 2. MacConkey agar,.
	20	Care and maintenance of different parts of a compound microscope		
	21	Principle of working of fluorescent microscope.		
8	22	Staining techniques: Method of smear preparation.	8	Preparation of culture media: 1. DCA 2. XLD and Peptone water.
	23	staining of capsule.		
	24	Differential staining methods: Gram staining		
9	25	Albert's staining	9	1. Isolation of organisms in pure culture 2. Study of colony characteristics
	26	AFB staining		
	27	Preparation of staining solutions and their storage.		
10	28	Definition, synthetic media.,	10	1. Demonstration of haemolysis on blood agar 2. Preparation of cleaning agents and techniques of cleaning glasswares.
	29	Definitionnon-synthetic media.,		
	30	Types of culture media: liquid media		
11	31	Types of culture media: solid media	11	1. Preparation of materials for sterilization in an autoclave and hot air oven. 2. Sterilization in autoclave and hot air oven and placing of the sterilization indicators.
	32	routine laboratory media (Basal.Enriched, selective, enrichment, indicator, transport, and storage) with two examples of each type		
	33	Revision		
12	34	Test	12	1. Sterilization by filtration by membrane method. 2. Handling and care of different types of microscopes.
	35	Different types of inoculating loops		
	36	Different types of swabs and their uses.		

13	37	Types of bacterial culture: broth culture,	13	1.Staining techniques: Gram, Albert's staining, 2.Ziehl Neelson staining, Capsule and
	38	stab culture, slant culture.		
	39	Culture techniques: streak plate, pour plate		
14	40	spreading/ lawn culture	14	Preparation of culture media: 1. Nutrient agar 2. Blood agar
	41	Aerobic and anaerobic culture,		
	42	Isolation of pure cultures and disposal of cultures.		
15	43	Revision of Vth unit	15	Preparation of culture media: 1. Chocolate agar, 2. MacConkey agar
	44	Test		
	45	Revision of complete syllabus		