

# Proforma of the Lesson Plan

Name of the Faculty : Pardeep Kumar  
 Discipline : MLT  
 Semester : Ist  
 Subject : CLINICAL MICROBIOLOGY -I  
 Lesson Plan Duration : 15 WEEKS( from October 2022)  
 Work Load ( Lecture/Practical) per week (in hours): 3+4

week	Theory		Practical	
	Lecture day	Topics (including assignment/test)	Practical day	Topics
1	1	Introduction to microbiology, history	1	Demonstration of safety rules (universal precautions) in a microbiology laboratory
		2		
	3	Anatomical structure of bacteria	2	Preparation of cleaning agents and techniques of cleaning of glass and plastic ware. Disposal of cultures
		spores, flagella and capsule Bacterial Growth curve		
2	4	Nutrition of bacteria	3	Preparation of material for sterilization in autoclave and hot air oven
		Morphological Classification of Bacteria		
	5	Test	4	Use of sterilization by autoclave and hot air oven
		Assignment -1		
6	Microscopy, Care, principle, working of simple and compound microscope			
	preventive maintenance of simple and compound microscope			
3	7	principle of dark ground, fluorescent microscope	5	Use of filtration for sterilization (Seitz)
		phase contrast and electron microscope		
	8	Assignment -11	6	Handling and use of different types of microscopes
		Sterilization introduction		
9	Autoclave and hot air oven structure and functioning			
	Preventative measure, control and sterilization indicators			
4	10	Sterilization by radiation and filtration	7	Staining techniques: Gram, Albert's, Ziehl – Neelsen's
		Assignment -II		
	11	Antiseptic and disinfection introduction	8	Demonstration of Spore, capsule and flagella staining
		Types of antiseptic and disinfectant		
12	Uses of antiseptic and disinfectant			
	Bacterial culture and culture techniques			

5	13	Inoculations of culture media,	9	Demonstration of motility (Hanging drop/Semi solid method)	
		aerobic and anaerobic culture,			
	14	isolation of pure cultures and disposal of cultures of bacteria by microscopic examination	10		Demonstration of Preparation and sterilization of various solid and liquid culture media (including standardization of pH), nutrient agar, nutrient broth, blood agar, chocolate agar, macconkey agar, lowenjensen and special media
		Culture Media-Liquid and solid media			
15	defined and synthetic media	12	Biochemical tests for identification of bacteria: Principle, procedure and interpretation of following biochemical tests – Catalase, coagulase, oxidase, indole, MR, VP, Urease, citrate, carbohydrate utilization test and motility – demonstration of commercial available rapid biochemical test		
	routine laboratory media (basal, enriched, selective, enrichment, indicator, and transport media)				
6	16	Staining techniques introduction, methods of smear preparation		11	Aerobic and anaerobic culture methods (use of anaerobic jars)
		Gram stain, AFB stain,		12	Biochemical tests for identification of bacteria: Principle, procedure and interpretation of following biochemical tests – Catalase, coagulase, oxidase, indole, MR, VP, Urease, citrate, carbohydrate utilization test and motility – demonstration of commercial available rapid biochemical test
	17	Albert's stain and			
		special staining for spore,	13	Antimicrobial susceptibility testing by Stokes disc diffusion method	
18	capsule and flagella				
	Class test-II	14	Handling and use of different types of microscopes		
7	19				Assignment- III
		Colony characteristics			
	20	Bio-chemicals such as: carbohydrate		14	L1 : collection, transportation, and processing of urine sample
		utilization tests Catalase, oxidase,			
21	Coagulase, indole,	1st	L2:collection,transportation, and processing of stool sample		
	Citrate, MR and VP, Urease				
8	22	Motility demonstration methods		15	L3:collection,transportation, and processing of pus and pus swab
		Antibiotic sensitivity Disc Diffusion method – principle			
	23	procedure and precautions	1st	L3:collection,transportation, and processing of pus and pus swab	
		Introduction to bacteriology			
24	General characteristics of bacteria on morphology	2nd	L3:collection,transportation, and processing of pus and pus swab		
	Characteristics of bacteria based on staining				
9	25	Characteristics on the bases of culture		2nd	L3:collection,transportation, and processing of pus and pus swab

		Biochemical characteristics of bacteria		L4 : collection of blood by veinpuncture method
	26	Introduction about staphylococci in detail		
		Introduction about streptococcus in detail	3rd	L5 : collectionofbloodbycapillarymethod
	27	Introduction about pneumococci		L6 : Transportation and processing of blood sample
		Introduction about E-coli		
10	28	Introduction about salmonella	4th	L7 : collection and transportation of skin sample
		Introduction about shigella		L8 :processing of skin sample
	29	Introduction about pseudomonase		
		Introduction about Proteus	5th	L9 : collection and transportation of throat swab
	30	Introduction about neisseria		L10 :Processing of throat swabsample
		Introduction about Treponema pallidum		
11	31	Introduction about mycobacterium tuberculosis in detail	6th	L11 : collection and transportation of eye swab
		Assignment		L12 : processing of eye swab
	32	Test		
		Introduction about bacterial pathogenicity	7th	L13 :collection and transportation of ear swab
	33	Introduction about infection		L14 : Processing of ear swab
		Different sources of infection		
12	34	Differenttypesofinfection(bacterialmeningitis,pneumonia,tuberculosis)	8th	L15 : collection and transportation of CSF sample
		Typesofinfection(RTI,UTI,skin infection)		L16 : Processing of CSFsample
	35	Mode of spread of infection		
		Assignment	9th	L17 : preparation of blood agarculturefor urine sample
	36	Test		L18 : preparationofmackonkey agarcultureforurinesample
		Introduction aboutNosocomial Infection		
13	37	Common types of nosocomial infection	10th	L19 : preparationofchocolate agarcultureforsputum sample
		Blood stream infection,skin infection		L20 : preparation of eosin methylene blue agar for

	38	Gastro-intestinal infection,surgical site infection	11th	stoolsample
		Central nervous system infection		L21 : preparationofmackonkey agarculturefor sputumsample
	39	Sources of infection		L22 : preparation of blood agar for pus sample
		Control of nosocomial infection		
14	40	Assignment	12th	L23 : preparation of chocolate agar for pus sample
		Test		L24 : preparation of mackonkey agar for pus swab
	41	Lab diagnosis of RTI by throat swab	13th	L25 : preparation of blood agarfor blood sample
		Lab diagnosis of RTI by by sputum sample		L26 : preparation of mackonkey agar for bloodsample
	42	Introduction and lab diagnosis of wound infection		
		Introduction and lab diagnosis of urinary tract infection		
15	43	Assignment	14th	L27 : preparation of blood agarplate for CSF sample
		Test		L28 : preparation of mackonkey agar for skinsample
	44	Lab diagnosis of enteric fever	15th	L29 : preparation of broth culture for common pathogens
		Lab diagnosis of intestinal infection		L30 : preparation of agar culture for common pathogens
	45	Assignment		
		Test		