

Lesson Plan

Name of the Faculty : Manpreet
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Haematology-IV
 Lesson Plan : 15 weeks (From 13th March 2022 to 30 June 2023)
 Workload (lecture/practical) per week (in hours): Lectures-03, practicals-03

Week			Theory	Practical	
	Lecture day	Tentative date of lect.	Topic (including assignment test)	Practical Day (3 hours lab in week = 3 weekly load)	Topic
1 st	1 st		Theories of blood Coagulation	1 st & 2 nd	1. Determination of bleeding time by Ivy's and Dukes method
	2 nd		Platelets and their role in haemostasis including count		
	3 rd		Bleeding disorders and related diseases		
2 nd	4 th		Principles, clinical importance, reference values and methods of: Prothrombin time,	3 rd & 4 th	2. Determination of clotting time by Lee and White method
	5 th		Prothrombin time index (PTI) International normalized ratio (INR),		
	6 th		Activated Partial Thromboplastin time (APTT),		
3 rd	7 th		Thrombin Time (TT),	5 th & 6 th	3. Determination of prothrombin time, index and INR (International Normalised Ratio)
	8 th		bleeding time (BT)		
	9 th		Hesstest,		
4 th	10 th		Clotting time (CT)	7 th & 8 th	4. Determination of Activated Partial thromboplastin time (APTT)
	11 th		Clot retraction test (CRT)		
	12 th		Composition and function of bone-marrow		
5 th	13 th		Aspiration of bone-marrow by various methods	9 th & 10 th	5. Demonstration of Hess test
	14 th		Preparation, staining and examination of bone-marrow smears for myelogram including M.E. Ratio		

	15 th		Ironstaining(Perls'reaction) Significanceofbone- marrowexamination		
6 th	16 th		Leukemia Definitionofleukemias	11 th &12 th	6.PerformanceofClottr tractiontest
	17 th		(FAB)Classification		
	18 th		Laboratorydiagnosisofv ariousleukemias		
1st Sessional Exam					
7 th	19 th		LECellphenomenon	13 th &14 th	7.DemonstrationofLEC ell
	20 th		Phenomenon of LE cell, itsdifferentiationfromtartcel l		
	21 st		DemonstrationofLEcellbyva rious methods		
8 th	22 nd		Clinicalsignificance	15 th &16 th	8. Cell counts ofbiologicalflui ds
	23 rd		SemenAnalysisindetail		
	24 th		SemenAnalysisindetail		
9 th	25 th		Cellcountsofvarious biologicalfluids	17 th &18 th	9. Semen analysis
	26 th		PleuralFluid		
	27 th		SynovialFluid		
10 th	28 th		PericardialFluid	19 th &20 th	Revision
	29 th		CSF		
	30 th		Revision		
11 th	31 st		Revision	21 st &22 nd	Revision
	32 nd		Revision		
	33 rd		Revision		
2nd Sessional					
12 th	34 th		Revision	23 rd &24 th	Revision
	35 th		Revision		
	36 th		Revision		
13 th	37 th		Revision	25 th &26 th	Revision
	38 th		Revision		
	39 th		Revision		
14 th	40 th		Revision	27 th &28 th	Revision
	41 st		Revision		
	42 nd		Revision		
15 th	43 rd		Revision	29 th &30 th	Revision
	44 th		Revision		
	45 th		Revision		
3rd Sessional					

LessonPlan

Name of the Faculty : Manpreet
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Microbiology-IV
 Lesson Plan : 15 weeks (From 13th March 2022 to 30 June 2023)
 Workload (lecture/practical) per week (in hours): Lectures-03, practicals-03

Week			Theory	Practical	
	Lecture day	Tentative date of lect.	Topic (including assignment test)	Practical Day (3 hours lab in week = 3 weekly load)	Topic
1 st	1 st		Mycology-Characteristics	1 st &2 nd	1. Preparation of different culture media used in mycology - Sabouraud's dextrose agar with and without antibiotics, Corn meal agar, BHI (Brain, Heart Infusion)
	2 nd		classification of medically important fungi		
	3 rd		SDA (Sabouraud's dextrose agar) with and without antibiotics		
2 nd	4 th		- CMA (Corn meal agar)	3 rd &4 th	2. To perform wet mount techniques - KOH and LCB
	5 th		- BHI (Brain Heart Infusion)		
	6 th		Collection and processing of sample for fungal infection in Skin, Nail and Hair		
3 rd	7 th		- KOH preparation	5 th &6 th	3. To study characteristics of common laboratory fungal contaminants
	8 th		- LCB (Lactophenol cotton blue)		
	9 th		- India ink		
4 th	10 th		Medically important fungi - Candida	7 th &8 th	4. Collection and processing of samples for diagnosis of fungal infections in skin, hair, nail scrapings
	11 th		Dermatophytes		
	12 th		- Laboratory Contaminants - Penicillium,		
5 th	13 th		Rhizopus,	9 th &10 th	5. Widal test (Both slide and tube method)
	14 th		Mucor,		
	15 th		Aspergillus		
6 th	16 th		Introduction to Immunology	11 th &12 th	6. ASO titre
	17 th		Innate		

	18 th		Acquired		
7 th	19 th		Antigens-Definition,types andproperties	13 th &14 th	-7. CRP
	20 th		Antibodies- Definition,typesandpropertie s		
	21 st		Antigen- AntibodyReactions (06hrs) - Principleandapplicationsof agglutination		
8 th	22 nd		Precipitationand flocculationreactions		
	23 rd		-Widal- Tubemethod/Titreslidemeth od	15 th &16 th	8.Rheumatoidfactor
	24 th		-AntistreptolysinO		
9 th	25 th		-C-reactiveprotein		
	26 th		- VDRL/RPR	17 th &18 th	9.- VDRLTest
	27 th		-Rheumatoidfactor(RF)		
10 th	28 th		Principle,techniquesanda pplicationof	19 th &20 th	10.-HIVScreening
	29 th		-ELISA(directandindirect)		
	30 th		Revision		
11 th	31 st		Revision	21 st &22 nd	11.- HBsAg Screening
	32 nd		Revision		
	33 rd		Revision		
2 nd Sessional					
12 th	34 th		Revision	23 rd &24 th	Revision
	35 th		Revision		
	36 th		Revision		
13 th	37 th		Revision	25 th &26 th	Revision
	38 th		Revision		
	39 th		Revision		
14 th	40 th		Revision	27 th &28 th	Revision
	41 st		Revision		
	42 nd		Revision		
15 th	43 rd		Revision	29 th &30 th	Revision
	44 th		Revision		
	45 th		Revision		
3 rd Sessional					

LessonPlan

Name of the Faculty : Manpreet
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Histopathology & Cytology-II
 Lesson Plan : 15 weeks (From 13th March 2022 to 30 June 2023)
 Workload (lecture/practical) per week (in hours): Lectures-04, practicals-03

		Theory	
Lecture day	Tentative date of lect.	Topic (including assignment test)	Topic
1 st		Principles of light microscope	1. Demonstration of various parts of light microscope (Mechanical & Optical)
2 nd		Various parts of microscope	
3 rd		Uses of microscope	
4 th		Cleaning and maintenance of microscope AND Various attachments of compound microscope (principle only)	2. Demonstration of cryostat (brochures and charts can be used)
5 th		- Polarizing microscopy	
6 th		- Darkfield microscopy	
7 th		- Phase contrast microscopy	3. Processing of tissue for frozen section
8 th		- Fluorescent microscopy	
9 th		- Electron microscopy	
10 th		Principle, significance and interpretation of different types of stains - PAS	4. Staining and mounting of frozen section using H&E stain (rapid method), Oil Red "O".
11 th		- Silver impregnation stain - Reticulin fibre	
12 th		- Ziehl-Neelson's - for AFB and Leprae	
13 th		- Masson's trichrome stain	5. Preparation of various mounting reagents for museum specimens
14 th		- Oil Red O - fat	
15 th		- Gram's stain - Gram +ve and Gram -ve	
16 th		Decalcification - Process of decalcification	6. Demonstration and care of autopsy instruments
17 th		Various types of decalcifying methods	
18 th		Their mechanism, advantage, disadvantage and applications	
19 th		Assessment of decalcification	7. Demonstration of malignant cell
20 th		Handling of fresh histological tissues 4.1 Reception and processing of frozen tissue Freezing microtome and cryostat	
21 st		Advantages and disadvantages of freezing microtome and cryostat	

		Working, care, maintenance of freezing	
		microtome and cryostat	
22 nd		Frozen section cutting Staining - Rapid H&E - Fat stain Mounting of frozen section	8. Preparation of dry smear and wet smear
23 rd		Introduction to museum with emphasis on importance of museum	
24 th		Reception, fixation and processing of various museum specimens	
25 th		Cataloguing of museum specimen	9. To perform Pap stain
26 th		Autopsy - Introduction to autopsy technique (Care and maintenance of autopsy area, autopsy instruments, handling of dead bodies) Use of autopsy	
27 th		Malignant Cells Characteristics Differences from normal cell	
28 th		Harmonal Assessment Importance of HCG Use of Harmonal Assessment (Pregnancy Test)	10. Fixation of smears and staining with MGG
29 th		Principle of FNAC (Fine Needle Aspiration Cytology)	
30 th		Indications of FNAC Uses of FNAC	
31 st		- PAP Stain - MGG	REVISION
32 nd		Principle, Technique & Interpretation of PAS	
33 rd		Zeihl Nelson's (ZN) Stain (AFB)	
34 th		Advancements in Cytology - Automation in Cytology, Use of Cytospin	Revision
35 th		Revision	
36 th		Revision	
37 th		Revision	Revision
38 th		Revision	
39 th		Revision	
40 th		Revision	Revision
41 st		Revision	
42 nd		Revision	
43 rd		Revision	Revision
44 th		Revision	
45 th		Revision	

Lesson Plan

Name of the Faculty : Nisha Kaur
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : MLM-I
 Lesson Plan : 15 weeks (From 13th March 2022 to 30 June 2023)
 Workload (lecture/practical) per week (in hours): Lectures-04, practicals-03

		Theory
Lecture day	Tentative date of lect.	Topic (including assignment test)
1 st		Introduction, Layout, Facility of clinical Laboratory
2 nd		Role of medical laboratory technology in total healthcare, principles of management,
3 rd		techniques of planning, physical facilities/equipments – layout and design
4 th		Laboratory organization, operation, job description, evaluation, performance
5 th		Layout of clinical laboratories
6 th		Layout of Blood Bank
7 th		Material Required Material management, procurement,
8 th		financial resources, importing, inventory, control and analysis, inspection, storage etc
9 th		Analytical control, Internal and external quality assurance in clinical laboratories,
10 th		precision, accuracy, standard deviation as per national standards
11 th		Safety measures in clinical laboratories \
12 th		Disposal of Biomedical waste.
13 th		First Aid in Clinical Laboratory: (09 hrs) a) Acid burn/Alkali burn
14 th		b) Accidental trauma
15 th		c) Gas/Toxic inhalation d) Spillage
16 th		Medical Ethics
17 th		Laboratory Equipment- Care and Maintenance Preventive maintenance and
18 th		Code of Conduct
19 th		care of various laboratory equipment
20 th		Role of Computer in Lab services
21 st		Storage and retrieval of laboratory data manually and with help of computers
22 nd		Laboratory Accreditation – Introduction
23 rd		Revision

24 th		Revision
25 th		Revision
26 th		Revision
27 th		Revision
28 th		Revision
29 th		Revision
30 th		Revision
31 st		Revision
32 nd		Revision
33 rd		Revision
34 th		Revision
35 th		Revision
36 th		Revision
37 th		Revision
38 th		Revision
39 th		Revision
40 th		Revision
41 st		Revision
42 nd		Revision
43 rd		Revision
44 th		Revision
45 th		Revision

Lesson Plan

Name of the Faculty: Nisha Kaur
Discipline: MEDICAL LABORATORY TECHNOLOGY
Semester: 4th
Subject: Biochemistry-IV
Lesson Plan Duration: 15 weeks (From 13th March 2022 to 30 June 2023)

Work Load (Lecture/ Practical) per week (in hours): Lectures-03

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 st	1 st	Urine Analysis		Analysis of urine for sugar and proteins qualitative
	2 nd	Normal composition of urine		
	3 rd	Clinical importance of urine analysis		
	4 th	Qualitative analysis of SUGAR		
2 nd	5 th	Qualitative analysis bile salts		Analysis of urine for sugar and proteins quantitative
	6 th	Qualitative analysis of Urobilinogen		
	7 th	Qualitative analysis bile pigments		
	8 th	Qualitative analysis blood		
3 rd	9 th	Detailed discussion on glycosuria		Detection of ketone bodies in urine
	10 th	Ketone bodies		
	11 th	Urinary electrolytes estimation Na		
	12 th	Urinary electrolytes estimation K		
4 th	13 th	Urinary electrolytes estimation Cl		Detection of haematuria
	14 th	Assignment &		

		revision of 1 st unit		
	15 th	Assignment & revision of 1 st unit		
	16 th	revision of 1 st unit		
5 th	17 th	Test unit 1 st and revision		Detection of bile pigments, bile
	18 th	Stool Chemistry		
	19 th	Physical characteristics Stool Chemistry		
	20 th	chemical composition of stool		
6 th	21 st	Significance of presence of blood		Detection of bile urobilinogen
	22 nd	excess fat in stool		
	23 th	Occult blood detection		
	24 th	Assignment & revision of 2 nd unit		
7 th	25 th	Cerebrospinal Fluid		Occult blood test for stool specimen
	26 th	Composition of CSF and its functions		
	27 th	Methods of determination of proteins,		
	28 th	Methods of determination of sugar		
8 th	29 th	chloride in CSF		Estimation of glucose in CSF
	30 th	Reference Values		
	31 st	Clinical importance		
	32 nd			
	33 rd	Assignment & revision of 3 rd unit		Estimation of
	34 th	Test of unit 3 rd		
	35 th	Biological fluids		

9 th	36 th	Formation, composition and significance of biological fluids peritoneal		total proteins
10 th	37 th	synovial Formation, composition and significance of biological fluids pleural,		Estimation of total proteins and globulins in CSF
	38 th	Formation, composition and significance of biological fluids synovial		
	39 th	Formation, composition and significance of biological fluids ascitic fluid		
	40 th	Assignment & revision of 4 th unit		
11 th	41 st	Test of unit 4 th		Estimation of chloride in CSF
	42 nd	Electrophoresis Theory		
	43 rd	Principle and procedure of paper, gel electrophoresis, method of elution		
	44 th	Clinical importance		
12 th	45 th	Clinical significance		Titration for acidity determination and qualitative analysis of gastric juice
	46 th	Assignment & revision of 5 th unit		
	47 th	Test of unit 5 th		
	48 th	Chromatography		
	49 th	Theory of Chromatography, separation between stationary and mobile phases		

13 th	50 th	Principle and procedure of Paper chromatography Importance of chromatography	Demonstration of electrophoresis (Paper electrophoresis)
	51 st	Automation in Biochemistry (05hrs) Classification and types of Autoanalyzers	
	52 nd	Thyroid function tests	
14 th	53 rd	Clinical importance of T ₃ , T ₄ and TSH	Demonstration of chromatography (Paper chromatography)
	54 th	Importance of chromatography	
	55 th	Introduction to Tumor markers	
	56 th	Commonly used Tumor Markers (Cancer Markers)	
15 th	57 th	Revision of 7 th and 8 th unit	Demonstration of chromatography Paper chromatography (revision)
	58 th	Test of unit 9 th unit	
	59 th	Revision of ALL units	
	60 th	Revision along with problem solving session	

