

Lesson Plan

Name of the Faculty : Dr. Yogesh Kumar
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Haematology-IV
 Lesson Plan : 15 weeks (from 15th March 2022 to 30 June 2022)
 Work load (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		Hess test,		
4 th	10 th		Clotting time (CT)	7 th & 8 th	4. Determination of Activated Partial thrombo plastin 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 myclogram including M.E. Ratio		
	15 th		Iron staining (Perls' reaction) Significance of bone-marrow examination		
6 th	16 th		Leukemia Definition of leukemias	11 th & 12 th	6. Performance of Clot retraction test

	17 th		(FAB) Classification		
	18 th		Laboratory diagnosis of various leukemias		
1ST Sessional Exam					
7 th	19 th		LE Cell phenomenon	13 th & 14 th	7. Demonstration of LE Cell
	20 th		Phenomenon of LE cell, its differentiation from tart cell		
	21 st		Demonstration of LE cell by various methods		
8 th	22 nd		Clinical significance	15 th & 16 th	8 Cell counts of biological fluids
	23 rd		Semen Analysis in detail		
	24 th		Semen Analysis in detail		
9 th	25 th		Cell counts of various biological fluids	17 th & 18 th	9 Semen analysis
	26 th		Pleural Fluid		
	27 th		Synovial Fluid		
10 th	28 th		Pericardial Fluid	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					

Lesson Plan

Name of the Faculty : Dr. Yogesh Kumar
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Microbiology-IV
 Lesson Plan : 15 weeks (from 15th March 2022 to 30 June 2022)
 Work load (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 and properties	13 th & 14 th	-7. CRP

	20 th		Antibodies -Definition, types and properties		
	21 st		Antigen – Antibody Reactions (06 hrs) – Principle and applications of agglutination		
8 th	22 nd		Precipitation and flocculation reactions	15 th & 16 th	8. Rheumatoid factor
	23 rd		- Widal - Tube method/ Titre slide method		
	24 th		- Anti streptolysin O		
9 th	25 th		- C-reactive protein	17 th & 18 th	9. - VDRL Test
	26 th		- VDRL/RPR		
	27 th		- Rheumatoid factor (RF)		
10 th	28 th		Principle, techniques and application of	19 th & 20 th	10. - HIV Screening
	29 th		- ELISA (direct and indirect)		
	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					

Lesson Plan

Name of the Faculty : Dr. Yogesh Kumar
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : Histopathology & Cytology-II
 Lesson Plan : 15 weeks (from 15th March 2022 to 30 June 2022)
 Work load (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		- Dark field 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 dis-advantages 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 Neelson's(ZN) Stain (AFB)	Revision
34 th		Advancements in Cytology - Automation in Cytology, Use of Cytospin	
35 th		Revision	
36 th		Revision	
37 th		Revision	
38 th		Revision	Revision
39 th		Revision	
40 th		Revision	
41 st		Revision	Revision
42 nd		Revision	
43 rd		Revision	
44 th		Revision	Revision
45 th		Revision	

Lesson Plan

Name of the Faculty : Mrs. Neelam Rathee
 Discipline : Medical Lab Technology
 Semester : 4th
 Subject : MLM-I
 Lesson Plan : 15 weeks (from 15th March 2022 to 30 June 2022)
 Work load (lecture/practical) per week (in hours) : Lectures-03, 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 health care, 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		Lay out 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