

# Lesson Plan

Name of the Faculty : Bipul Kumar Mahto  
 Discipline : Medical Lab Technology  
 Semester : 3rd  
 Subject : Parasitology & Virology  
 Lesson Plan : 15 weeks (from 1st September 2023 to 15<sup>th</sup> December 2023)  
 Work load (lecture/practical) per week (in hours) : Lectures-03, practical-04

Week	Theory		Practical	
	Lecture day	Topic (including assignment test)	Practical Day (2 hours lab each day), (2 hours each day)*2 days in week =4 weekly load)	Topic
1 <sup>st</sup>	1 <sup>st</sup>	Introduction to the whole syllabus of CMB-III	1 <sup>st</sup> & 2 <sup>nd</sup>	1. Collection and routine stool examination for detection of intestinal parasites.
	2 <sup>nd</sup>	Ch - 1 Introduction to medical parasitology		
	3 <sup>rd</sup>	General characteristics, morphology, classification of Protozoa, Helminthes		
2 <sup>nd</sup>	4 <sup>th</sup>	Lab samples collection for detection of parasites (Stool) Parasite transportation	3 <sup>rd</sup> & 4 <sup>th</sup>	2. Experiment on saline preparation
	5 <sup>th</sup>	Concentration Techniques of stool, Concentration techniques for demonstration of ova and cysts		
	6 <sup>th</sup>	Parasite processing and preservation for routine investigation – (blood)		
3 <sup>rd</sup>	7 <sup>th</sup>	Giardia morphology, life cycle, lab diagnosis	5 <sup>th</sup> & 6 <sup>th</sup>	3. Experiment on Lugol's Iodine preparation
	8 <sup>th</sup>	Entamoeba histolytica morphology, life cycle, lab diagnosis		
	9 <sup>th</sup>	Ancylostoma morphology, life cycle, lab diagnosis		
<b>(1<sup>st</sup> Sessional)</b>				
4 <sup>th</sup>	10 <sup>th</sup>	Ascaris lumbricoides morphology, life cycle, lab diagnosis	7 <sup>th</sup> & 8 <sup>th</sup>	4. Experiment on concentration methods-floatation method (saturated salt solution / zinc sulphate)
	11 <sup>th</sup>	T solium, morphology, life cycle, lab diagnosis		
	12 <sup>th</sup>	T saginata morphology, life cycle, lab diagnosis		
5 <sup>th</sup>	13 <sup>th</sup>	Malarial parasite General Characteristics, life cycle (P. Vivax)	9 <sup>th</sup> & 10 <sup>th</sup>	5. Experiment on sedimentation method (formal ether)
	14 <sup>th</sup>	Malarial parasite morphology, lab diagnosis (P. Vivax)		
	15 <sup>th</sup>	Malarial parasite morphology, life cycle, lab diagnosis (P. Falciparum)		

6 <sup>th</sup>	16 <sup>th</sup>		Virology – introduction, General Characteristics	11 <sup>th</sup> & 12 <sup>th</sup>	6. Identification of adult worms/cyst from preserved specimen Tape, Hook, Roundworm,
	17 <sup>th</sup>		Virus origin, reaction to Physical and chemical & Replication: classification		
	18 <sup>th</sup>		Virus classification and cultivation		
<b>2<sup>nd</sup> Sessional</b>					
7 <sup>th</sup>	19 <sup>th</sup>		Medically important viruses HBV	13 <sup>th</sup> & 14 <sup>th</sup>	7. Identification of E coli, Giardia, Entamoeba
	20 <sup>th</sup>		Polio pathogenicity, lab diagnosis, prevention		
	21 <sup>st</sup>		Rabies pathogenicity, lab diagnosis, prevention		
8 <sup>th</sup>	22 <sup>nd</sup>		HIV pathogenicity, lab diagnosis, prevention	15 <sup>th</sup> & 16 <sup>th</sup>	8. To Prepare staining solution and blood smear (thick and thin smear) and perform staining of smear (Leishman, Giemsa)
	23 <sup>rd</sup>		Transportation of virology sample & Storage of virology sample		
	24 <sup>th</sup>		Virological sample		
9 <sup>th</sup>	25 <sup>th</sup>		Revision of unit No. 1 & 2	17 <sup>th</sup> & 18 <sup>th</sup>	9. Examination and demonstration of malarial parasite and their various stages
	26 <sup>th</sup>		Revision of unit No. 3 & 4		
	27 <sup>th</sup>		Revision of unit No. 5 & 6		
10 <sup>th</sup>	28 <sup>th</sup>		Revision of unit No. 7 & 8	19 <sup>th</sup> & 20 <sup>th</sup>	10. Revision of Experiment No. 1, 2, 3.
	29 <sup>th</sup>		Assignment 1 <sup>st</sup>		
	30 <sup>th</sup>		Revision of unit No. 9 & Rabies (10)		
11 <sup>th</sup>	31 <sup>st</sup>		Revision of unit No. Polio & HBV (10)	21 <sup>st</sup> & 22 <sup>nd</sup>	11. Revision of Experiment No. 4, 5, 6.
	32 <sup>nd</sup>		Assignment 2 <sup>nd</sup>		
	33 <sup>rd</sup>		Revision of unit No. HIV (10) & Unit No.11		
12 <sup>th</sup>	34 <sup>th</sup>		Assignment 3 <sup>rd</sup>	23 <sup>rd</sup> & 24 <sup>th</sup>	12. Revision of Experiment No. 7, 8, 9.
	35 <sup>th</sup>		Revision of unit No. 1, 2 & 3		
	36 <sup>th</sup>		Revision of unit No. 4, 5 & 6		
<b>3<sup>rd</sup> Sessional</b>					
13 <sup>th</sup>	37 <sup>th</sup>		Revision of unit No. 7, 8,9,10	25 <sup>th</sup> & 26 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Problem solving sessions of students in practical</li> </ul>
	38 <sup>th</sup>		Revision of Unit No. 11		
	39 <sup>th</sup>		FAQ's in syllabus CMB		
14 <sup>th</sup>	40 <sup>th</sup>		Revision of Unit No. 1-8	27 <sup>th</sup> & 28 <sup>th</sup>	<ul style="list-style-type: none"> <li>• VIVA</li> </ul>
	41 <sup>st</sup>		Revision of Unit No. 9-11		
	42 <sup>nd</sup>		FAQ's in syllabus CMB		
15 <sup>th</sup>	43 <sup>rd</sup>		Revision of Whole syllabus	29 <sup>th</sup> & 30 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Revision of all experiments</li> <li>•</li> </ul>
	44 <sup>th</sup>		Revision of Whole syllabus		
	45 <sup>th</sup>		FAQ's in syllabus CMB		

# Lesson Plan

Name of the Faculty : Bipul Kumar Mahto  
 Discipline : Medical Lab Technology  
 Semester : 3rd  
 Subject : Clinical Hematology  
 Lesson Plan : 15 weeks (from 01September2023 to 15<sup>th</sup> December 2023)  
 Work load (lecture/practical) per week (in hours): Lectures-03, practicals-04

Week			Theory	Practical	
	Lecture day	Tentative date of lect.	Topic (including assignmenttest)	Practical Day (2 hours lab each day), (2 hours each day*2days in week = 4 weekly load)	Topic
1 <sup>st</sup>	1 <sup>st</sup>		Introduction to the whole syllabus of Hematology-III	1 <sup>st</sup> & 2 <sup>nd</sup>	13.ESR estimation in blood sample
	2 <sup>nd</sup>		ESR and PCV		
	3 <sup>rd</sup>		Introduction		
2 <sup>nd</sup>	4 <sup>th</sup>		Various methods of estimation of ESR & PCV	3 <sup>rd</sup> & 4 <sup>th</sup>	14.To determine PCV by various methods
	5 <sup>th</sup>		Merits and Demerits		
	6 <sup>th</sup>		Red cell Indices, Hb, PCV & RBC		
3 <sup>rd</sup>	7 <sup>th</sup>		Supravital stain & Reticulocyte counting – Introduction	5 <sup>th</sup> & 6 <sup>th</sup>	15.To determine Red Cell Indices
	8 <sup>th</sup>		Principle, Procedure and calculation		
	9 <sup>th</sup>		MCV, MCH, MCHC definition, range calculation & interpretation		
<b>1<sup>st</sup> Sessional Hematology</b>					
4 <sup>th</sup>	10 <sup>th</sup>		NESTROFT	7 <sup>th</sup> & 8 <sup>th</sup>	16.Counting of Reticulocyte in blood
	11 <sup>th</sup>		Red cell fragility test		
	12 <sup>th</sup>		Significance of red cell fragility		
5 <sup>th</sup>	13 <sup>th</sup>		Variation in physiological values of Hb	9 <sup>th</sup> & 10 <sup>th</sup>	17. Perform red cell fragility test on blood
	14 <sup>th</sup>		Variation in physiological values of PCV		
	15 <sup>th</sup>		Variation in physiological values of T.L.C		
6 <sup>th</sup>	16 <sup>th</sup>		Variation in physiological values of Platelets count	11 <sup>th</sup> & 12 <sup>th</sup>	18.Perform sickling test on blood
	17 <sup>th</sup>		Introduction to Anemia, definition & morphological classification		
	18 <sup>th</sup>		Anemias-Etiological classification		
<b>2<sup>nd</sup> Sessional Hematology</b>					

7 <sup>th</sup>	19 <sup>th</sup>		Laboratory diagnosis of: Iron deficiency anemia	13 <sup>th</sup> & 14 <sup>th</sup>	19. Estimation of fetal Hb by alkali denaturation test
	20 <sup>th</sup>		Lab diagnosis – Hemolytic anemia		
	21 <sup>st</sup>		Lab diagnosis – Aplastic anemia		
8 <sup>th</sup>	22 <sup>nd</sup>		Lab diagnosis – Megaloblastic anemia	15 <sup>th</sup> & 16 <sup>th</sup>	20. Estimation of plasma Hb
	23 <sup>rd</sup>		Laboratory diagnosis of: including sickle cell anemia		
	24 <sup>th</sup>		Laboratory diagnosis of: thalassemia		
9 <sup>th</sup>	25 <sup>th</sup>		Revision of Unit No. 1	17 <sup>th</sup> & 18 <sup>th</sup>	21. Estimation of G6PD by Methylene Blue Reduction test
	26 <sup>th</sup>		Revision of Unit No. 2		
	27 <sup>th</sup>		Revision of Unit No. 3.1, 3.2, 3.3		
10 <sup>th</sup>	28 <sup>th</sup>		Revision of Unit No. 3.4	19 <sup>th</sup> & 20 <sup>th</sup>	22. Revision of Experiment No. 1, 2, 3.
	29 <sup>th</sup>		Assignment 1 <sup>st</sup>		
	30 <sup>th</sup>		Revision of Unit No. 4.1, 4.2 a		
11 <sup>th</sup>	31 <sup>st</sup>		Revision of Unit No. 4.3, 4.4 a & b	21 <sup>st</sup> & 22 <sup>nd</sup>	23. Revision of Experiment No. 4, 5, 6.
	32 <sup>nd</sup>		Assignment 2 <sup>nd</sup>		
	33 <sup>rd</sup>		Revision of Unit No. 4.4 c		
12 <sup>th</sup>	34 <sup>th</sup>		Revision of Unit No. 4.2 d	23 <sup>rd</sup> & 24 <sup>th</sup>	24. Revision of Experiment No. 7, 8, 9.
	35 <sup>th</sup>		Revision of Unit No. 5		
	36 <sup>th</sup>		Revision of unit No. 1 & 2		
<b>3<sup>rd</sup> Sessional Exam</b>					
13 <sup>th</sup>	37 <sup>th</sup>		Revision of Unit No. 3 & 4	25 <sup>th</sup> & 26 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Problem solving sessions of students in practical's</li> </ul>
	38 <sup>th</sup>		Assignment 3 <sup>rd</sup>		
	39 <sup>th</sup>		Revision of Unit No. 3 & 4		
14 <sup>th</sup>	40 <sup>th</sup>		Revision of Unit No. 5	27 <sup>th</sup> & 28 <sup>th</sup>	<ul style="list-style-type: none"> <li>• VIVA</li> </ul>
	41 <sup>st</sup>		FAQ's in syllabus HTL		
	42 <sup>nd</sup>		Revision of Whole syllabus		
15 <sup>th</sup>	43 <sup>rd</sup>		FAQ's in syllabus HTL	29 <sup>th</sup> & 30 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Revision of all experiments</li> </ul>
	44 <sup>th</sup>		Revision of Whole syllabus		
	45 <sup>th</sup>		Revision of Whole syllabus		

## LESSON PLAN

**NAME OF FACULTY** : Monika  
**DISCIPLINE** : DMLT  
**SEMESTER** : 3rd  
**SUBJECT** : Histopathology and cytology  
**LESSON PLAN DURATION** : 15 weeks (from 01-09-2023 to 15/12/2023)  
**Work Load Per week** : Lectures-3, Practical -4

<b>THEORY</b>				
Week	Lecture	Date	TOPIC (ASSINGNMENT/TEST)	Practical
1 <sup>st</sup>			Introduction and definition of Histology Histopathology, Biopsy Autopsy, Autolysis, Putrefaction	1. Reception of specimen, labeling and preserving the specimen
			Unfixed Tissue preparations Imprint methods – Impression, Smears, Teased preparation, Squashed preparation, Frozen section	
			Fixed Tissue preparations Paraffin embedding, Celloidin embedding, Gelatin embedding Reception, recording, labeling and preservation of histological specimen	
2 <sup>nd</sup>			Fixation (Histological Specimens)	2. Preparation of various smears by unfixed methods - Imprint smears - Teased smears - Squashed smears
			Classification of fixatives Composition of various fixatives, Advantages and disadvantages	
			Processing (by Paraffin Technique) Dehydration	
3 <sup>rd</sup>			Infiltration and impregnation	3. Preparation of different fixatives with special emphasis on preparation of formaline based fixatives
			Automation: Histokinete (automatic tissue processor) - its types, working,	
			Automation: Histokinete (automatic tissue processor) - its care and maintenance	
4 <sup>th</sup>			Microtome Types, Advantages and disadvantages	4. Preparation of paraffin blocks from various tissue pieces and labeling
			Microtome Knives and Various types of knives, Sharpening of knives Honing technique, Stropping technique,	
			Automation: Automatic knife sharpener –uses, care and maintenance, Uses of abrasives and lubricants, Introduction to disposable blades - their advantages and disadvantages.	
			Use of tissue floatation bath, Use of various adhesive media and lifting of sections to the slide Errors /cutting faults in sections and their remedies	
			Theory of staining, Principle and mechanism of routine stain (Haematoxylin and Eosin)	
			Various steps of staining (Haematoxylin and Eosin) - Deparaffinization - Hydration - Nuclear Staining - Differentiation - Blueing	

			<ul style="list-style-type: none"> <li>- Counterstaining</li> <li>- Dehydration</li> <li>- Clearing and Mounting</li> <li>- Results</li> </ul>	
6th			<p>Automation: Use of automatic stainer and coverslipper</p> <p>Mountants Various types of mounting media (aqueous, resinous) Advantages and Disadvantages</p> <p>Cell Definition and function and Structure</p> <p>Multiplication (Mitosis and Meiosis )</p>	5. Practice of lifting of sections on the slides
7th			<p>Exfoliative Cytology Introduction</p> <p>Preparation of vaginal &amp; cervical smears</p> <p>Collection and Processing of specimen for cytology</p> <ul style="list-style-type: none"> <li>- Urine</li> <li>- Sputum</li> <li>- CSF (Cerebro Spinal Fluid)</li> <li>- Other fluids</li> </ul> <p>Fixation (Cytological Specimen) Definition and Various types of Cytological fixatives</p> <p>Advantages and Disadvantages</p>	6. Performing H&E staining on sections and mounting of tissue sections
8th			Principle, Technique and interpretation of results in	7. Demonstration of cell using buccal smear/urine sample
			<ul style="list-style-type: none"> <li>- May Grunwald &amp; Giemsa staining</li> <li>- Haematoxylin and Eosin staining</li> <li>- Role of Laminar air-flow and cytotechnician in cytology</li> </ul>	
			Revision of unit 4, 5 & 6	
9th			Revision of unit 7, 8 & 9	8. Processing of sputum sample for malignant cytology
			Assignment 1 <sup>st</sup>	
			Revision of unit 10, 11 & 12	
			Assignment 2 <sup>nd</sup>	
10th			Revision of unit 13, & 14	9. To perform PAP stain on given smear
			Revision of unit 7, 8 & 9	
			Assignment 3 <sup>rd</sup>	
11th			Revision of Cytology	10. To perform MGG stain on given smear
			Revision of Whole Syllabus	
			FAQ's in syllabus HPL	
12th			Revision of Whole syllabus	11. To perform H&E on given smear
			Revision of Whole syllabus	
			Revision of Whole syllabus	
13th			Preparation of vaginal & cervical smears	12. To demonstrate various automation by use of brochures, charts etc
			Haematoxylin and Eosin staining	
			Revision of Histopathology	
14th			Revision of Whole Syllabus	13. Revision
			Revision of Histopathology	
			Revision of Cytology	
15th			Revision of Histopathology	14. Revision
			Revision of Cytology	
			Revision of Whole Syllabus	

## LESSON PLAN

**NAME OF FACULTY** : Bipul Kumar Mahto  
**DISCIPLINE** : DMLT  
**SEMESTER** : 3rd  
**SUBJECT** : Clinical Biochemistry III  
**LESSON PLAN DURATION** : 15 weeks (from 01/09/2023 to 15/12/2023)  
**Work Load Per week** : Lectures- 3, Practical -3

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC (ASSIGNMENT/TEST)	PRACTICAL DAY (Each day for 3 hours)	TOPIC
1st	1	Formation of bile pigments	1st	Serum bilirubin estimation
	2	Formation and excretion of bilirubin		
	3	Conjugated and unconjugated bilirubin		
2nd	4	Principle and procedures of serum bilirubin estimation (Direct & Indirect)	2nd	Phosphorus estimation
	5	Reference values Clinical significance		
	6	Revision		
3rd	7	SGOT and SGPT introduction	3rd	Calcium estimation
	8	Principle and procedures of estimation SGOT		
	9	Principle and procedures of estimation SGPT		
4th	10	Reference values Clinical significance	4th	Renal clearance tests
	11	Revision		
	12	Assignment and Test of unit 1 and 2		
5th	13	ALP and ACP introduction.	5th	SGOT estimation
	14	Principle and procedures of estimation ALP		
	15	Principle and procedures of estimation ACP		
6th	16	Reference values Clinical significance		SGPT estimation
	17	Revision		
	18	Serum Amylase Introduction		
7th	19	Principle and procedures of estimation	7th	ALP estimation
	20	Reference values Clinical significance		
	21	Serum Calcium and Phosphorus introduction		
8th	22	Principle and procedures of estimation	8th	ACP estimation
	23	Reference values Clinical significance		
	24	Revision		
9th	25	Test and Assignment	9th	Total cholesterol
	26	Lipid Profile Introduction		

	27	Formation of cholesterol High density and low density cholesterol		estimation
10th	28	Principles and procedures of estimation	10th	Total cholesterol estimation
	29	Reference value Clinical significance		
	30	Triglycerides, principle and procedure of estimation		
11th	31	Importance of various ratios of HDL	11th	Triglyceride estimation
	32	Importance of various ratios of LDL		
	33	Importance of various ratios of VLDL		
12th	34	Revision	12th	Estimation of HDL and calculation of VLDL and LDL
	35	Urinary Proteins and Creatinine		
	36	24 hr. urinary proteins and creatinine estimation		
13th	37	Reference values Clinical significance	13th	Estimation of HDL and calculation of VLDL and LDL
	38	Revision		
	39	Renal Function Tests (Renal clearance Tests) Introduction		
14th	40	Renal clearance Tests	14th	Urinary protein and creatinine estimation ( 24 hr)
	41	Urea clearance Test		
	42	Creatinine clearance test		
15th	43	Clinical significance	15th	Estimation of serum amylase
	44	Revision		
	45	Test And Assignment		



# Lesson plan

Name of the Faculty : Monika

Discipline : DMLT

Semester : 3<sup>rd</sup>

Subject : Transfusion Medicine

Lesson Plan Duration: 15 weeks (from 01/09/2023 to 15/12/2023)

Work load ( Lecture / practical ) per week ( n hours) = Lecture=3, Practical=2

WORK	THEORY		Practical	
	Lecture Day	Topic (Including assignment/test }	Practical Day	Topic
1 <sup>st</sup>	1	Historical introduction to Transfusion medicine (blood banking	L1	Performing ABO blood grouping by Slide & Tube Test
	2	Definition of antigen and antibody		
	3	Classification of antigens		
2 <sup>nd</sup>	4	Classification of antibodies.	L2	Performing-Rh grouping by Slide & Tube technique
	5	Introduction to ABO blood grouping		
	6	Antigens and antibodies involved in ABO blood grouping		
3 <sup>rd</sup>	7	Principle and procedure of ABO blood grouping Slide method	L3	Performance of Coombs Test by Direct method
	8	Principle and procedure of ABO blood grouping Tube method		
	9	Various blood sub groups ( A <sub>1</sub> ,A <sub>2</sub> , A <sub>1</sub> B, A <sub>2</sub> B)		

4 <sup>th</sup>	10	Assignment	L4	Performance of Coombs Test by Indirect method
	11	Introduction to Rh Blood Group System		
	12	Antigen and antibody involved in Rh blood grouping		
5 <sup>th</sup>	13	Principle and procedure of Rh grouping	L5	Cross Matching (compatibility testing) by Major testing
	14	Variant of D antigen		
	15	Types and composition of various Anticoagulants		
6 <sup>th</sup>	16	Advantages and disadvantages of various anticoagulants	L6	Cross Matching (compatibility testing) by Minor testing
	17	Criteria for selection of Donor		
	18	Screening of blood donor for Blood Collection and storage		
7 <sup>th</sup>	19	Characteristics of ideal blood donor.	L7	Preparation of anticoagulants – ACD (Acid Citrate Dextrose) – CPD ( Citrate Phosphate Dextrose) - CPDA (Citrate Phosphate Dextrose Adenine)
	20	Blood collection procedure		
	21	Transportation and storage		
8 <sup>th</sup>	22	Screening of blood donors for MP	L8	Malarial Parasite test by Thick smear preparation

	23	Staining of blood film for MP		
	24	Slide test for VDRL		
9 <sup>th</sup>	25	VDRL Buffer Saline test	L9	Malarial Parasite test by Thin
	26	ELISA based HIV test		smear preparation