



Course Syllabus
 Gyanmanjari Institute Of Medical Sciences And
 Health Care
 Semester-2

Subject: Hematology & Histopathology-PGDMT12508

Type of course: Major

Prerequisite: Basic knowledge and identification of etiology of disease

Rationale: Hematology and histopathology are fundamental pillars of modern medicine, serving as powerful tools for diagnosis, treatment planning, and patient management across diverse medical conditions. Their combined expertise plays a critical role in improving healthcare outcomes and patient well-being.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks					Total Marks
CI	T	P		Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
4	0	2	5	60	30	10	20	30	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Sr. No	Course content	Hrs	% Weightage
1	<p>Chapter :1 Introduction to Haematology</p> <ul style="list-style-type: none"> • Definition, composition and functions of blood. • Collection & Storage of blood: venous and capillary. • Various equipment used for collection of blood samples • Anticoagulants: Definition and various types along with their mode of action, uses, methods of preparation merits and demerits of each. • Formation of blood: Erythropoiesis, Leucopoiesis, Thrombopoiesis. 	15	25



	<ul style="list-style-type: none"> • Definition, types, structure of Hb • Hb Estimation: Different methods-(a) Colorimetric Method, (b) Sahli's Method, and (c) Specific Gravity Method • Haemoglobinopathies: Abnormalities of HaemoglobinMolecule. • Sickle Cell Anaemia &Thalassemia. 		
2	Chapter:2 Erythrocytes <ul style="list-style-type: none"> • RBC count: Normal, abnormal values, and Physiological variations Morphology of normal and abnormal Red Blood Cells. • Haematocrit: Pack Cell Volume(PCV) and Various Blood indices;their brief description • Anemia: Definition and classification of anemia; factor causing anemia <ul style="list-style-type: none"> a) Iron & B-12 deficiency anaemia. b) Aplastic anaemia c) Haemolytic anaemia & Sideroblastic anaemia. d) G-6PD deficiency anaemia. 	15	25
3	Chapter:3 Leucocytes <ul style="list-style-type: none"> • Total White Blood Cell Count : Normal and abnormal values • Differential WBC Count :- Normal, abnormal values and physiological variation; Preparation of peripheral blood smear, Staining by different methods. • Introduction and general Classification of Leukaemias. Acute & Chronic Myeloid Leukaemias 	15	25
4	Chapter:4 Histopathology Techniques <ul style="list-style-type: none"> • Types of fixatives uses and Decalcification • Basic concept of tissue processing and automated tissue processing • Microtomy& Types of Microtome • Routine& Special stains, Museum- Technique & Specimen preservation • FNAC 	15	25

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Quiz Faculty will conduct quiz sessions on the GMIU web Portal from their respective subject. (10 MCQ)	10
2	Case-Based Learning Faculty will provide real or simulated patient cases involving hematologic disorders or histopathological findings. Group of students have to analyze the case and each group shares their analysis and conclusions with the class. Report has to upload on GMIU web Portal.	10
3	Scientific structure preparation Faculty will assign the specific topic and students will prepare scientific structure and upload on GMIU web Portal.	10
Total		30

Suggested Specification table with Marks (Theory):60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	20%	40%	30%	10%	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcome:

After learning the course the students should be able to:	
CO1	Understand composition and functions of blood.
CO2	Perform and Interpret laboratory test for RBC and also able to describe common RBC disorders.
CO3	Interpret laboratory test for WBC and also able to describe common WBC disorders.
CO4	Collect histopathological samples and their processing with basic technique and recording of data.



List of Practical:

Sr no.	Description	Unit no.	Hrs.
1	Identification of adult worms, Tapeworm segments, ova, cysts and larvae of parasite from charts/photographs/models/slides	1	2
2	Malarial Parasite Microscopy	3	3
3	Preparation of fixatives	4	3
4	Specimen Collection and Preparation	4	3
5	Staining Procedure and Mounting	4	3
6	Haematoxylin and eosin staining	4	2
7	Collection of Blood Sample	1	2
8	Preparation of bulbs for collection	4	2
9	Blood cell counting	1	2
10	Estimation of Hemoglobin	1	2
11	RBC count	2	2
12	Total WBC count	3	2
13	Differential count	2	2
14	Peripheral smear Preparation	2	2
15	Bleeding time & Clotting time	2	2
16	ESR Analysis	4	2
	Total		36



Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, ecourses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

- [1] Mohan H. (2005). *Textbook of Pathology*, 5th ed., Jaypee Brothers (ISBN: 9788180613685)
- [2] Ochei J. & Kolhatkar A. (2000), *Medical Laboratory Science: Theory & Practice*, Tata McGraw Hill Pub. (ISBN: 9780074632239)
- [3] P.B. Godkar, (2014), *Textbook of Medical Laboratory Technology*, 3rd ed., Bhalani Publishing House, Mumbai, India. (ISBN: 9789381496190)
- [4] Kawthalkar S M, *Essential of Clinical Pathology*, 2nd ed., Jaypee Brothers. (ISBN: 9789386150691)

