



A- COURSE TITLE, CODE, ACADEMIC YEAR:

Hematology -I (MLT-248) 1437-1438H

B- COURSE INFORMATION:

Course Code	Course Title	Credit Units			Study Level	Pre-requisites
		Total	Theory	Practical		
MLT-248	Hematology -I	3	2	1	4 th	PHS-L122
Course Coordinator		Extension		Email Address		
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C- COURSE DESCRIPTION:

By the end of this course the student will be able to understand blood formation and components, Hematopoietic stem cell general features, hematopoietic organs, Bone marrow structures and functions, Erythropoiesis, Leucopoiesis, thrombopoiesis and mature blood cells structure functions and laboratory evaluation. Iron and Vitamin B12 metabolism, Hemoglobin, structure, functions, breakdown and Laboratory evaluation, Hemocytometry and blood cell counts, Thin blood film spreading, staining and comment, Normal hemostasis and fibrinolytic system including role of hemostatic components coagulation factors and laboratory evaluation.

D- COURSE OBJECTIVES:

- 1- Describe hemopoiesis, hemopoietic organs and blood cells formation
- 2- Discuss bone marrow function structure and stage of hemopoiesis in human embryo, fetus and adulthood.
- 3- Discuss erythropoiesis, leucopoiesis, thrombopoiesis and RBCs, WBCs and platelets structure, function and evaluation
- 4- Discuss Iron and Vitamin B12 metabolism including (Sources, absorption, transport, function and storage).
- 5- Perform manual blood cell counts using hemocytometer.
- 6- Perform thin blood spreading staining and recognize normal blood cells morphology and carry out differential and absolute blood cell count.
- 7- Discuss hemoglobin formation, function, types, structure and evaluation
- 8- Discuss, normal hemostasis and fibrinolytic system and perform first class coagulation tests

E- THEORY TOPICS:

Week	Theory Topic	Contact Hours
1	Hematopoietic stem cell general features, hematopoietic organs processes. Bone marrow structure and functions	2
2	Erythropoiesis and mature red cell structure and functions and laboratory evaluation	2
3	Red cell membrane and Metabolism	2



4	Hemoglobin types, structure, functions ,breakdown and Laboratory evaluation	2
5	Leucocytes structures, functions and Laboratory evaluations	2
6	Thrombopoiesis and platelets structures, functions and laboratory evaluation	2
7	Hemocytometer and blood cell counts (TWBC count)	2
8	Hemocytometry and blood cell counts (RBC and platelet counts)	2
9	Vitamin B12 (Sources ,absorption ,transport ,function and storage)	2
10	Iron metabolism (Sources ,absorption ,transport ,function and storage)	2
11	Preparation ,staining and examination of Thin blood film	2
12	Normal hemostasis (role of blood vessels and platelets)	2
13	Normal hemostasis (role of coagulation factors and laboratory evaluation (first class coagulation Tests)	2
14	Fibrinolytic system and coagulation inhibitors.	2
15	Revision	2

F- PRACTICAL SESSIONS:		
Week	Practical Session	Contact Hours
1	Blood anticoagulants, collection of capillary and Venus blood	2
2	Normal blood cells morphology	2
3	Measurement of hemoglobin concentration	2
4	packed Red cells Volume(PCV or hematocrit)	2
5	Manual Red blood cells count by hemocytometer	2
6	Red blood cell indices	2
7	Manual WBCs count (TLC) by Hemocytometer	2
8	Platelet count	2
9	Automated blood cell counts	2
10	Bleeding time & clotting time	2
11	Thin blood film preparation & staining	2
12	Periodic Test	2
13	Manual differential leukocyte count	2
14	Erythrocyte Sedimentation Rate (ESR)	2
15	Revision	2

G- ASSESSMENT TASKS:



#	Type of assessment task	Week	Total Grades
1	Assignment submission	Weeks 1-13	10%
2	Midterm examination (written)	Week 8	15%
3	Continuous assessment	Week 10	5%
4	Final practical exam	Week 16	30%
5	Final written examination	Week 17-18	40%

H- LEARNING RESOURCES:

1- Required textbook:

- Clinical Hematology: Theory and Procedures by Mary Louise Turgeon. 5th edition
- Practical Hematology, Sir John V. Deice & Lewis. 2017 , 12th edition

2- Essential references:

- Clinical Laboratory Hematology, 12th edition . Sherlyn B. McKenzie, ©2010 ISBN19780135137321
- Color Atlas of Hematology (Illustrated Field Guide Based on Proficiency Testing) ,2005

Notes:

- Assignments topics and requirements shall be announced by the end of Week-1, the deadline for submission is 12pm Thursday of Week-10 (each semester).
- Assignments and written assessment tasks must be verified against plagiarism, the maximum acceptable percentage is determined by the department (according to each level).
- Continuous assessments may include quizzes, internet searches, home-works, exercises, class activity, scratch cards, presentations, group work, etc.
- Practical exams may contain hands-on experiments, laboratory work, simulations, or demonstrations.
- Written exams will include multiple-choice questions (MCQ), short essay questions, and long essay questions.