



A- COURSE TITLE, CODE, ACADEMIC YEAR:

Hematology -II (MLT-347) 1437-1438H

B- COURSE INFORMATION:

Course Code	Course Title	Credit Units			Study Level	Pre-requisites
		Total	Theory	Practical		
MLT-347	Hematology -II	3	2	1	5 th	MLT-248
Course Coordinator		Extension		Email Address		
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C- COURSE DESCRIPTION:

This course provides the basic knowledge & skills required for laboratory diagnosis of types of anemia, leukemias, homeostatic disorders, and hemophilia, and select confirmatory tests and accurately calculate and interpret of the of the given results, based on complete blood count, peripheral blood picture, cytochemical stains, cytogenetic and immunophenotyping and coagulation tests .

D- COURSE OBJECTIVES:

1. Classify anemia
2. Define microcytic hypochromic anemias and discuss iron deficiency anemia
3. Define macrocytic anemias and discuss megaloblastic anemia
4. Enumerate RBC membrane defects and discuss hereditary spherocytosis
5. List RBC enzymopathies and describe glucose 6 phosphate dehydrogenase and pyruvate kinase deficiency anemias
6. Describe immune and acquired hemolytic anemias and discuss paroxysmal nocturnal hemoglobinuria (PNH) and paroxysmal cold hemoglobinuria (PCH)
7. Discuss sickle cell anemia and thalassemia
8. Describe WBC benign disorders and discuss leukemia, myeloproliferative disorders, multiple myeloma and W. Macroglobulinemia
9. Discuss hemophilia, von Willbrand disease, DIC and lupus and therapeutic anticoagulants

E- THEORY TOPICS:

Week	Theory Topic	Contact Hours
1	Anemia (Definition, causes and classification)	2
2	Define and list hypochromic anemia (discuss iron deficiency anemia causes, clinical presentation and laboratory findings)	2
3	Define and list macrocytic anemia (discuss megaloblastic anemias causes, clinical presentations and laboratory findings)	2
4	Enumerate red cell membrane defects (Discuss Hereditary spherocytosis causes, clinical	2



	presentations and laboratory findings)	
5	List red cell enzymopathies (G6PD deficiency and pyruvate kinase deficiency causes, clinical presentations and laboratory findings)	2
6	Discuss immune autoimmune hemolytic anemia and paroxysmal nocturnal hemoglobinuria (PNH)	2
7	Discuss immune autoimmune hemolytic anemia and paroxysmal cold hemoglobinuria(PCH)	2
8	Define and list hemoglobinopathies (sickle cell anemia homozygous and heterozygous causes, clinical presentations and laboratory findings)	2
9	β and α thalassemia (causes, clinical presentations and laboratory findings)	2
10	Discuss benign white blood disorders	2
11	Introduction to leukemia and discuss acute leukemia(AML & ALL)	2
12	Describe Chronic leukemia(CML & CLL)	2
13	Discuss myeloproliferative disorders (polycythemia, Essential thrombocythemia and myelofibrosis) & Describe Multiple myeloma and W. macroglobinemia	2
14	Discuss Hemophilia and Von willebrand disease DIC and lupus and therapeutic anticoagulants	2
15	Revision	2

F- PRACTICAL SESSIONS:

Week	Practical Session	Contact Hours
1	Thin blood film spreading staining	2
2	Serum iron & serum ferritin	2
3	Reticulocyte count	2
4	Osmotic fragility test and glycerol lysis test	2
5	Sickling and solubility tests	2
6	G6PD deficiency test	2
7	Hb electrophoresis	2
8	RBCs abnormal morphology (anemic slides)	2
9	WBC differential counts (leukemic slides)	2
10	Alkaline phosphatase staining	2
11	Standardization of thromboplastin	2
12	PT&APTT(mixing experiment and INR)	2
13	Fibrinogen assay	2
14	Factor assay + who to investigate bleeding and thrombotic tendency	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.