زانکۆی پۆلیتەکنیکی هەولێر
ERBIL POLYTECHNIC UNIVERSITY

(Blood Bank) Course Catalogue

2023-2024

College/ Institute	**Koya Technical Institute**	
Department	**Medical Laboratory Technology**	
Module Name	**Blood bank**	
Module Code	**BLB403**	
Semester	**Forth Semester**	
Credit	**5**	
Module type	**Core**	
Weekly hours	**5**	
Weekly hours (Theory)	**(2)hr Class**	**()hr Workload**
Weekly hours (Practical)	**(2)hr Class**	**()hr Workload**
Lecturer (Theory)	**Assis.Lec: Dlshad Saadallah Othman**	
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Lecturer (Practical)	**Assis.Lec: Dlshad Saadallah Othman**	
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Course Book

- **Course overview:**

This course aims to provide a comprehensive theoretical knowledge of blood bank including the blood transfusion and corresponding tests.

- **Course objective:**

The main learning objectives of the course are designed to help a second-year medical laboratory student. Students should be able to:

- Have advanced knowledge on systematic of blood bank.
- Be able to understand blood transfusion and principle tests.
- Learn new techniques and perform various experiments related to blood bank application

These objectives will be very useful guide for students at the Medical Institutes. In addition, they can be used by students to prepare themselves in the future for the hematology section.

- **Student's obligation**

1-The student attention in all theoretical and practical lectures in academic year.

2- Completion of all tests.

3- Attendance in exams

4. Write or prepare reports, lab reports and seminars.

- **Forms of teaching**

We will be responsible for providing lecture handouts/notes in advance to students in order to have a copy of materials. All possible facilities for students will be applied in the class such as projector, whiteboard, pens, animation videos for further information and clarification.
Main aim-highlight the problem, make sure students understand information, stimulate interest to the subject. Dialogue form of classroom work on one of the topics Use of power point presentations, boarding, conferences

- **Assessment scheme**

10% Mid theory exam
15% Mid practicalexam
8% Quiz
2% Activity
5% Reports

5% Seminars
10% Assignment

5% Homework
20% Final theory exam
20% Final practical exam

- **Specific learning outcome:**

1) Apply principles of safety, quality assurance and quality control in blood bank
2) Evaluate specimen acceptability
3) Demonstrate an understanding of the underlying processes in blood cell disorders
4) Learn the most common medical terms in immunohematology.
5) Reflect analytically on student's study learning styles in order to be able to identify and review additional literature to enhance learning.
6) Compare and contrast immunohematological values under normal and abnormal conditions.
7) Perform and explain principles and procedures of tests to include sources of error and clinical significance of results.
8) Determine suitability of immunohematology specimens and dispose of them in the appropriate biohazard containers.
9) Apply the appropriate and safe medical procedure for checking blood transfusion
10) Awareness of the risks and complications of blood transfusion

- **Course Reading List and References:**

1) Quinley, E.D., 2020. Immunohematology: principles and practice. Jones & Bartlett Publishers.
2) Harber, I. and Turner, M., 2006. Essentials of Blood Banking (A Handbook for Students of Blood Banking and Clinical Residents).
3) Harmening, D.M., 2018. Modern blood banking & transfusion practices. FA Davis.

▪ **Useful references:**

1) Powers L.W. (1989). Diagnostic hematology clinical and technical principles. 1st ed. Mosby. USA.
2) Wallach J. (2007). Interpretation of Diagnostic Tests.Philadelphia. Lippincot Williams and Wilkins, a Wolters Kluwer business.

▪ **Magazines and review (internet):**

1) The British Society for Haematology: https://b-s-h.org.uk/
2) The American Society of Hematology: http://www.hematology.org/
3) Blood Journal: www.bloodjournal.org/

4) Journal of Hematology: thejh.org/
5) British Journal of Haematology: https://onlinelibrary.wiley.com/journal/13652141
American Journal of Hematology - Wiley Online Library: https://onlinelibrary.wiley.com/journal/10968652

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Course topics (Theory)	Week	Learning Outcome
Introduction to blood bank	Week 1	Introduction to Blood Banking , blood composition, blood bank antigens and antibodies
Blood Donation and blood collection, types of defferals, types of blood donors	Week 2	Blood Donation and blood collection, types of defferals, types of blood donors
Types of blood donation	Week 3	Types of blood donation, donor selection, Pre-transfusion Testing, Donor and recipients basic testing
Blood transfusion and apheresis	Week 4	Blood transfusion and apheresis, Approved Anticoagulant Preservative Solutions, Additive Solutions, blood storage, Blood component labeling, Aphaeresis Definition and uses
Blood components apheresis	Week 5	Blood components apheresis, Therapeutic uses for apheresis, blood components life span, Apheresis of whole blood, Indication of whole blood transfusion
Transfusion reactions and complications	Week 6 Week 7	Transfusion reactions and complications, Types of transfusion reactions, The causes of HTR, Events in haemolytic transfusion reaction, Role of transfusionist in HTR Measures used to protect the donor and donor selection, The preparation of blood from whole blood
Non hemolytic transfusion reactions	Week 8	Antibody screening (Direct and indirect antiglobulin tests) Cross-matching

Antibody screening	Week 9	Antibody identification and Titration
Adverse effects of blood transfusion	Week 10	Characterization of Blood Transfusion: Types of Transfusion therapy,
		Blood transfusion Reactions
Complications of blood transfusion I	Week 11	Clinical features of a major hemolytic transfusion reaction, Investigation of an immediate transfusion reaction, Management of patients with major hemolysis
Complications of blood transfusion II	Week 12	Hemolytic disease of the fetus and newborn (HDFN), Autoimmune hemolytic anemias
Practical Topics	**Week**	**Learning Outcome**
The ABO Blood Group System (Red cell preparation and ABO grouping), The Rh Blood Group System Blood Group Antigen System and testing	Week 1	2. Blood handling, collection and sampling from patients with hematological malignancies including bone marrow 3. Learning of materials and tools are related to hematology lab and blood transfusion medicine 4. Blood safety basics 4. Understanding pre- and post-transfusion testing 5. Blood Transfusion: Diagnostic Tests and Procedures
Red blood cell washing and preparation of different cell suspensions	Week 2	
Cross matching test	Week 3	
Clotting time	Week 4	
Bleeding time	Week 5	
Red cell fragility test	Week 6	
Partial thromboplastin time (PTT)	Week 7	
Prothrombin time (PT), **Thrombin time**	Week 8	
Bone marrow (sampling and examination)	Week 9	
Hb electrophoresis	Week 10	
Direct coomb's test **Indirect coomb's test**	Week 11	
Lectin test	Week 12	

Examinations:

A- Theory Exam

Q1/ Select the correct answer for the following multiple choice: (X Marks)

Q2/ Choose the correct option to fill in the blanks: (X Marks)

Q3/ identify whether the following statements are true or false: (X Marks)

Q4/ Match the questions in column A to the "appropriate" answers in column B: (X Marks)

	A		B
1			
2			
3			
4			
5			

Q5/ Answer the following questions: (X Marks)

1) Principe of transfusion therapy

B- Practical Exam
Written part Move part

- **Extra notes:**

- **External Evaluator**

The outcome of course book evaluation is commonly more explicit and follows the principles and rules in general.