Module (Course Syllabus) Catalogue

2025-2026

College/ Institute	**Erbil Medical Technical Institute**	
Department	**MLT Department**	
Module Name	**Clinical Chemistry 2**	
Module Code	**CLC401**	
Degree	**Technical Diploma** ■ **Bachler** ☐ **High Diploma** ☐ **Master** ☐ **PhD** ☐	
Semester	**4rd**	
Qualification	**Master degree**	
Scientific Title	**lecturer**	
ECTS (Credits)	**5**	
Module type	**Prerequisite** ☐ **Core** ■ **Assist.** ☐	
Weekly hours	**4**	
Weekly hours (Theory)	**(2)hr Class**	**(3)Total hrs Workload**
Weekly hours (Practical)	**(2)hr Class**	**(1)Total hrs Workload**
Number of Weeks	**16**	
Lecturer (Theory)	**Muharam Yaseen Mohammed**	
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Lecturer (Practical)		
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Course Book

Course Description	**This course aims to provide comprehensive theoretical knowledge in clinical chemistry including kidney, liver and limits for all chemical tests, diagnosis and disease treatment and advanced practical training in this diverse field.**
Course objectives	**Upon completion of the course students will** **1. Have advanced knowledge on the methodology of clinical chemistry.** **2. Be able to understand the synthesis of laboratory kits.** **3. Have advanced skills in blood treatment, analysis and disease diagnosis.**
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.**
Required Learning Materials	**Data show, lab. For practical part**

Evaluation

	Task	Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review	1	1	
Assignments	Homework	0.5	4	
Assignments	Class Activity	2	2	
Assignments	Report	1	1	
Assignments	Seminar	1	1	
Assignments	Essay	0	0	
Assignments	Project	0	0	
	Quiz	1	4	
	Lab.	2	12	
	Midterm Exam	1	2	
	Final Exam	1	3	
	Total			

Specific learning outcome:	**On successful completion of this program, graduates will be able to:** **Identify, evaluate and apply major theoretical traditions in clinical chemistry studies.** **Understand how the human body work.**
Course References:	**Text book of Clinical Chemistry and Molecular Diagnostics Seventh Edition Carl A . Burits , David E .Bruns**

Course topics (Theory)	Week	Learning Outcome
Body fluid and electrolyte, Intracellular fluid compartment	1	
Extracellular fluid compartment, Electrolytes	2	
Electrolytes are in inside and outside of the cell	3	
Methods of distribution of the electrolytes inside and outside of the cells	4	
Electrolyte function of Sodium	5	
Electrolyte function of Potassium	6	
Electrolyte function of Bicarbonate CO2	7	
Electrolyte function of Chloride	8	
The Liver	9	
liver function tests	10	
Bilirubin	11	
Direct and indirect bilirubin	12	

Practical Topics	Week	Learning Outcome
Creatinine Test	1	
Blood Urea Nitrogen (BUN)	2	
examination	3	
Electrolyte test (in chemical methods)	4	
Electrolyte test (in instrument)	5	
liver function tests :Alanine transaminase (ALT) test or(GPT)	6	
Aspartate aminotransferase (AST) test or(GOT)	7	
Alkaline phosphatase (ALP) test	8	
Albumin test	9	
Bilirubin test	10	
examination	11	
Review	12	

Questions Example Design

rite the differences of the following.

B.urea	Creatinin

Osmtic pressure	Diffusion property

Q2 / Define the following.

1-GOT

2-Alkalin phosphates

3. Filtration:

4-Hypertonic solutions:

5- Hyper natremia:

Q3/ Fill the blanks of the followings sentences by suitable words.

1-The blood sugar level is the amount of ---------- in the blood, and normally levels stay limits morning to ----------mg/dl .

2- Extracellular fluid contain ---------- and ---------- ions, while intracellular fluid contain ---------- and ---------- ions.

3-ALT is used by the body to metabolize ---------- and its normal value in the blood is ----------

4-Diffusion methods depending to transferring molecules and ions from---------- to---------- .

Extra notes:

External Evaluator

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

Sangar sabah sabir

Lecturer