



**Ministry of Higher Education
and Scientific Research**



Pavtakht Technical Institute

Department of Laboratory Disease Analysis

Course Book Clinical Chemistry - Practical

**First Semester
Second stage**

Practical lecturer

Lecturer name

Scientific Title: Assistant Lecturer

Academic Year: 2023-202

Course Book

1. Course name	<i>Clinical Chemistry 1</i>
2. Lecturer in charge	
3. Department/ College	<i>Medical Laboratory Technology Department</i>
4. Contact	
5. Time (in hours) per week	Practical: 2
6. Office hours	<i>8 hours during the week</i>
7. Course code	
8. Teacher's academic profile	
9. Keywords	<i>Blood, lipid profile, renal function</i>
10. Course overview: This course aims to explain and give strong knowledge about laboratory instruments and apply them practically in the clinical chemistry lab, based on the test requirements. However, the students learn how they can deal with different producers for doing their lab tests, including Blood Sugar test, Lipid profile tests, and Kidney Function tests. Which is lead to students having brilliant information with advanced exercises in the clinical chemistry lab.	
11. Objective of the lesson: Upon completion of the course students will 1. Be able to manage the clinical chemistry part in the lab by using kits based on standard techniques. 2. Have advanced skills in blood treatment, analysis, and determine the result. 3. Have knowledge to deal with the psychology of patients properly and protect him/herself with the patient's health in the lab.	
12. Student's obligation 1. Attendance inside class on time. 2. They should be responsible for doing tasks. 3. They should make ready to working in team and individual to operate activities, and support their classmates. 4. Bring and wear a lab coat when present in the lab. 5. Avoid using mobile in class and speaking with classmates for non-academic purpose which make class noisy. 6. During any exam or quiz students have to avoid from cheating because it cause of loss marks.	

13. Forms of teaching

Practice: the main point, I am going to apply pedagogy methods in the lab, such as participating all students in exercises, creating small groups for students to learn how they should manage and operate their jobs, listening to their ideas, and the students should prepare themselves to present a topic at least once. In addition, using several digital factors to increase students' knowledge like PowerPoint and so on, and whiteboard for explaining complex points.

14. Student learning outcome:

On successful completion of this program, graduates will be able to:

- Identify kits, apply them in clinical chemistry tests, and manage the lab.
- Explain the role of each biomolecule agent and its impact on human health.
- Using lab equipment specially spectrophotometer, centrifuge, and others like micropipette.

15. Course Reading List and References:

- Text book of Clinical Chemistry and Molecular Diagnostics Seventh Edition Carl A . Burits , David E .Bruns
- A MANUAL OF Laboratory and Diagnostic Tests NINTH EDITION, 2015 Wolters Kluwer Health | Lippincott Williams & Wilkins.
- Understanding laboratory and diagnostic tests. Moio, M. A., & Moio, E. W. (1998).

16. The Topics: Clinical chemistry syllabus (Practice)

weeks	Subject
1	Lab safety
2	Spectrophotometer and Beer-Lambert Law
3	Blood collection
4	Blood Sugar Test
5	Lipid profile: Cholesterols Test
6	Examination
7	Lipid profile: Triglycerides Test
8	Lipid profile: HDL and LDL Test
9	Kidney Function: Urea
10	Kidney Function: Uric acid
11	Kidney Function: Creatinine
12	Examination

17. Student evaluation:

Student performance	Marks
Attendance	3
Lab activities	2
Report	5
Quiz	5
Midterm Exam	15
Final Exam	30
Total	60

Note: The practice marks collect with the theoretical lecturer exam to decide for final results

18. Examples of exams:

Q1/ Write the differences of the following and explain each equation.

LDL, HDL, Cholesterols, Triglycerides

Q2 / Define the following.

1-hematoma

2-hemolysis

3. Spectrophotometer

4- Creatinine

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- Spectrophotometers usually contain two light sources ----- and -----

3- A centrifuge is a machine that spins rapidly and uses centrifugal force to separate substances of different.....

4- Purple blood bottles contain, which acts as a potent by binding to calcium in the blood.

Q4/ Explain the basic components of spectrophotometer?