



Module (Course Syllabus) Catalogue 2022-2023

College/ Institute	Medical Technical Institute	
Department	Nursing	
Module Name	Clinical Biochemistry	
Module Code	CLB214	
Semester	2	
Credits	6	
Module type	Prerequisite <input type="checkbox"/>	Core <input type="checkbox"/> Assist. <input type="checkbox"/> *
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(3)hr Workload
Weekly hours (Practical)	(2)hr Class	(0.5)hr Workload
Lecturer (Theory)	Shawnm Abdulah Ismail	
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Lecturer (Practical)	Amina Ismat Hamadammin	
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Course Book

Course Description	This course will focus on all the biological changes during the life at health and disease. However, studding the practical part of the clinical biochemistry is focusing on the methods of determination of different components of the blood sugar, urine and other body fluids for instance determination of blood sugar for diabetes mellitus diagnosis.
Course objectives	On completion of this course the student will be able to: how can treat with laboratory devices, chemical compounds, principle of uses, and methods of analysis. Especially learning methods of determination for biological components of blood, urine and other body fluids in the human body and identification the diseases that occurred with changing blood and urine components.
Student's obligation	The students should have attendance and complete all tests, exams and assignments
Required Learning Materials	Lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters.
Assessment scheme	16% Mid Term (Theory and practical) 4% Quiz 40% Assignment (report, paper, homework, seminar) 25% final practical 15% final theory

Specific learning outcome:	<p>On successful completion of this program, graduates will be able to:</p> <p>1-Learn how to classification, and digestion of big micro molecule</p> <p>2-Learn about the diseases caused by vitamins and minerals</p> <p>3-Knowledge and understanding of the the importance of practical tests</p>
Course References:	<p>1- Mosby's, Manual of Diagnostic and Laboratory Tests.</p> <p>2- Varley, s, Practical clinical biochemistry</p>

Course topics (Theory)	Week	Learning Outcome
Introduction to biochemistry	1	Definition
Carbohydrates	2	Classification, Functions, and Metabolism
Lipids	3	Classification, Functions, and Metabolism
Proteins	4	Classification, Functions, and Metabolism
Nucleic acids	5	Components, Types, and Function
Blood	6	Coagulation process, and Collection
Enzymes	7	Properties, Classification
Carbon compounds	8	Classification, alkanes, alkenes, alkynes
Solutions	9	Properties and classification
Acids, bases, salts	10	Properties, pH scale in health and disease.

Vitamins	11	Classification, Function, and sources		
Minerals	12	Classification, Function, and sources		
Practical Topics	Week	Learning Outcome		
Laboratory Safety and Glassware	1	Glassware's that use in chemistry laboratory		
Equipment used in the laboratory	2	Equipment's that use in chemistry laboratory		
Spectrophotometry	3	Beer-Lambert Law		
Blood sugar test	4	Types of blood glucose tests		
Cholesterol test	5	Definition, Purpose, and calculation		
Triglyceride test	6	Definition, Purpose, and calculation		
HDL test	7	Definition, Purpose, and calculation		
Blood urea test	8	Definition, Purpose, and calculation		
Bilirubin blood test	9	Definition, Purpose, and calculation		
Determination of serum creatine	10	Definition, Purpose, Preparation , and calculation		
Total protein test	11	Definition, Purpose, and calculation		
General urine examination	12	Tests for abnormal components in the urine		
<p>Questions Example Design Theoretical Part: Q1/ Match the list A to list B</p>				
No	Answer	List A		List B
1-		Breaking of bonds	A	Functions of lipids

2-		Main sources of energy in body is a	B	Cellulose
3-		Maintenance of acid, base, water and electrolyte balance	C	Hydrolases

Q2/ What are the differences between the following?

1-Saturated fatty acid & unsaturated fatty acid

2-DNA & RNA:

Q3/ What are the Physiological functions of them:

1. Calcium:
2. Vitamin E (Tocopherol):

Practical Part:

Written test

Q1/Answer of the following:

1-What is the purpose of total protein test?

2-Why is blood sugar sometimes higher after exercise than it was before?

Q2/ Complete the sentences by the correct word:

- 1- Beaker is using for.....
- 2- Beer law it is combine the relationship between.....

Q3/You have out patient has a clinical analysis for sugar and cholesterol knowing that test reading is (0.40) and standard reading is (0.50)for sugar and (0.60) for cholesterol, distinguish the result of two items? And mention the result is normal or abnormal?

Laboratory practice

1-Write the volume of this pipette:

2-Read the absorbance of this solution:

Extra notes:

External Evaluator

I confirmed that the contents of this syllabus are commonly more explicit and follows the principles and rules in Biochemistry subjects.

Lecturer: Muharam Yassin Muhamad