



Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Medical Technical Institute	
Department	MLT Department	
Module Name	Medical Lab. Instrument	
Module Code	MEL203	
Degree	Technical Diploma <input checked="" type="checkbox"/> Bachler <input type="checkbox"/> High Diploma <input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/>	
Semester	2nd	
Qualification	Master degree	
Scientific Title	Assist lect.	
ECTS (Credits)	6	
Module type	Prerequisite <input type="checkbox"/> Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>	
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)	Media Fadhil Jalil	
E-Mail & Mobile NO.	Media.jalil@epu.edu.iq	
Lecturer (Practical)		
E-Mail & Mobile NO.		
Websites	https://academicstaff.epu.edu.iq/faculty/media.jalil	

Course Book

Course Description	The student will demonstrate proper handling of laboratory chemicals; operate common analytical instruments; describe the theory and applications of various analytical instruments including types of electrophoresis, spectrophotometer, chromatography, and centrifugation; and practice laboratory safety.				
Course objectives	identify in two or three paragraphs the important objectives of the course and show those points that students should learn at the end of the course.				
Student's obligation	<ul style="list-style-type: none"> - Student's obligation - This course will introduce the student to the general role of health care provider as well as the specific role of the Medical Laboratory Technician. Basic aspects of medical terminology, laboratory safety, quality control, microscopy, pipette techniques, laboratory mathematics .as the followings <p>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.</p>				
Required Learning Materials	lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters				
Evaluation	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review		1	1	
	Assignments	Homework	0.5	4	
		Class Activity	2	2	

	Report	1	1	
	Seminar	1	1	
	Essay	0	0	
	Project	0	0	
	Quiz	1	4	
	Lab.	2	12	
	Midterm Exam	1	2	
	Final Exam	1	3	

Specific learning outcome:	<ul style="list-style-type: none"> - Ability to develop general knowledge - Knowledge and understanding of the subject area and understanding of the profession - Ability to identify, differentiate, pose and resolve problem - Demonstrate the ability to think critically and solve problems in a laboratory setting - Ability to apply knowledge in practice - Ability to search for process and analyse information from a variety of sources
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Course References:	<ul style="list-style-type: none"> - Course Reading List and References: - General or text book of Lab. Instrument (Author), Donald M. West (Author), - Modern Analytical Chemistry 1st Edition by David T Harvey
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Course topics (Theory)	Week	Learning Outcome
Microscope (Parts of Microscope, Use of Microscope & care of microscope).	9-2-2020	Describe the identify each part
Phase contrast & Dark field microscope	16-2-2020	Explain the types of Microscope
Centrifuge	23-2-2020	Define and explain each part with type of instrument
Balances	1-3-2020	Two devices in detail

Oven		
Incubator	8-3-2020	Known types of of incubator and parts
Autoclave	15-3-2020	Learning to how can using the oven and the part
CBC	22-3-2020	Count blood cell ,principle and measurement
Ph. meter	5-4-2020	Describe the acidity and alkaline solutions
Water bath	12-4-2020	Describe principle of device
Spectrophotometer	19-4-2020	Measurement the wavelength of substance
VIDUS+MiniVIDUS	26-4-2020	Application this device in viral field
Electrophoresis Elisa	3-5-2020	Parts and operation of devices
Practical Topics (If there is any)	Week	Learning Outcome
Microscope (Parts of Microscope, Use of Microscope & care of microscope).	9-2-2020	Describe the operation of device and identify each part
Phase contrast & Dark field microscope	16-2-2020	Explain the types of Microscope in details
Centrifuge	23-2-2020	Operation of device and explain each part with type of instrument
Balances Oven	1-3-2020	Two devices in detail
Incubator	8-3-2020	Explain the operation device and the effect of temperature then types of of incubator and parts
Autoclave	15-3-2020	Learning to how can using the autoclave and the part
CBC	22-3-2020	Operation the Count blood cell devices ,principle and measurement
Ph. meter	5-4/2020	Describe the acidity and alkaline solutions Describe principle of device in practical
Water bath	12-4-2020	Describe principle of device
Spectrophotometer	19-4-2020	Measurement the wavelength of substance and applied in many solution to the see the different between them

VIDUS+MiniVIDUS	26-4-2020	Application this device in viral field
Electrophoresis Elisa	3-5-2020	Parts and operation of devices

**Q1) Fill the blanks with suitable words:
(28M)**

1- The centrifuge works using the -----

2- Distillation is a process of ----- the component or substances from a liquid (Mixture) by selective ----- and ----- .

3-The working principle of ----- is to heat a mixture at a specific temperature.

4-In a laboratory centrifuge that uses sample tubes, the radial acceleration causes ----- particles to settle to the bottom of the tube, while ----- substances rise to the top.

**Q2) Answer the followings:
(24M)**

A- Types of pH meter:

B- Write the different between the light microscope and electron microscope

C- Enumerate the classification of centrifuges:

- **Extra notes:**

- **External Evaluator**

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

Muharam yaseen mohammed