



Planning and Quality Assurance Affairs

Course Specifications

Course name	Medical Laboratory Instrumentation	
Course number	AMSL2212	
Faculty		
Department		
Course type	Major Needs	
Course level	2	
Credit hours (theoretical)	2	
Credit hours (practical)	0	
Course Prerequisites		

Course Objectives

- 1 The student will be able to know the main characters of light and its uses in the field medical laboratory examinations, also he will be able to know Beer's law and its application in laboratory tests.
- 2 The student will be able to know the principle of spectrophotometer, the main components, and types of spectrophotometers and how it could be used in medical laboratory examinations, also he will be able to understand the principle of each component.
- 3 The student will be able to interpret the information gained from the spectrophotometer, also he will be able to discriminate between various tests that can be performed using spectrophotometer.
- 4 The student will be able to know other methods and principles used in the field of medical laboratory examinations based on light properties.
- 5 The student will be able how to use electrical properties in the field of medical laboratory examinations and the principle of various instruments used in the laboratory especially in clinical chemistry department.
- 6 The student will be able to understand the principle of electrophoresis, various types of electrophoresis, main components of electrophoretic system and how it can be used in laboratory examination.
- 7 The student will be able to know the principle of chromatography, the main components and how it could be used in laboratory especially clinical chemistry department
- 8 The student will be able to understand the principle of hematology analyzers, main components and how it could be used especially in hematology field to count and differentiate various blood cells.
- 9 The student will be able to understand various principles of coagulation analyzers, advantages and disadvantages of each principle, also he will be able how to perform coagulation tests and how to interpret the results of each test.

Course Contents

- 1 1. Light &its Measurements
- 2 Spectrophotometer, Atomic spectroscopy and Flame emission photometry.
- 3 Fluorometry, Chemiluminescence, Turbidimetry and Nephelometry.
- 4 _ Electrochemistry.
- 5 Electrophoresis
- 6 . Chromatography
- 7 _ Automated hematology analyzers
- 8 Automated coagulation analyzers

Students Assessment

Assessment Method	<u>TIME</u>	MARKS
First exam	After 1 month	20
Second exam	After 2 month	20
Attendance and activities		10
Final Exam		50

Books and References

Essential books Laboratory Instrumentation 4th edition.Author: Mary C. Haven, Gregory A. Tetrault, Jerald R. Schenken