

Course Description Form

1. Course Name:	Medical Instrumentation
2. Course Code:	WBM-41-04
3. Semester / Year:	1 st Semester / 2025 2026
4. Description Preparation Date:	19/3/2025
5. Available Attendance Forms:	Weekly (Theoretical & Practical)
6. Number of Credit Hours (Total) / Number of Units (Total)	45 Hrs. Theoretical & 30 Hrs. Practical / 3 Units
7. Course administrator's name (mention all, if more than one name)	Name: Asst. Lecturer Mustafa Habib Chyad Email: mustafa.ha@uowa.edu.iq
8. Course Objectives	<p>Course Objectives</p> <p>The aim of this study is to understand the principle working some laboratory and diagnostic devices that related to pathological analyzes of diseases that effect on the human body, and to diagnose some diseases that related to the heart, brain, or muscle damage.</p>
9. Teaching and Learning Strategies	<p>Strategy</p> <p>The student will be able to understand the principle of operation of the Laboratory and Diagnostic Instrumentation and its dealings with the human body, and to graduate engineers specialized in the field of biomedical engineering, which relates to human life with the medical device and work in the medical engineering environment.</p>

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	2&1	Introduction to Medical Instruments	Theoretical & Practical	Daily test and oral questions
2	3	2&1	Bio-electric signals	Theoretical & Practical	Daily test and oral questions
3	3	2&1	Centrifuge (Part 1)	Theoretical & Practical	Daily test and oral questions
4	3	2&1	Centrifuge (Part 2)	Theoretical & Practical	Daily test and oral questions
5	3	2&1	Blood Cell Counter (Part1)	Theoretical & Practical	Daily test and oral questions
6	3	2&1	Blood Cell Counter (Part2)	Theoretical & Practical	Daily test and oral questions
7	3	2&1	Spectrophotometer	Theoretical & Practical	Daily test and oral questions
8	3	2&1	Colorimeter	Theoretical & Practical	Daily test and oral questions
9	3	2&1	Flame photometer	Theoretical & Practical	Daily test and oral questions
10	3	2&1	ECG (Part 1)	Theoretical & Practical	Daily test and oral questions
11	3	2&1	ECG (Part 2)	Theoretical & Practical	Daily test and oral questions
12	3	2&1	EMG (Part 1)	Theoretical & Practical	Daily test and oral questions
13	3	2&1	EMG (Part 2)	Theoretical & Practical	Daily test and oral questions
14	3	2&1	EEG (Part 1)	Theoretical & Practical	Daily test and oral questions
15	3	2&1	EEG (Part 2)	Theoretical & Practical	Daily test and oral questions

11. Course Evaluation	
1- Weekly exams 2- Monthly exams 3- Participations inside the class 4-present the seminars 5- Writing reports	
12. Learning and Teaching Resources	
Required textbooks (curricular books any)	Handbook of Biomedical Instrumentation Second Edition - R S KHANPUR
Main references (sources)	Handbook Of Biomedical Instrumentation 3rd Edition 933920543X · 9789339205430 By R S Khandpur
Recommended books and references (scientific journals, reports...)	Standard handbook of biomedical engineering & design - M Kutz
Electronic References, Websites	https://books.google.iq/books/about/Handbook_of_Biomedical_Instrumentation.html?idesc=y