Module Description Form

1. Course Name:
Therapeutic Instrumentation
2. Course Code:
WBM-42-05
3. Semester / Year:
2nd Semester / 2026
4. Description Preparation Date:
12/2/2026
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: Dr. Hayder A. Yousif Email: hayder.ab@uowa.edu.iq
8. Course Objectives

Course Objectives	1. Identify the therapeutic devices that deal with the human body 2. How to design the therapeutic device 3. Identifying cases that require the use of a therapeutic device
9. Teaching and Learning Strategies	
Strategy	To make the student able to understand the principle of operation of the therapeutic medical device 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.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3	2	Physiotherapy devices	Theoretical & Practical	Daily test and oral questions
2	3		Infrared (IR) therapeutic device	Theoretical & Practical	Daily test and oral questions
3	3		ultrasonic therapeutic devices	Theoretical & Practical	Daily test and oral questions
4	3		Microwave device	Theoretical & Practical	Daily test and oral questions
5	3		short waves devices	Theoretical & Practical	Daily test and oral questions
6	3		Wax bath device	Theoretical & Practical	Daily test and oral questions
7	3		Lithotripsy	Theoretical & Practical	Daily test and oral questions
8	3		Artificial pulmonary ventilators	Theoretical & Practical	Daily test and oral questions
9	3		Ventilators classification	Theoretical & Practical	Daily test and oral questions
10	3		Medical gases	Theoretical & Practical	Daily test and oral questions
11	3		Anesthesia machine	Theoretical & Practical	Daily test and oral questions
12 & 13	3		Cardiac defibrillators	Theoretical & Practical	Daily test and oral questions
14	3		Tooth chair (dental unit)	Theoretical & Practical	Daily test and oral questions
15	3		Pneumatic and hydraulic circuit	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)	1. Introduction to Biomedical Engineering, Joseph D. Bronzino, 3rd Ed. 2012, Academic Press. 2. Handbook of Biomedical Instrumentation Second Edition - R S KHANDPUR
Main references (sources)	1. Introduction to Biomedical Engineering, Joseph D. Bronzino, 3rd Ed. 2012, Academic Press. 2. Medical Devices and Systems, Joseph D. Bronzino, 1st Ed. 2006, CRC, Taylor & Francis. 3. The Biomedical Engineering Handbook, Joseph D. Bronzino, 4th Ed. 2015, CRC Press.

Recommended books and references (scientific journals, reports…)	Standard handbook of biomedical engineering & design - M Kutz
Electronic References, Websites	ttps://books.google.iq/books/about/Handbook_of_Biomedical Instrumentation