Course Syllabus
1st semester 1438/1439 H

Course title and code:	Mechanical Biomedical Instrumentation (BMT 335)
Program in which the course is offered:	**Biomedical Technology program, Bachelor degree**
Credit hours	3 hours (2 theoretical + 1 Practical)
total contact hours per semester	60 hours
Level at which this course is offered:	5th level
Course prerequisites:	BMT212 – BMT232
Time:	**Theory: Thursday** 10 A.M. - 12.00 Noon
Location:	Class NO 25, CAMS
College member responsible for the course	Dr Amir Said Al-Tinawi, Assistant Professor
Contact information:	
Office Number:	2257
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Course Description

The purpose of this course is to present an overview of Mechanical biomedical instrumentation/Equipment. Topics include; fundamentals of Medical Instrumentation, Hemodialysis systems, Water treatment systems, Mechanical ventilation systems, Anesthesia systems, Medical gases systems Sterilization systems, Mechanics of stents in blood vessels

Teaching strategies

The course will be conducted in a form of lectures, class discussions, and student presentations.

Learning Resources

Required Text (s)

- Handbook of Biomedical Instrumentation, R. S. Khandpur, Publisher, McGraw-Hill Education, 2014 3rdEdition

Essential References

- John G. Webster, Medical instrumentation application and design, 3rd edition, John Wiley & Sons, Inc.

Recommended Journals

Annals of Biomedical Engineering

Electronic Materials and Web Sites

ECRI Institute, www.ecri.org

Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction	1	2lect+2 Lab
fundamentals of Medical Instrumentation	1	2lect+2 Lab
Mechanical ventilation systems	2	4 lect+4 Lab
Anesthesia systems	1	2lect+2 Lab
Hemodialysis systems	1	2lect+2 Lab
Intra Aortic Balloon Pump (IABP)	1	2 lect+2 Lab
Midterm I (9 November)	1	2 lect+2 Lab
Medical gases systems	2	4 lect+4 Lab
Water treatment systems	1	2 lect+2 Lab
Sterilization systems	1	2 lect+2 Lab
Stents in blood vessels	1	2 lect+2 Lab
Midterm II (21 December)	1	2 lect+2 Lab
Review	1	2 lect+2 Lab
Total	15 weeks	30 Lect+30 Lab

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech,	Week Due	Proportion of Total Assessment
1	**Mid term I**	Week 8	14 %
2	**Mid term II**	Week 14	14 %
3	**Quizzes**	Throughout semester	6 %
4	**Assignment and Presentation**	Week 10 to 13	6 %
5	**Practical (Laboratory)**	Throughout semester	20 %
6	**Final Exam**	Final Exam Schedule	40 %

Course rules

- **Attendance:** Attending at least 75% of the lectures is mandatory otherwise students will be denied access to the final exam.
- **Make-up exam:** NO make-up exam for students who have missed the scheduled examination time, except in case of special circumstances accompanied with the necessary documentation to be submitted and approved by the department no later than one week from the initial scheduled examination.