Course Syllabus

Second Semester – 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Biomedical Electronic Equipment 1	BMTS471	2 lecture+1 lab	2 lecture+2 lab

Instructors/ Coordinators

	Instructor	Coordinator
Name	Dr. Khemais Saada	Dr. Khemais Saada
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Ext	2820	2820

Text Book

Title	Principles of Medical Electronics and biomedical instrumentation
Author/Year	C Raja Rao, S K Guha / 2001

Supplemental materials

Recommended Textbooks and Reference Material		
Title	Biomedical Instrumentation and Measurements	
Author/Year	R. Anandanatarajan / 2011	
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)		
Web sites		

Specific Course Information

a. Brief description of the content of the course (Catalog Description)

This course deals with sensors in electrical instruments who receive, amplify, and process biomedical signals. It covers also the origin of bio-potentials and their parameters, introduction to ECG, EEG and EMG, bioelectric signals. Develop an ability to analyze biomedical instrument, the amplifiers and instrumentation amplifier, bio-potential electrodes.

b. Prerequisites (P) or Co-requisites (C)

(P) Biomedical Analog Electronics 2 - BMTS362
(P) Biomedical Digital Electronics 2 - BMTS364

c. Course type (Mandatory or Elective)

Mandatory

Specific Goals

a. Specific outcomes of instruction
By the end of this course, the student should be able to: - Analyze biomedical instrument. (a) - Solve bioelectric potentials transducer problems. (a) - Calculate the transducer parameter for biomedical particular application. (c) - Participate with a team group to conduct and interpret experimental results for sensors calibration. (e) - Relate the development of biosensor technology to the health care improvement. (j)

b. Student outcomes addressed by the course										
a	b	c	d	e	f	g	h	i	j	k
✓		✓		✓					✓	

Brief list of topics to be covered

Topics	No of Weeks	Contact hours
Electronics and medicine	1	4
Origin of bio-potentials	1	4
Basic of bioelectric potential (ECG, EEG and EMG)	2	8
Bio-potential electrodes	2	8
Transducers for biomedical applications	3	12
Bio-signal amplifiers	2	8
Principles of recorders for bio-signals recording	1	4
Spirometer	1	4
Techniques for measurements of nonelectrical biological parameters	1	4
Biosensors and health care improvement	1	4