Course Syllabus

Second Semester – 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Biomedical Analog Electronics 2	BMTS362	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	Analysis and Application of Analog Electronic Circuits to Biomedical Instrumentation
Author/Year	Robert B. Northrop / 2012

Supplemental materials

Recommended Textbooks and Reference Material		
Title	Operational amplifiers: Theory and Design	
Author/Year	Johan Huijsinq / 2011	
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)		
Web sites	http://www.prenhall.com/boylestad/	http://www.prenhall.com/floyd/

Specific Course Information

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

This course is an advance electronic which focus on integrated circuits and application to biomedical instrumentation. It starts with introduction to integrated circuits, and then it deals with operational amplifier; such as summing amplifier, inverter, non-inverting amplifier, integrator, differentiator, comparator, Oscillator, instrumentation amplifier and analog active filters.

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

(P) Biomedical Analog Electronics 1 - BMTS351

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: - Select and apply the knowledge of amplification and particularly the differential amplification to biomedical signal amplifications. (b) - Classify the linear and nonlinear applications of operational amplifiers. (b) - Experiment various analog circuits based on operational amplifiers. (c) - Construct particular circuits used in biomedical equipment. (d) - Participate effectively as a member of laboratory groups. (e)

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
Introduction to analog integrated circuits	1	4
Principle of amplification by transistors	2	8
Differential amplifiers	1	4
Operational amplifiers: ideal and real	3	12
Linear applications of operational amplifiers: Summing amplifier, inverter, non-inverting amplifier, integrator, differentiator, analog active filters.	3	12
Non-linear applications of operational amplifiers: Comparator, Oscillator, instrumentation amplifier, DAC and ADC.	3	12
Application to biomedical instrumentation	2	8