Course Syllabus

Second Semester – 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Electrical Measurements	BMTS352	1 lecture+1 lab	1 lecture+2 lab

Instructors/ Coordinators

	Instructor	Coordinator
Name	Mr. Khaled Alshareef	Dr. Khemais Saada
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Text Book

Title	Principles of Electrical Measurement (Series in Sensors)
Author/Year	Slawomir Tumanski / 2006

Supplemental materials

Recommended Textbooks and Reference Material	
Title	Electrical Measurements and Measuring Instruments
Author/Year	S. Kamakshaiah, Pannala Krishna Murthy, J. Amarnath / 2011
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)	
Web sites	http://www.cooking-hacks.com/documentation/tutorials/ehealth-v1-biometric-sensor-platform-arduino-raspberry-pi-medical/
	http://physics.doane.edu/hpp/Resources/Fuller3/pdf/F3Chapter_22.pdf

Specific Course Information

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

This course focuses on the measurement devices and errors, system of units, and principle of different measurement devices. Student will study instruments such as: multi-meter, oscilloscopes and some others mechanical instruments measuring basic physical parameters such as strain, pressure and elasticity. Static and dynamic performance of instruments will be studied too.

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

(P) Electrical Circuits - BMTS241

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: - Identify the various uses of measuring and testing devices. (a) - Classify different types of errors and their sources. (a) - Choose appropriate method to estimate errors in measurements. (b) - Select the correct method to calibrate medical transducer. (b) - Use multi-meter and oscilloscope to perform measurements. (c) - Select adequate measuring instrument in laboratory activities. (c)

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	1	3
Units of measurements	1	3
Errors in measurement	1	3
Measurement of electrical quantities	1	3
Electrical measuring instruments (Multi-Meters, Oscilloscope)	3	9
Sensor Transducer for medical usage	3	9
Measurement of physical parameter (strain, pressure and elasticity …)	3	9
Measurement instrument performance	2	2