

Course Syllabus

Second Semester - 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Electromechanical Energy	BMTS363	1 lecture+1 lab	1 lecture+2 lab

Instructors/ Coordinators

	Instructor	Coordinator
Name	Mr. Khaled Alshareef	Mr. Jamel Smida
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Text Book

Title	Electromechanical Energy Devices and Power Systems
Author/Year	Zia A Yamayee, Juan L Bala / 1993

Supplemental materials

Recommended Textbooks and Reference Material	
Title	Electric Machines and Drives
Author/Year	Gordon R. Slemon, Addison Wesley / 1992
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)	
Web sites	http://www.allaboutcircuits.com/
	http://www.khanacademy.org/science/physics/electricity-and-magnetism/v/electric-potential-energy

Specific Course Information

a. Brief description of the content of the course (Catalog Description)
This course is focused on electromechanical energy used in biomedical technology. It includes the design, construction and performance of electrical machines in medical instrumentation. It covers also, Transformers, DC machines, step motor, single phase AC machines, special motors, and drives systems. Application to biomedical system is covered 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:

- Illustrate the concept of electromechanical energy with special reference to the biomedical equipment. (b)
- Identify the components used in electrical machine circuits. (b)
- Practice the building and testing electrical machines circuit, including Transformers, DC machines, Stepper motor, single phase AC machines, special motors, and drives systems. (c)
- Identify and solve the basic faults in electromechanical machine circuits used in medical field. (f)

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 Energy Systems	1	3
Single Phase Circuits	1	3
Three Phase Circuits	1	3
Magnetic Circuits	1	3
Transformers	1	3
Electromechanical Energy Conversion	1	3
Stepper Motors	1	3
Basic Concepts of Machines	1	3
Synchronous Machines	1	3
Induction Machines	1	3
DC Machines	1	3
Drives Systems	1	3
Application to biomedical systems	2	6
General Review	1	3