

Course Syllabus

Second Semester - 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Electrical circuits	BMTS241	3 lecture+1 lab	3 lecture+2 lab

Instructor/ Coordinator

	Instructor	Coordinator
Name	Mr. Abderahman AlGahtani	Dr. Khemais Saada
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Text Book

Title	Introductory circuit analysis
Author/Year	R.L. Boylestad / 2010

Supplemental materials

Recommended Textbooks and Reference Material		
Title	Principals of electric circuits	
Author/Year	Thomas Floyd / 2006	
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)		
Web sites	http://www.prenhall.com/boylestad/	http://www.prenhall.com/floyd/
	http://www.prenhall.com/paynter/	

Specific Course Information

a. Brief description of the content of the course (Catalog Description)
This course focus on principles of electricity including Resistive circuits, circuits theorems, nodal and mesh analysis, maximum power transfer theorem, source free inductive and capacitive circuits. It also focus on natural and forced response of RL and RC circuits, RLC circuits, sinusoidal natural and steady state response of RCL circuits, resonance, and introduction to AC quantities.
b. Prerequisites (P) or Co-requisites (C)
None
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:

- Demonstrate an understanding of basic theories of DC and AC electrical circuits used in biomedical equipment. (a)
- Apply mathematical and physical knowledge to analyze electrical circuits. (b)
- Use basic Electrical Laws and theorems to solve DC and AC electrical circuit problems in biomedical equipment. (b)
- Develop capabilities in both hands assembling basic DC and AC circuits as well as using computer to simulate and explore the behavior of electric circuits. (c)
- Participate effectively in a team to conduct Lab experiments in AC and DC circuits. (e)
- Lead a small team to prepare assignments dealing with basics in electrical circuits. (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	1	5
Current & voltage	1	5
Resistance; Ohm's Law, Power and Energy	1	5
Series Circuits ; Parallel Circuits	1	5
Series-Parallel Circuits	1	5
Methods of Analysis & Selected Topics [DC]	1	5
Methods of Analysis and Simulation Method of Analysis	1	5
Methods of Analysis and Network Theorems	1	5
Capacitors (Information essential to AC simple circuit analysis, definitions, and one transient calculation)	1	5
Inductors (Information essential to AC simple circuit analysis, definitions, and one transient calculation)	1	5
Sinusoidal Alternating Waveforms: generation, definitions, phase, average and RMS	1	5
The Basic Elements and Phasors (R, L, and C in AC, power, power factor)	1	5
The Basic Elements and Phasors (Complex and polar numbers)	1	5
Series and Parallel AC Circuits	1	5
General Review & Practice Final Exam	1	5