POWE 210 – Fundamentals of Electric Circuits

Curricular Area	**Electrical Engineering Department**
Type of Course	Compulsory
Catalogue Description	DC circuit analysis: reduction methods, mesh current and node voltage analysis methods, transformation methods, DC network theorems, capacitors and inductors, phasors and AC steady state circuit analysis, series and parallel resonance, power in AC circuits, balanced and unbalanced three-phase circuits.
Prerequisites by Courses	PHYS 281
Prerequisites by Topics	Electricity and Magnetism
Instructor(s)	Dr. Ziad Osman Electrical and Computer Engineering Department, A2 Building, Office Room G118, Phone Ext 3414 zosman@bau.edu.lb
Office Hours	Office hours: Monday &Wednesday 12 PM – 2 PM, Tuesday & Thursday 10 AM – 11 AM, Room G118.
Load	3 credits; 3 Lecture-sessions/week – 50 min per session
Textbook	Electric Circuits, 9th edition, J. Nilsson and S. Riedel, Prentice Hall, 2011
Reference Books	

Subjects covered	*50 min. lectures*
Introduction to electric circuit variables and elements.	2
Simple resistive circuits.	2
Techniques for circuit analysis.	2
Node voltage method.	6
Mesh current method	6
Source transformation	1

Topics	Superposition	2
	Thevenin and Norton equivalent circuits	4
	Maximum power transfer.	1
	Operational Amplifiers.	6
	Introduction to inductance and capacitance.	1
	Sinusoidal steady state analysis (a.c. circuits).	4
	Power calculations in electric circuits.	5
	Balanced three phase circuits.	3
	Total	45

Learning Outcomes Correlation with	**Program Outcomes**	**Program Objectives**
Ability to apply basic laws to resistive circuits.		
Ability to perform mesh and nodal analysis.		
Ability to apply circuit theorems.		
Ability to use phasors to analyze steady-state sinusoidal circuit analysis.		
Ability to understand complex power.		
Ability to analyze three phase circuits.		

Learning Outcomes Assessment Tools	**Exams**	**HWs**	**Lab Reports**	**Project**	**Course Survey**
Ability to apply basic laws to resistive circuits.	☒				☒
Ability to perform mesh and nodal analysis.	☒				☒
Ability to apply circuit theorems.	☒				☒
Ability to use phasors to analyze steady-state sinusoidal circuit analysis.	☒				☒
Ability to understand complex power.	☒				☒
Ability to analyze three phase circuits.	☒				☒

Assessment:

Assessment:	Dates	Weighing
Quiz 1	5th week	20%
Quiz 2	9th week	20%
Quiz3	12th week	20%
Final Exam	To be set later by BAU	40%

Course Coordinator	Dr. Ziad Osman
Date	June, 2015