Philadelphia University

Faculty of Engineering - Department of Electrical Engineering

Course Details:

Title:	Electric Circuits II (610212)
Prerequisite:	Electric Circuits I (610211)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)
Support Material	- Pre-set Tutorials in order to solve problems set - One to one consultations if needed
Textbook:	James Nilson and Susan Riedel, Electric Circuits, 10th edition, 2014, Pearson.
References:	• W. Hayt, J. Kemmerly and Durbin, Engineering Circuits Analysis, 6th edition, Boston Mcgraw-Hill Higher Education, 2006.
Course Description:	The main goals of this course is to introduce concepts of electric circuits by studying the following main topics; electric circuit elements, techniques of circuit analysis, Transient conditions, and the steady states analysis. At the completion of this course the student should be able to: • Understand the principle of electric circuit design and application. • Comprehend the principles of DC and AC. • Understand the techniques to analyze different circuit configuration

Course Outlines:

Week	Topic
1	Mathematical revision
2	Periodic Waves: Square, Triangular, and Sine Waves
3	Average and r.m.s values
4, 5	Basic Concepts of AC Theory
6	Mesh Current, Nodal and Thevenin Analysis
7	Power, Power Triangle, and Power factor
8, 9	Balanced Three Phase Circuits, Line and Phase Currents and Voltages
10	Star –to- Delta Connections
11, 12	Mutual Inductance, Dot Notation
13, 14	Resonance in AC Circuits
15, 16	Two Port Circuits, and Revision

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand periodic waves and sinusoidal current and voltage.	[a]
2.	Understand power calculations.	[a]
3.	Two port circuit analysis.	[b]
4.	Understand balanced three- phase calculations.	[a, k]
5.	Comprehend mutual inductance analysis	[a]
6.	Deal with resonance with AC circuits	[a, k]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	5%
Quizzes and participation	15%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

January, 2018