Course Details:

Title:	Electric Circuits I (610211)
Prerequisite:	Applied Physics (211104)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)
Support Material	Pre-set Tutorials in order to solve problems set
Textbook:	James Nilson and Susan Riedel, Electric Circuits, 10th edition, 2014, Pearson.
References:	• W. Hayt and J. Kemmerly, Engineering Circuits Analysis, 5th edition, Mcgraw-Hill College, 1993. • IEEE Transactions on Electric Circuits
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 circuits. • Understand the techniques to analyze different circuit configuration

Course Outlines:

Week	Topic
1,2	Introduction: Electric Circuits Variables and Elements
3,4	Simple Resistive Circuits
5	Techniques of Analysis: Node-Voltage Method
6	DC Techniques of Analysis: Mesh Current Analysis
7	Techniques of Analysis: Thevinins and Nortons
8	Maximum Power Transfer Theory
9	Inductors and capacitors: Series and Parallel
10, 11	RL, RC: Transient state analysis
12	Steady State Analysis
13	Sinusoidal Response
14	Complex Numbers
15, 16	Frequency Domain Circuits: Impedance and Admitance

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Know the various types and their elements of electric circuits.	[a]
2.	Apply different techniques to analyze electric circuits.	[b]
3.	Solve problem of different electric circuits	[a]
4.	Derive equations related to the circuit's performance and design.	[a, e]

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	10%
Quizzes and participation	10%
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.

May, 2018