COURSE TITLE	ENGLISH CODE /NO	ARABIC CODE/NO.	CONTACT HOURS /WEEK			C.U.
			Th.	Pr.	Tr.	TCU
Electrical Circuits II	**EEN 201**	**هن ك ٢٠١**	**3**	**-**	**1**	**3**
Pre-requisites		**Electrical Circuits I (EEN 100)**				

Instructor:

Hussain Bassi, Assistant Professor

http://hmbassi.kau.edu.sa/

Office Room and Hours: 5-103, Monday and Wednesday 11 am-1 pm

Text book: C. K. Alexander & M. N. Sadiqu, Fundamentals of Electric Circuits, 4th ed., Mc-Graw-Hill, 2009 – ISBN-10: 0077263197 | ISBN-13: 978-0077263195

Supplementary references:

James Nilson & Susan Riedel, "Electric Circuits", 9th ed., Pearson Prentice Hall, 2008 - ISBN-10: 0136114997 | ISBN-13: 978-0136114994

Class Room and Time:

Room 5-102, Monday and Wednesday 9:30 am -10:50 am

Objectives:

On successful completion of this course, student will be able to:

1. Analyse the three-phase systems
2. Identify the two types of resonance circuits
3. Analyse electric circuits with magnetically-coupled elements
4. Express circuit elements into Laplace domain
5. Evaluate the Fourier series coefficients of periodic signals
6. Evaluate the convolution integral form of two signals
7. Evaluate the convolution integral to find the response of electrical circuits
8. Express the graphical method of the convolution integral to find the electrical circuit response
9. Distinguish between one-port and two-port networks
10. Evaluate the different parameters of two-port networks
11. Analyse the terminated and non-terminated two-port networks

Contents:

1- Three-phase circuits
2- Magnetically-coupled circuits
3- Transient analysis via the conventional
4- Laplace methods.
5- Mutual inductance resonance circuits.
6- Response of first-second order RLC circuits
7- Two-port circuits

Course Outcomes:

A-Knowledge:

On successful completion of this course, student will be able to:

1- Define and apply basic terms and relationships involving inductance and capacitance.
2- Define transient analysis via the conventional
3- Define Laplace methods.
4- Define locus diagram
5- Define mutual inductance resonance circuits.
6- Define response of first-second order rlc circuits
7- Define two-port circuits

B-Cognitive Skills:

On successful completion of this course, student will be able to:

1- Evaluate the steady-state conditions of electric circuits based on the circuit configurations.
2- Assess the transient response of first-order and second-order circuits.
3- Analyse solutions for improving the performance of circuits.
4- Analyse linear circuits containing operational amplifiers.
5- Analyse first-order and second-order circuits to determine the complete circuit response.

C- Interpersonal skills and responsibilities:

On successful completion of this course, student will be able to:

1- Evaluate and apply basic electrical laws, components, definitions, and units.
2- Act to formulate circuit equations.
3- Evaluate the important variables in electric circuits.
4- Complete the two-port model representation for resistive electrical networks and to use two port nodes

D- Analysis and communication:

On successful completion of this course, student will be able to:

1. Communicate effectively.
2. Seek appraise information from a wide range of sources.
3. Collaborate and innovate in problem solving.
4. Manage time and resources

Assessment methods for the above elements

1- Written exams (mid-term & final) to assess understanding and scientific knowledge
2- Quizzes to assess ability to solve problems and analyse results independently
3- Project report to assess practical, and presentation skills

Grading system:

Course Project or Reports	10 %
Quizzes	20 %
Mid-term exam	30 %
Final exam	40 %
Total	**100 %**

Course Policies:

1. There will be a quiz for each chapter.
2. Cheating means zero for everyone involved, fully or partially, in the cheating.
3. All participations are getting an alarm five minutes in advance.
4. Course Project or Reports to be determined later (TBD). For now, learn *MATLAB* and *PSpice.*
5. Bring your calculator every time you come to class
6. Write CLEARLY in **pencil or you will lose some points.**
7. Round your answers **to two decimal points**.

Course Contribution to professional Component

Engineering Science: 100%

Engineering Design: 0 %

Time table for distributing theoretical course contents		
Week	**Theoretical course contents**	**Remarks**
1	Circuits I Review	Ch1 – Ch11
2-3	Three-Phase Circuits	Ch 12
3-4	Magnetically Coupled Circuits	Ch 13
4-5	Frequency Response	Ch 14
5 - 6	The Laplace Transform	Ch 15
7	Midterm Exam	
7 - 8	Applications of Laplace Transforms	Ch 16
9 - 10	Fourier Series	Ch 17
13 - 14	Two-Port Networks	Ch 19
15	Project	
	Final exam.	