KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

EE201 -Electric Circuits I

Summer Semester 2010-2011 (103)

EE 201 Electric Circuits I **3, 3, 4**

Basic laws: Ohm's, KVL, KCL. Resistive networks. Circuit analysis techniques: nodal and mesh analysis. Network theorems: Thevenin's, Norton's, source transformations, superposition, maximum power transfer. Energy storage elements. Phasor technique for steady-state sinusoidal response. Important power concepts of ac circuits. Transient analysis of first-order circuits.

Pre-requisite: MATH 102 and PHYS 102

Textbook:

James Nilsson and Susan Riedel, ***Electric Circuits***, 8th edition, Prentice Hall, 2008.

Other reference:

Clayton R. Paul, ***FUNDAMENTALS OF ELECTRIC CIRCUIT ANALYSIS***, 1st Edition, Wiley & Sons. Inc. 2001.

Tentative Schedule:

Wk	Date	Topics	Text	Laboratory/Tutorial
1	Jun. 25	Circuits Variables, Sources, Power and Energy, Ohm's law, KCL, KVL.	1.1-1.6, 2.1-2.4	No Meeting
2	Jul. 02	Dependent Sources, Resistive Circuits.	2.5, 3.1-3.4, 3.7	Exp # 1 : Electrical circuits simulation using Multisim Electronics Workbench : An Introduction Exp #2 : Electric circuit fundamentals
3	Jul. 09	Nodal Analysis and Mesh Analysis.	4.1-4.8	Exp # 3 : Resistors in series, color codes & power rating Problem session
Major Exam I (1.1 – 4.8), Mon. 18th Jul. (7:00-10:00 pm) – Building 59 – Room 1001*				
4	Jul. 16	Source Transformations, Thevenin and Norton Equivalent Circuits, Maximum Power Transfer, Superposition.	4.9-4.13	Exp # 4 : Kirchhoff's laws Exp # 5 : Series & parallel circuits, voltage divider & current divider rules
5	Jul. 23	Operational Amplifiers, Inductors, Capacitors.	5.1-5.6 6.1-6.3	Exp # 6 : Superposition theorem Exp # 7 : Thevenin's theorem and maximum power transfer
6	Jul. 30	First Order Circuits.	7.1-7.7	Problem session Exp # 8 : Transients of a first order RC circuit
*Major Exam II * (4.9 – 7.7), Wed. 3rd Aug. (7:00-9:00 pm)*				
7	Aug. 6	Sinusoidal Response, Complex Numbers, Frequency Domain Analysis.	9.1-9.2, App. B. 9.3-9.7	Exp # 9 : The oscilloscope and function generator Exp # 10 : Sinusoidal AC analysis
8	Aug. 13	Frequency Domain Analysis, Average and Reactive Power, Complex Power Maximum Power Transfer.	9.8, 9.9, 9.12 10.1-10.6	Final Lab Exam No Meeting
Final Exam Thursday 18 August 2011 at 09:00 AM				

Course Outcomes:

1) Apply knowledge of mathematics, science, and engineering to the analysis and design of electrical circuits.
2) Identify, formulate, and solve engineering problems in the area circuits and systems.
3) Use the techniques, skills, and modern engineering tools such as pspice, workbench, necessary for engineering practice.
4) To function on multi-disciplinary teams through the electric circuits experiments and projects.
5) To design an electric system, components or process to meet desired needs within realistic constraints.

Grading:

Class work (20 %):	Quizzes (10 marks), Assignments (6 marks), and one design problem (4 marks).
Two Major Exams (30%):	Common exams. Location of major exams will be reserved and posted by each section instructor.
Laboratory (20%):	Reports (7 marks), performance and/or quizzes (3 marks), Theoretical final exam (5 marks), Experimental final exam (5 marks).
Final Exam (30%):	Common and Comprehensive

Suggested Practice problems:

HW #01: 1.12, 1.13, 1.19, 1.26, 2.4

HW #02: 2.6, 2.12, 2.20, 2.25, 2.26

HW #03: 2.28, 2.29, 3.4, 3.7(c), 3.8

HW #04: 3.13, 4.3, 4.15, 4.19, 4.25, 4.27, 4.29

HW #05: 4.51, 4.52, 4.55, 4.56, 4.59

HW #06: 4.60, 4.63, 4.67, 4.68, 4.70

HW #07: 4.73, 4.75, 4.86, 4.88

HW #08: 5.2, 5.10, 5.13, 6.2, 6.4, 6.13

HW #09: 7.4, 7.10, 7.11, 7.21, 7.35

HW #10: 7.46, 7.47, 7.63, 7.84, 9.1, 9.6, 9.8

HW #11: 9.9, 9.10, 9.13, 9.14

HW #12: 9.15, 9.26, 9.32, 9.36

HW #13: 9.51, 10.1, 10.3, 10.4, 10.7

HW #14: 10.9, 10.17, 10.19, 10.22, 10.29

Important Points to Remember:

1. **Practice Problems:** Practice problems are to be solved completely by the students. Solutions will not be collected but it will be posted in ***Blackboard CE8*.** Different assignments will be given as homework.
2. **Pre-Labs**: Each student must submit the pre-lab. Assignment at the beginning of each lab. (no pre-labs. for the first two experiments). No pre-lab will be accepted for an experiment that has already started.
3. **Lab. Makeup:** No lab makeup will be allowed without an official excuse from students affairs.
4. **Attendance:** According to the university regulations, any student that exceeds 20% (8 lectures) of the scheduled class meeting without an official excuse will receive a grade of DN in the course.
5. **Official Excuses**: All official excuses must be submitted to the instructor no later than one week of the date of the official excuse. The instructor may not accept late excuses.
6. **Course Lectures:** They are available online through the ***Open Courseware***. You are strongly encouraged to systematically review those online lectures to enhance your understanding of the course material.

Instructor	Office	Sec	Phone	E-mail	Office Hours
Dr. Oualid Hammi	**59/0012-5**	**1 & 2**	**7394**	**ohammi@kfupm.edu.sa**	SUMTW 11:30AM -12:00PM or by appointment

This information and more will be available on Blackboard CE8