KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
ELECTRICAL ENGINEERING DEPARTMENT
EE204 - Fundamentals of Electric Circuits
FIRST SEMESTER 2010-2011 (Term 101)

Instructor	Office	Sec	Phone	E-mail	Office Hours
Dr. Oualid Hammi	B59/0012-5	5&7	7394	ohammi@kfupm.edu.sa	**SM: 9:00AM-10:00AM** **UT: 2:00PM-3:00PM**

EE 204 Fundamentals of Electric Circuits   2, 3, 3

Basic laws: Ohm's, KVL, KCL. Resistive networks, mesh and node equations. Network theorems. Inductance and capacitance. Sinusoidal analysis and phasor methods. Power concepts of AC circuits. Polyphase circuits**.**

Pre-requisite: MATH 102 and PHYS 102

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

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

Tentative Schedule:

Wk	Date	Topics	Text	Laboratory/Tutorial
1	Sep 25	Voltage, Current , Power, KCL, KVL	1.2 – 1.6	No Meeting
2	Oct 2	Conservation of power, Series & Parallel Connection of Elements, Ohm's Law	1.7 – 1.8, 2.1 – 2.2	No Meeting
3	Oct 9	Single loop and single node-pair circuits Resistors in Series and in Parallel, Voltage and Current Division	2.3 – 2.5	**Exp #1** Resistors and Ohm's Law
4	Oct 16	Direct Method, Source Transformation	2.6, 2.7	**Exp #2** Kirchhoff's Laws
5	Oct 23	Principle of Superposition, Review	3.1	**Problem Session # 1**
Major Exam I, Wed. October 27th (7:00-9:00 PM) (1.2-2.7) Location set by Section Instructor					
6	Oct 30	Thevenin Theorem, Norton Theorem, Maximum Power Transfer	3.2 – 3.4	**Exp#3a** Computer Simulation of DC Circuits
7	Nov 6	Node Voltage Method, System of Equations	3.5	**Exp #3b** Experimental Part
Midterm Vacation 11-21 November 2010.					
8	Nov 20	Mesh Current Method, System of Equations	3.6	**Exp #4** Current & Voltage Divider
9	Nov 27	Mesh Current Method, Capacitors, Inductors,	3.6, 5.1 – 5.2,	**Exp#5** Superposition, Thevinin & Norton Theorems
10	Dec 4	Series and Parallel Connections of inductors and capacitors, review	5.4	**Problem Session # 2**
Major Exam 11, Wed, December 8th (7:00-9:00 PM) (3.1-5.4) Location set by Section Instructor					
11	Dec 11	Sinusoidal Source, Complex Numbers, Frequency Domain Analysis	6.1-6.3	**Exp #6a** Frequency Domain Analysis
12	Dec 18	Frequency Domain Analysis, Power concepts	*6.4-6.6.1;*	**Exp #6b** Frequency Domain Analysis
13	Dec 25	Power Factor, Superposition of Average power	*6.6.2, 6.6.4*	**Exp #7** Max. Power Transfer
14	Jan 1	Superposition of Average power, Maximum power transfer	6.6.4, 6.6.3;	**Exp #8** Average and RMS Values
15	Jan 8	RMS Values, Commercial Power Distribution, Three Phase Circuits, Star-Delta Connections,	6.6.5, 6.9; 6.9.1; 6.9.2	**Final Lab Exam**
16	Jan 15	review		
Final Exam (Comprehensive) 12:30 PM January 20, 2011 Thursday					

Course Outcomes:

<u>Outcome1</u>:   An ability to apply knowledge of mathematics, science, and engineering to the analysis and design of electric circuits

<u>Outcome 2</u>:   An ability to identify, formulate, and solve engineering problems in the area of circuits.

<u>Outcome 3</u>:   An ability to use the techniques, skills, and modern programming tools such as PSPICE, necessary for engineering practice.

<u>Outcome 4</u>:   An ability to function on multi-disciplinary teams

<u>Outcome 5</u>:   An ability to design a system, components or process to meet desired needs within realistic constraints

Grading:

Class work (15 %):	**3 homework problems (6 marks), 6 quizzes (6 marks), and one design problem (3 marks).**
Two Major Exams (15% each)	**Common exams. Location of major exams will be reserved and posted by each section instructor.**
Laboratory (20%):	**reports (7 marks), prelab (3 marks), performance (2 marks), theoretical final exam (4 marks), experimental final exam (4 marks).**
Final Exam (35%):	**Common and Comprehensive**

Suggested Practice problems:

HW # 1	Ch. 1:	1.3-1, 1.4-5, 1.5-5, 1.6-2, 1.6-6, 1.7-2, 1.8-2
HW # 2	Ch. 2:	2.2-5, 2.2-7, 2.3-2, 2.3-8, 2.4-3, 2.4-10, 2.5-7, 2.5-11
HW # 3	Ch. 2: & Ch. 3:	Ch.2: 2.6-4, 2.7-3, 2.7-5, Ch.3: 3.1-2, 3.1-4, 3.2-2, 3.2-4
HW # 4	Ch. 3:	3.2-6, 3.2-12, 3.3-2, 3.3-4, 3.3-6, 3.3-12
HW # 5	Ch. 3:	3.5-2, 3.5-7, 3.6-2, 3.6-7
HW # 6	Ch. 5:	5.1-3, 5.1-6, 5.1-8, 5.2-3, 5.2-6, 5.2-8, 5.4-2
HW # 7	Ch. 6:	6.1-1(b,f), 6.1-2(a,f,g), 6.2-1(d,f), 6.2-5(b,d)
HW # 8	Ch. 6:	6.3-4, 6.3-7, 6.4-4, 6.4-7, 6.4-12
HW # 9	Ch. 6:	6.4-16, 6.4-17, 6.5-1, 6.5-4, 6.5-8

Important Points to Remember:

1. **Practice Problems:** Practice problems are to be solved completely by the students (they are not for submission). Solutions will be posted in ***Blackboard CE8.***

2. **Homework**: Your Instructor will provide you with 4 homework sets to be submitted for grading

3. **Problem Sessions**: All problem sessions will be held during the lab periods.

4. **Lab. Makeup:** No lab makeup will be allowed without an official excuse from students affairs.

5. **Attendance:** According to the university regulations, any student that exceeds 20% of the scheduled class meeting without an official excuse will receive a grade of DN in the course.

6. **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.

This information and more will be available on Blackboard CE8