



KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
ELECTRICAL ENGINEERING DEPARTMENT
EE204 - Fundamentals of Electric Circuits
SECOND SEMESTER 2009-2010

Instructor	Office	Sec	Phone	E-mail	Office Hours
Dr. Oualid Hammi	59/0012-5	4 & 10	7394	ohammi@kfupm.edu.sa	SUMT: 11:00 – 12:00

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	Feb 20	Voltage, Current, Power, KCL, KVL	1.2 – 1.6	No Meeting
2	Feb 27	Conservation of power, Series & Parallel Connection of Elements, Ohm's Law	1.7 – 1.8, 2.1 – 2.2	No Meeting
3	Mach 6	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	Mach 13	Direct Method, Source Transformation	2.6, 2.7	Exp #2 Kirchhoff's Laws
5	Mach 20	Principle of Superposition, Review	3.1	Problem Session # 1
<i>Major Exam I, Wed. 24 March (7:00-9:00 PM) (1.2-2.7) Location set by Section Instructor</i>				
6	Mach 27	Thevenin Theorem, Norton Theorem, Maximum Power Transfer	3.2 – 3.4	Exp#3a Computer Simulation of DC Circuits
7	April 3	Node Voltage Method, System of Equations	3.5	Exp #3b Experimental Part
8	April 10	Mesh Current Method, System of Equations	3.6	Exp #4 Current & Voltage Divider
<i>Midterm Vacation 17-21 April 2010.</i>				
9	April 24	Capacitors, Inductors, Series and Parallel Connections	5.1 – 5.2, 5.4	Exp#5 Superposition, Thevinin & Norton Theorems
10	May 1	Sinusoidal Source, Complex Numbers, review	6.1 – 6.2	Problem Session # 2
<i>Major Exam II, Wed, 5th May (7:00-9:00 PM) (3.1-5.4) Location set by Section Instructor</i>				
11	May 8	Frequency Domain Analysis	6.3 – 6.5	Exp #6a Frequency Domain Analysis
12	May 15	Power Concepts, Power Factor	6.6; 6.6.1; 6.6.2	Exp #6b Frequency Domain Analysis
13	May 22	Superposition of Average power	6.6.4	Exp #7 Max. Power Transfer
14	May 29	Maximum power transfer, RMS Values	6.6.3; 6.6.5	Exp #8 Average and RMS Values
15	June 5	Commercial Power Distribution, Three Phase Circuits, Star-Delta Connections, review	6.9; 6.9.1; 6.9.2	Final Lab Exam
Final Exam (Comprehensive) 7: 30 AM June 13, 2010 Sunday				

Course Outcomes:

- Outcome 1: An ability to apply knowledge of mathematics, science, and engineering to the analysis and design of electric circuits
- Outcome 2: An ability to identify, formulate, and solve engineering problems in the area of circuits.
- Outcome 3: An ability to use the techniques, skills, and modern programming tools such as PSPICE, necessary for engineering practice.
- Outcome 4: An ability to function on multi-disciplinary teams
- Outcome 5: An ability to design a system, components or process to meet desired needs within realistic constraints

Grading:

- Class work (15 %):** 4 homework problems (6 marks), 4 quizzes (6 marks), and one design problem (3 marks).
- Two Major Exams (15%+15%=30%):** 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:

- Practice Problems:** Practice problems are to be solved completely by the students (they are not for submission). Solutions will be posted in **Blackboard CE8**.
- Homework:** Your Instructor will provide you with 4 homework sets to be submitted for grading
- Problem Sessions:** All problem sessions will be held during the lab periods.
- Lab. Makeup:** No lab makeup will be allowed without an official excuse from students affairs.
- 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.
- 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