King Fahd University Of Petroleum & Minerals
Department of Electrical Engineering
EE-204 Fundamentals of Electric Circuits

2018 Second Semester (172)

INSTRUCTOR	OFFICE	Sections	PHONE	E-MAIL	OFFICE HOURS
Dr. Samir H. Abdul-Jauwad	59-1070	3&4	860-2337	samara@kfupm.edu.sa	Sunday, Tuesday 10:00-12:00

Basic laws: Ohm's law, KVL, KCL. Resistive networks. Circuit analysis techniques: node-voltage and mesh-current. Network theorems. Inductance and capacitance. Sinusoidal analysis and phasor methods. Power concepts of AC circuits. Polyphase circuits.
Prerequisites: MATH 102 and PHYS 102
Textbook: Clayton Paul, *FUNDAMENTALS OF ELECTRIC CIRCUIT ANALYSIS*, Wiley & Sons. Inc., 2001.

Tentative Schedule:

Week		Topic	Reading Assignment	Laboratory*
1	21-25 Jan	Introduction, Basic Definitions, KCL, KVL	1.2 – 1.6	No meeting
2	28 Jan-1 Feb	Conservation of power, Series & Parallel Connection of Elements, Ohm's Law	1.7 – 1.8, 2.1 – 2.3	Exp #1: Lab Safety rules and Introduction to Multisim
3	4 - 8 Feb	Resistors in Series and in Parallel, Voltage and Current Division	2.4 – 2.6	Exp #2 Resistors and Ohm's Law
4	11 -15 Feb	Source Transformation, Principle of Superposition	2.7, 3.1	Exp #3: Kirchhoff's Laws
5	18-22 Feb	Thevenin's Theorem, Norton Theorem	3.2 – 3.3	No meeting
First Major Exam: Wednesday 21 Feb, 2018 (90 minutes) selected between 6:00PM-7:30PM **tentative time**, (1.2-2.7)				
6	25 Feb-1 Mar	Maximum Power Transfer, Node Voltage Method	3.4 – 3.5	Exp #4: Current & Voltage Divider Rules
7	4 –8 Mar	Node Voltage Method, Mesh Current Method	3.5 (Cont.)– 3.6	Exp#5 Superposition
8	11 -15 Mar	Capacitors, Inductors, Series and Parallel Connections	5.1 – 5.2, 5.4	Exp #6: Thevenin's / Norton's Theorems & Maximum Power Transfer
9	18-22 Mar	Sinusoidal Source, Complex Numbers, Frequency Domain (Phasor) Circuit.	6.1 – 6.3	Exp # 7: The Oscilloscope and Function Generator
10	25-29 Mar	Frequency Domain Analysis	6.4 – 6.5	**Experimental Test**
11	1 -5 Apr	Power Concepts	6.6	No meeting
Second Major Exam: Sunday 1st April, 2018 (90 minutes) selected between 6:30PM-8:00PM **tentative time**, (3.1-5.4)				
12	8 -12 Apr	Average Power	6.6	Exp #8: Frequency Domain Analysis
13	15-19 Apr	Power Factor, RMS Values	6.6	Exp #9: Maximum Power Transfer
14	22-26 Apr	Commercial Power Distribution, Three Phase Circuits	6.9	Exp #10: Average and RMS Values
15	29 Apr-3 May	Review	6.9	**Final Lab Exam**
Final Exam: Comprehensive				

Grade Distribution (Exams may and can be all multiple choice type):

Class work**	Major I***	Major II***	Laboratory	Final Exam
15%	**20%**	**20%**	**20%**	**25%**

Course Outcomes

Upon the successful completion of this course, you should be able to

1. Apply knowledge of mathematics, science, and engineering to the analysis and design of electric circuits.
2. Identify, formulate, and solve engineering problems in the area of circuits.
3. Use the techniques, skills, and modern programming tools such as PSPICE, necessary for engineering practice.
4. Participate and function within multi-disciplinary teams.

Practice problems(not to be submitted):

PP # 1	Ch. 1:	1.3-1, 1.4-5, 1.5-5, 1.6-2, 1.6-6, 1.7-2, 1.8-2
PP # 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
PP # 3	Ch. 2:	Ch.2: 2.6-4, 2.7-3, 2.7-5,
PP # 4	Ch. 3:	3.2-6, 3.2-12, 3.3-2, 3.3-4, 3.3-6, 3.3-12
PP # 5	Ch. 3:	3.5-2, 3.5-7, 3.6-2, 3.6-7
PP # 6	Ch. 5:	5.1-3, 5.1-6, 5.1-8, 5.2-3, 5.2-6, 5.2-8, 5.4-2
PP # 7	Ch. 6:	6.1-1(b,f), 6.1-2(a,f,g), 6.2-1(d,f), 6.2-5(b,d)
PP # 8	Ch. 6:	6.3-4, 6.3-7, 6.4-4, 6.4-7, 6.4-12
PP # 9	Ch. 6:	6.4-16, 6.4-17, 6.5-1, 6.5-4, 6.5-8
PP # 10	Ch. 6:	6.6-1, 6.6-5, 6.6-14, 6.6-17, 6.6-21, 6.9-4

Important Points to Remember

1. **Attendance:** Deduction of 1/3 points from the class work before averaging for any absence. According to the university regulations, any student that **exceeds 20% (6 lectures)** of the scheduled class meeting without an official excuse **or more than 1/3** absences with official excuses is considered DN (**DN can be given for lab absences as posted in the lab syllabus**). A grade DN will be given if minimum attendance is not met as stated in the undergraduate bulletin.
2. **Official excuses:** Only official excuses obtained from the Students Affairs are accepted **(if submitted within a week of the absence)**. Personal excuses are not accepted.
3. **No make-up** will be provided for quizzes/homework. If an official excuse (that specifically includes exam) exists, then the student will be given the average of his marks in his quizzes/homework.
4. Mobiles are **not allowed** during exams or quizzes. BRING YOUR OWN CALCULATOR DURING EXAMS AND QUIZZES (NO MOBILES).
5. NO FOOD OR DRINKS IN THE CLASS ROOM.