

In the name of Allah, Most Gracious, Most Merciful.
KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
Electrical Engineering Department
EE 205-3 (59-2025, 10:00-11:15 am)
ELECTRIC CIRCUITS II, SPRING 2009/2010 (092) Schedule



Text Book: *ELECTRIC CIRCUITS*, Nilsson & Riedel, 8th Edition, 2005 & Handout

Instructor: Ali Hussein Muqaibel, Ph.D., **Office:** 59-1088

Office Hours: (Sun 11:20-11:50am, Monday 10:30-11:50am, Tuesday 5:15-6:15PM), Please check my website for updated office hours.

Tel: 1595 **E-mail:** muqaibel@kfupm.edu.sa,

Course web site in WebCT <http://webcourses.kfupm.edu.sa>

My Web: <http://faculty.kfupm.edu.sa/ee/muqaibel/>

Wk	Date	Topics	Text	Quizzes/Exams
1	21-23 Feb.	Introduction to three-phase circuits	11.1-11.3	
2	28- 2 March	Balanced three-phase circuits	11.4-11.6	Q1 (Material: 11.1-11.3)
3	7-9 March	Natural and step responses of RLC circuits	8.1-8.2	
4	14-16 March	Natural and step responses of RLC circuits	8.3-8.5	Q2(Material: 8.1-8.3)
First Major Exam, Wednesday 24th of March, 2010, 7:00-9:00 pm (Material: Weeks 1-4, See below)				
5	21-23 March	State equations and computer aided circuit analysis	HO (7.1-7.2)**	Exam 1
6	28-30 March*	State equations and computer aided circuit analysis	HO (7.3-7.4)	
7	4-6 April	Resonant circuits	HO (10.1, 10.3)	Q3 (Material: HO 7.1-7.4)
8	11-13 April	Resonant circuits, Circuit analysis in s-domain	HO (10.4-10.5)	
Midterm Vacation, Sat. 17 - Wed. 21 April 2010				
9	25-27 April	Circuit analysis in s-domain, Mutual inductance and transformers	HO (10.5) 6.4-6.5	Q4 (Material: HO 10)
10	2-4 May	Mutual inductance and transformers	9.10, 9.11	Q5 (Material: 6+9)
Second Major Exam, Saturday 8th of May, 2010, 7:00-9:00 pm (Material: Weeks 5-10, See below)				
11	9-11 May	Filters and Bode plot	14.1-14.5	Exam 2
12	16-18 May	Filters and Bode plot	Appendix E (E.1-E.4)	
13	23-25 May	Two-port networks	18.1-18.2	Q6 (Material: 14+App)
14	30-1 June	Two-port networks	18.3-18.4	
15	6-8 June	Review		
EE 205 Final Examination, Monday 7:30 am, 14th of June 2010				

* Last day for dropping the course with grade of W is Wednesday 31st of March 2010.

** HO means Handouts

Grade Distribution:

Major Exams	40%	(Each 20 %)
Class Work	25%	(6 Quizzes 12 %, Attendance 3%, Projects/Assignments 10 %)
Final Exam	35%	(Comprehensive)

First Major Exam's Material: "Balanced three-phase circuits" and "Natural and step responses of RLC circuits".

Second Major Exam's Material: "State equations and computer aided circuit analysis", "Resonant circuits", "Circuit analysis in s-domain", and "Mutual inductance and transformers".

Homework List: Available through website/ WebCT

Computer Assignments: Will be explained later in separate documents.

Important Points to Remember

- Homework:** Homework is to be solved completely by students as soon as the material is covered in the class. A quiz will be given on **Tuesdays** according to the above table. Homework solutions will be posted.
- Website/WebCT:** All course related material, assignments, announcements, and communications will be posted through Website/WebCT. Students are advised to check the site on regular bases for information.
- Information:** Students are responsible about all information discussed in the class and/or shown on Web.
- 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. Every unexcused absence results in -0.5 , 6 absences results in 0 out of 3 in the attendance and class performance, Two late arrival= One absence.
- Official excuses:** All official excuses must be submitted to the instructor no later than one week of the date of the official excuse. A late excuse may not be accepted by the instructor.
- Work:** This course is one of the most important courses of the Electrical Engineering Dep. and requires hard work and continuous attention. Therefore, it is advisable that students exert extra efforts to understand it.

King Fahd University of Petroleum and Minerals

Electrical Engineering Department

EE205: ELECTRIC CIRCUITS II

Course Description

Analysis of three-phase circuits. Time domain solutions of second order circuits. State equations for linear circuits. Computer-aided circuit analysis. Frequency domain analysis and bode plots. Network analysis in the s-domain. Mutual inductance and transformers. Two port networks.

Prerequisite(s) EE201 (Electrical Circuits I)

Other useful references and material

1. Elementary linear circuit analysis, 2nd Ed., 1987, by Leonard S. Bobrow, Holt, Rinehart & Winston Inc.
2. Introductory Circuit Analysis, 7th Ed., 1994, by R.L. Boylestad, Merrill.

Course objectives:

After successfully completing the course, the students will be able to

- understand basic concepts of DC and AC circuit behavior.
- develop and solve mathematical representations for simple RLC circuits.
- understand the use of circuit analysis theorems and methods.

Class/Laboratory Schedule: 3 lectures per week, 50 minutes each or 2 lectures per week 75 inutes each.

Contribution of course to meeting the professional component

The students will model electrical systems. They build on what was acquired in Electrical Circuits I, and are introduced to higher order systems and complex frequency domain. The course will emphasize the use of computer aided circuit analysis, modifying the circuit and system behaviors to achieve the desired performance. Design projects are assigned and intended to build the students' ability to design a system and its components to meet required specifications.

Relationship of Course to program outcomes

This course supports the following four program outcomes out of thirteen outcomes required by ABET Criterion 5 for accrediting engineering program.

- An ability to apply knowledge of mathematics, science, and engineering to the analysis and design of electrical circuits
- An ability to identify, formulate, and solve engineering problems in the area circuits and systems.
- An ability to use the techniques, skills, and modern engineering tools such as computer aided circuit analysis, necessary for engineering practice.
- An ability to design a system, components or process to meet desired needs within realistic constraints such as economic, environmental, social political, ethical, health and safety, manufacturability and sustainability