

*In the name of Allah, Most Gracious, Most Merciful.*  
**KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS**  
 Electrical Engineering Department  
**EE213-132 Syllabus**



**Instructor:**

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**Office Hours:** Sunday and Tuesday 10:30 AM – 12:30 PM

**Course Description :**

Important power concepts of AC circuits. Three phase circuits. s-domain analysis. Frequency selective circuits.  
 Two-port networks. Transformers.

**Prerequisites :** EE202 (Electrical Circuits I)

**Textbook :**

James W. Nilsson & Susan A. Riedel, *Electric Circuits* (9<sup>th</sup> Edition), 2011, Prentice Hall, ISBN 0-13-127760-X.

**Other useful references and material :**

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

W k	Topics	Text	Experiments
1	Mutual Inductance and Transformers	6.4-6.5	No lab
2	Linear Transformers, Ideal Transformers	9.10-9.11	Experiment 1
3	Introduction to power calculation, Instantaneous Power	10.1-10.2	Experiment 2
4	Real and Reactive Power	10.3-10.4	Experiment 3
5	Complex Power, Power Factor, Max Power Transfer	10.5-10.6	Experiment 4
<b>First Major Exam (Material: Weeks 1-5) Thu. 27<sup>th</sup> Feb. 2014 at 6:00 - 7:30 PM</b>			
6	Introduction to three-phase circuits	11.1-11.3	Experiment 5
7	(Starting Mon 21) Balanced three-phase circuits	11.4-11.6	Experiment 9
8	Complex s-Frequency, Circuit Elements in the s-Domain	13.1-13.2	Experiment 6
<b>Midterm BREAK 23 March -27 March</b>			
9	s-Frequency Circuit Analysis, Transfer Functions	13.3-13.4	Experiment 8
10	Transfer Functions, Natural and Steady-State Response	13.7-13.8	Experiment 7
<b>Second Major Exam (Material: Weeks 6-10) Sun. 13<sup>th</sup> April. 2014 at 6:30-8:00 PM</b>			
11	Introduction to Frequency Selective Circuits	14.1-14.2	Design Project
12	Filter Types, Bode Plots	14.3-14.5, App. E	Design Project
13	Resonant Circuits	HO (10.3)	Experiment 10
14	Two-port Circuits	18.1-18.2	Experiment 11
15	Two-port Circuits	18.3-18.4	Lab Final
<b>EE 213 Final Examination Thursday May. 22 at 8:00 AM</b>			

**Grade Distribution:**

<b>Major Exams</b>	30%	(Each 15 %)
<b>Class Work</b>	20%	(Quizzes 10 %, Term paper 5 %, HW 5 %)
<b>Lab</b>	20%	(Reports 7 %, Performance, Quizzes 6 %, Lab. Final 7 %)
<b>Final Exam</b>	30%	(Comprehensive)

**Homework List:** Will be distributed through Blackboard site.

### Important Points to Remember

1. **Homework:** Homework is to be solved completely by students. Homework solutions will be posted on Blackboard.
2. **Blackboard:** All course related material, assignments, announcements, and communications will be posted through Blackboard. Students are advised to check the site on regular bases for information.
3. **Information:** Students are responsible about all information discussed in the class and/or shown on Blackboard site.
4. **Attendance:** According to the university regulations, any student that exceeds 20% (6 abs) 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. A late excuse may not be accepted by the instructor.
6. **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.

## List of Experiments

Experiments #	Title
1	Introduction to Electric Circuits Simulation and Testing
2	Electric Circuits Fundamentals Laws
3	Voltage & Current Dividers and Superposition Principle
4	Equivalent Source Models and Maximum Power Transfer
5	The Oscilloscope and Function Generator
6	Sinusoidal AC Circuit Analysis
7	Three-Phase Circuits
8	Transient Circuit Analysis
9	Transformer Circuits
10	Frequency Selective Circuit Analysis
11	Two-Port Networks