

Syllabus for
EE 311—Network Analysis II
3 Credit Hours
Fall 2008

I. COURSE DESCRIPTION

Continuation of EGR 210. Topics covered include impulse and sinusoidal responses of second-order networks, two-port theory, design of filters, Fourier transforms and La Place transforms. Includes application of MATLAB.

Prerequisite: EGR 210

Course fee: \$35

II. COURSE GOALS

The University recognizes several general outcomes that arise from pursuing an education at ORU. Of these, the following three outcomes are expected as a result of taking this course:

- A. Problem Solving and Analysis: The purpose of this course is to enable the student to study the AC steady-state power in single- and three-phase circuits, analyze fundamental linear systems using Fourier and Laplace transform. A design project will synthesize a bandpass filter using the knowledge learned.
- B. Communication: The student will learn to express their ideas coherently and effectively in written form, in examination and in research papers.
- C. Global Perspectives and Citizenship: Students will recognize world-wide concerns and how they apply to the individual. They will discover the types of human behavior which create stress on the physical environment

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

The students who successfully complete this course will be able to do the following:

- A. Solve problems relating to electrical networks.
- B. Apply mathematical theory to electrical network analysis.
- C. Analyze and design practical electrical circuits.
- D. Integrate computer simulation software into the electrical network design process.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

Required Materials

Textbook

James W. Nilsson and Susan A. Riedel. Electric Circuits. 7TH ed. Upper Saddle River, NJ: Prentice-Hall, 2005.

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

- 1. Attendance at each class or laboratory is mandatory at Oral Roberts University.

Latest Revision: F-2007

- Excessive absences can reduce a student's grade or deny credit for the course.
2. Students taking a late exam because of an unauthorized absence are charged a late exam fee.
 3. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, video, multimedia, or computer software. By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means.
 4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
 5. Students are to be in compliance with University, school, and departmental policies regarding ePortfolio requirements. Students should consult the ePortfolio handbooks for requirements regarding general education and the students' majors.
 - a. The penalty for not submitting electronically or for incorrectly submitting an ePortfolio artifact is a zero for that assignment.
 - b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Course Policies and Procedures

1. Assessment Criterion:

Homework	20%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Final Project	20%

Total	100%

2. ePortfolio Requirements

None.

3. Handouts, etc

Lecture handouts and homework assignments cannot be scheduled in advance. They will be distributed and announced during each lecture. If a student misses a class, the relative information must be obtained from his/her classmate who attended the class. The instructor will neither loan his notes nor give an individual repeat of the lecture.

4. Homework:

The primary way to acquire the working knowledge of the material in this course is to do as many hands-on exercises as possible. A certain amount of homework, if any, will be assigned at the end of each lecture and will be due at the beginning of the following lecture. No late assignments will be accepted. Assignments from those who are absent without any valid reason will not be accepted. Your work should be neat and follow the recommended format below.

Given: List out the necessary information given by the question and, if necessary, draw a schematic diagram;

Solve for: State what is to be determined;

Solution: Explain all the symbols used and show detailed workings about how the solution is obtained.

4. Academic Honesty:

The students are strongly encouraged to work out the solutions of the homework on their own. Discussions in doing the homework are permissible. But copying homework solutions from other classmates is considered dishonest and is absolutely forbidden. Dishonesty in an exam, if detected, will lead immediately to a failing grade for the course and will be reported to the Dean of Arts and Sciences.

5. Attendance:

The students are expected to be punctual for classes. It will incur one absence for every two times they are late. The first three absences will not result in a grade deduction. Each absence thereafter will result in a 1% grade deduction in the final score (10% maximum). The absences allowed prior to grade reduction are designed to accommodate emergencies and illnesses but not for indiscriminate use. The final score will be increased by 1% for perfect attendance

V. COURSE CALENDAR

Homework 1 : AO 10.1 (a) (c), 10.4 , 10.6

Homework 2 : Prob. 10.1, 10.14

Homework 3 : Prob. 10.15, 10.17, 10.33, 10.34

Homework 4 : Prob. 11.5, 11.9, 11.12, 11.14, 11.16

Homework 5 : Prob. 12.1, 12.6, 12.13 (a) (b) (c) (d)

Homework 6 : Prob. 12.14 (a) (b), 12.8 (a) (c)

Homework 7 : Prob. 12.21, 12.27, 12.37 (a) (d), 12.44 (a) (d)

Homework 8 : Prob. 13.4, 13.5, 13.10

Homework 9 : Prob. 13.13, 13.26, 13.46

Homework 10 : Prob. 14.5, 14.8, 14.12, 14.23

Homework 11 : Prob. 16.1, 16.2, 16..3

Homework 12 : AO. 17.3., 17. 4, 17.5, 17.7 Prob. 17.5

Lecture Date	Topic	Chapter	Reading Section	Homework
8/15	Review Network Analysis I	1-4	None	None
8/18	Review Network Analysis I	6, 9	None	None
8/20	Instantaneous power and average power	10	10.1, 10.2	None
8/22	Reactive power and complex power	10	10.3	1
8/25	Power calculation	10	10.4	2
8/27	Maximum power transfer	10	10.5	3
8/29	Three phase voltage source	11	11.1, 11.2	None
9/1	Lab Day	No Class	None	None
9/3	Wye-Wye circuit and Wye-Delta Circuit	11	11.3, 11.4	None
9/5	Three phase power calculation and measurement	11	11.4, 11.5	4
9/8	Review class for Exam 1	None	None	None
9/10	Exam 1	None	None	None
9/12	Discussion of Exam 1	None	None	None
9/15	Definition of the Laplace transform	12	12.1	None
9/17	Laplace transforms of special functions	12	12.2, 12.3	None
9/19	Functional transforms and operational transforms	12	12.4, 12.5	5
9/22	Applying Laplace transforms and Inverse transform	12	12.6, 12.7	7
9/24	Initial- and final –value theorems	12	12.8, 12.9	7
9/26	Circuit analysis in S domain	13	13.1, 13.2	None
9/29	Transfer function	13	13.3, 13.4	8

10/1	Partial fraction expansion	13	13.5, 13.6, 13.7	9
10/3	Review class for Exam 2	None	None	None
10/6	Class practice	12, 13	12, 13	None
10/8	Exam 2	None	None	None
10/10	Discussion of Exam 2	None	None	None
10/13-17	Fall Break			
10/20	Frequency selective circuits	14	14.1, 14.2	None
10/22	High-pass filter	14	14.3	None
10/24	Band-pass filter	14	14.4	10
10/27	Band-reject filter	14	14.5	None
10/29	Pspice project design			
10/31	Fourier Series	16	16.1, 16.2, 16.3	None
11/3	An alternative form	16	16.4	None
11/5	Exponential form	16	16.6, 16.7, 16.8	11
11/7	Fourier Transform and Convergence	17	17.1, 17.2	None
11/10	Laplace transform and Fourier transform	17	17.3, 17.4	None
11/12	Properties and applications	17	17.5, 17.6, 16.7	12
11/14	Review class for Exam 3	None	None	None
11/17	Class practice	14, 16, 17	14, 16, 17	None
11/19	Exam 3	None	None	None
11/21	Discussion of Exam 3	None	None	None
11/24	About final project			
11/26-28	Thanksgiving	No Class	None	None
12/1-12/12	Final Project	None	None	None

Course Inventory for ORU's Student Learning Outcomes

EE 311 – Network Analysis II Fall 2008

This course contributes to the ORU student learning outcomes as indicated below:

Significant Contribution – Addresses the outcome directly and includes targeted assessment.

Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.

Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

No Contribution – Does not address the outcome.

The Student Learning Glossary at <http://ir.oru.edu/doc/glossary.pdf> defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities		Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
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1	Outcome #1 – Spiritually Alive Proficiencies/Capacities				
1A	Biblical knowledge				√
1B	Sensitivity to the Holy Spirit				√
1C	Evangelistic capability				√
1D	Ethical behavior			√	

2	Outcome #2 – Intellectually Alert Proficiencies/Capacities				
2A	Critical thinking	√			
2B	Information literacy		√		
2C	Global & historical perspectives			√	
2D	Aesthetic appreciation			√	
2E	Intellectual creativity		√		

3	Outcome #3 – Physically Disciplined Proficiencies/Capacities				
3A	Healthy lifestyle			√	
3B	Physically disciplined lifestyle				√

4	Outcome #4 – Socially Adept Proficiencies/Capacities				
4A	Communication skills			√	
4B	Interpersonal skills			√	
4C	Appreciation of cultural & linguistic differences				√
4D	Responsible citizenship			√	
4E	Leadership capacity			√	

(Revised 12/14/06)