

Syllabus for  
**EGR 210—Network Analysis I Lecture**  
3 Credit Hours  
Spring 2017

I. COURSE DESCRIPTION

Designed to provide beginning engineering students with knowledge of the fundamentals and methods of analysis of electrical networks consisting of passive components (resistors, inductors, and capacitors) and power sources (voltage and current).

Prerequisite: PHY 112.

Corequisites: MAT 211 and EGR 210 Lab.

II. COURSE GOALS

The purpose of this course is to enable the students to understand the fundamentals and methods of analyzing electric circuits consisting of passive components (resistors, capacitors, and inductors) and power sources (voltage source and current source).

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

As a result of successfully completing this course, the student will be able to do the following:

- A. Analyze electric circuits consisting of resistors, inductors, capacitors, and voltage and/or current sources.
- B. Apply Ohm's law, KCL and KVL to electric circuits.
- C. Write out node voltage and mesh current equations for the analysis of networks.
- D. Apply the principle of superposition and source transformation to analyze electric circuits.
- E. Determine Thevenin and Norton equivalent circuits for complex networks.
- F. Determine transient response of RC, RL and RLC circuits.
- G. Use phasor representation to solve ac circuits.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials

- 1. Textbooks  
Nilsson, James, and Susan Riedel. *Electric Circuits*. 10<sup>th</sup> ed. Upper Saddle River, NJ: Prentice Hall, 2015. ISBN-13: 9780133760033
- 2. Other  
None

B. Optional Materials

- 1. Textbooks  
None
- 2. Other  
None

## V. POLICIES AND PROCEDURES

### A. University Policies and Procedures

1. Attendance at each class or laboratory is mandatory at Oral Roberts University. Excessive absences can reduce a student's grade or deny credit for the course.
2. A fee of \$15.00 is assessed for all late exams. The university's late exam policy applies to all exams taken without notifying the professor prior to the regularly scheduled exam time and to all exams taken late without an administrative excuse.
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, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:
  - a. Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;
  - b. Failing to meet group assignment or project requirements while claiming to have done so;
  - c. Failing to cite sources used in a paper;
  - d. Creating results for experiments, observations, interviews, or projects that were not done;
  - e. Receiving or giving unauthorized help on assignments.  
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. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.
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 Whole Person Assessment (WPA) requirements. Students should consult the WPA handbooks for requirements regarding general education and the students' majors.
  - a. The penalty for not submitting electronically or for incorrectly submitting an artifact is a zero for that assignment.
  - b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

### B. Department Policies and Procedures

Any student whose unexcused absences total 33% or more of the total number of class sessions receives an F for the course grade.

C. Course Policies and Procedures

1. Evaluation Procedures

Homework	15%
Mini-project	15%
Exam 1	20%
Exam 2	20%
<u>Final exam</u>	<u>30%</u>
Total	100%

2. Whole Person Assessment Requirements

The final grade is reduced by 5% for WPA artifacts that are not submitted by the end of the semester (not 5% per artifact but 5% total).

3. Other Policies and/or Procedures

a. Attendance Policy:

- Please hand in the official letter or any other document for your excused absence immediately when you resume the class.
- The first 3 unexcused absences from lecture will not be counted. After that, each unexcused absence will result in 1% deduction from the final grade.
- Late but less than 5 minutes for lecture will not be counted.
- Late above 5 minutes but less than 30 minutes will be treated as late and two times late will be combined as one absence.
- Late for 30 minutes and above will be treated as absence.
- 2% credit point will be assigned for full attendance.

b. Late homework Policy:

- Homework is due at the beginning of the lecture on the due date.
- Late submission will result in reduced grade, 10% deduction for each school day.
- Submission after a homework assignment is graded and returned to the class will not be graded.
- This rule also applies to mini-project.

c. Extended and late exam policy:

- Extended exam is possible only for those students with an official letter from the director of Student Resources.
- Unexcused late exam will be penalized by prorating the grade based on the exam result of the class and how late it is.
- Please schedule the late exam immediately when you resume the class after you missed an exam. No second chance will be given if one missed the scheduled late exam.
- No late exam is possible for final exam.

## VI. COURSE CALENDAR

Topic	Section	Sessions
Chapter 1—Circuit Variables	1, 2, 3, 4, 5, 6	2
Chapter 2—Circuit Elements	1, 2, 3, 4, 5	2
Chapter 3—Simple Resistive Circuits	1, 2, 3, 4, 5, 6, 7	2
Chapter 4—Techniques of Circuit Analysis	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13	7
<b>Exam I and Review</b>	2	
Chapter 5—The Operational Amplifiers	1, 2, 3, 4, 5, 6, 7	4
<b>Mini-project</b>		
Chapter 6—Inductance, Capacitance, and Mutual Inductance	1, 2, 3, 4, 5	3
Chapter 7—Response of the First-Order <i>RC</i> and <i>RL</i> Circuits	1, 2, 3, 4, 5, 6, 7	5
<b>Exam II and Review</b>	2	
Chapter 8—Natural and Step Responses of <i>RLC</i> Circuits	1, 2, 3, 4, 5	5
Chapter 9—Sinusoidal Steady-State Analysis	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	4
<b>FINAL EXAM</b>		

**Course Inventory for ORU's Student Learning Outcomes**  
**EGR 210—Network Analysis I Lecture**  
**Spring 2017**

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.

<b>OUTCOMES &amp; Proficiencies/Capacities</b>		<b>Significant Contribution</b>	<b>Moderate Contribution</b>	<b>Minimal Contribution</b>	<b>No Contribution</b>
<b>1</b>	<b>Outcome #1 – Spiritually Alive</b> Proficiencies/Capacities				
1A	Biblical knowledge				X
1B	Sensitivity to the Holy Spirit				X
1C	Evangelistic capability				X
1D	Ethical behavior			X	
<b>2</b>	<b>Outcome #2 – Intellectually Alert</b> Proficiencies/Capacities				
2A	Critical thinking		X		
2B	Information literacy			X	
2C	Global & historical perspectives			X	
2D	Aesthetic appreciation			X	
2E	Intellectual creativity			X	
<b>3</b>	<b>Outcome #3 – Physically Disciplined</b> Proficiencies/Capacities				
3A	Healthy lifestyle				X
3B	Physically disciplined lifestyle				X
<b>4</b>	<b>Outcome #4 – Socially Adept</b> Proficiencies/Capacities				
4A	Communication skills		X		
4B	Interpersonal skills			X	
4C	Appreciation of cultural & linguistic differences				X
4D	Responsible citizenship			X	
4E	Leadership capacity			X	