

George Mason University
Volgenau School of Engineering
Department of Electrical and Computer Engineering

ECE 286: Electric Circuit Analysis II
Syllabus
Spring 2014

Professor: Dr. Craig Lorie
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Teaching Assistants: Liya Shao
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Lecture: Monday / Wednesday, 3:00 – 4:15pm Thompson Hall, room L004

Office Hours: See class webpage (provided below).

Prerequisites: Grade of C or better in ECE 285, ECE 220, and MATH 214.

Required Text: *Fundamentals of Electric Circuits, 5th Edition*, by Alexander and Sadiku
McGraw-Hill. With Connect Plus.
ISBN-13: 978-0-07-338057-5

Hardware: Kit to be specified in lab.

Software: PSpice
MATLAB

Course Webpages: <https://mymasonportal.gmu.edu/> (Blackboard)
<http://ece.gmu.edu/~clorie/spring2014/ece286/>

Textbook Website: http://higherred.mcgraw-hill.com/sites/0073380571/information_center_view0/

COURSE DESCRIPTION (FROM GMU COURSE CATALOG)

Covers the second half of electric circuit theory and practice. Topics include AC analysis of circuits including phasors, frequency response, power analysis, and transformers. Includes a project and lab experiments to reinforce topics covered in the course. Credits: 3 (Lecture: 3, Lab: 0).

COURSE SCHEDULE:

The course schedule is provided in a separate document on Blackboard and the class website.

LEARNING OUTCOMES

Following successful completion of ECE 286, the student will be able to:

- Analyze second-order circuits.
- Specify the transfer function for a second-order system.
- Design active circuits containing one (or more) operational amplifiers based on project specs.
- Analyze first-order and second-order circuits using the Laplace Transform.
- Design passive and active filters (low pass, high pass, and band pass).
- Apply frequency response concepts when designing and analyzing filters.

TOPICS TO BE COVERED INCLUDE:

1. RC, RL, and RLC Circuits (Review)
2. Laplace Transform (Review)
3. Circuit analysis using Laplace Transform.
4. Sinusoids and Phasors.
5. Sinusoidal Steady-state Analysis
6. OpAmp AC Circuits
7. Frequency Analysis
8. Passive and Active Filters
9. AC Power Analysis
10. Magnetically Coupled Circuits

HOMEWORK ASSIGNMENTS

Homework will be assigned through Connect (McGraw-Hill) and posted on Blackboard on a weekly basis. The due date for each assignment is specified in the class schedule.

EXAMS

There will be three exams in this course:

- Midterm Exam #1
- Midterm Exam #2
- Final Exam

See the course schedule for the date of each exam.

All exams are **closed book**. I will provide the necessary reference materials for all exams.

If you cannot make one of the scheduled exams, you must speak with me **in advance** to arrange for an alternate time to take the exam.

RECITATION

The recitation will be conducted by the teaching assistant. A weekly quiz will be given during recitation. In addition, the TA will answer questions about past and present homework assignments, material covered in class, and the labs.

If you miss recitation, you will receive a zero for the missed quiz.

LABORATORY

The laboratory experiments are an essential part of this course, as they will provide you with the opportunity to explore your understanding of the concepts developed in class through the construction and analysis of a variety of AC circuits. You will compare the results of your experiments with the expected results determined through calculations to better understand the behavior of real circuits as compared to ideal circuits.

There will be several laboratory experiments conducted over the course of the semester. For each lab, you are expected to read the associated sections of the textbook and complete the pre-lab. You will not be allowed to perform the lab if you are not properly prepared.

Following the completion of each laboratory experiment, you will be expected to write a lab report. The lab report is due one week after the experiment is completed.

Attendance in lab is **mandatory**. Failure to attend lab will result in a zero for the lab.

You must complete all labs in this course. If you do not attend a lab meeting, you are still responsible for completing the lab. Failure to complete **any** of the labs, will result in you failing the class.

ATTENDANCE

You are expected to attend class, however attendance will not be formally recorded. Failure to attend class does not excuse you from the material covered. If you miss class you must consult with one of your classmates to obtain the notes and/or problem solutions that were presented.

You are expected to attend ALL recitation meetings.

You are expected to attend ALL lab meetings. Attendance in lab is mandatory.

COURSE GRADE

The final grade for the course is based on my best assessment of your understanding of the material and your participation in the class during the semester. The exams, homework assignments, and in-class exercises will be used to determine your final grade according to the following weighting:

Homework	10%
Laboratory Experiments	20%
Midterm Exam #1	20%
Midterm Exam #2	20%
Final Exam	30%

The final letter grade will be assigned accordingly.

ACADEMIC INTEGRITY

The George Mason University Honor Code is stated as follows:

"To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the University Community have set for this:

Student members of the George Mason University community pledge not to cheat, plagiarize, steal, and/or lie in matters related to academic work."

You are expected to abide by the Mason Honor Code. Violations of the Honor Code are taken very seriously and will be prosecuted to the fullest extent. This includes, but is not limited to, cheating on homework assignments, quizzes, projects, labs, and exams.

As indicated above, you are encouraged to work together on assessments, and share ideas about solutions to problems. However, you must submit your own work. Copy the solution from another student, or from the author's solution manual, is considered cheating and is a violation of the Honor Code.

For more information about the Mason Honor Code and about the Honor Committee, please visit the website for the Office of Academic Integrity (<http://oai.gmu.edu/>).

GMU EMAIL ACCOUNTS

Students must use their Mason email account to receive important University information, class-related messages, and to communicate with the professor and the teaching assistants.

See <http://masonlive.gmu.edu> for more information.

CLASSROOM ETIQUETTE

Cellphones are to be turned off during class; minimally they must be silenced. Emergency calls may be taken, but must be taken outside of the classroom.

Texting, using your laptop for something other than lecture-related work, etc. is considered a distraction to me and to the other students trying to learn in the class, and will not be tolerated.

OFFICE OF DISABILITY SERVICES (ODS)

If you are a student with a disability and require special accommodations, please contact me and the Office of Disability Services as soon as possible. All special accommodations must be arranged through ODS.

Office of Disability Services (ODS): (703) 993 – 2474; <http://ods.gmu.edu>

OTHER USEFUL CAMPUS RESOURCES

- Writing Center: A114 Robinson Hall; (703) 993 – 1200; <http://writingcenter.gmu.edu>
- University Libraries: “Ask a Librarian” <http://library.gmu.edu/mudge/IM/IMRef.html>
- Counseling and Psychological Services (CAPS): (703) 993 – 2380; <http://caps.gmu.edu>
- The University Catalog: <http://catalog.gmu.edu>
- University Policies: <http://universitypolicy.gmu.edu>