

Modality and Time:

Online (asynchronous), June 29-August 8, 2021.

Midterm Exams – 7/11, 7/19, 8/1. Final Exam – 8/8.

All exams begin promptly at 2:00PM EDT.

While content delivery is asynchronous, exams are synchronous, and dates and times cannot be changed.

Please mark your calendars.

Instructor: Richard E. Groff, regroff@clemson.edu (Prefix subject line with “ECE2620:”)

Office Hours: Held via Zoom. See “Office Hours and Contact Information” page under Modules on Canvas for URL and times.

Prerequisites: ECE 2020, MATH 2060, PHYS 2210, each with a grade of C or better

Textbook:

Required Text: J.W. Nilsson, Electric Circuits, 10th Edition, 2015, Prentice Hall.

Class Email: I will use an auto-generated course email list and Canvas announcements to communicate with the class. **You should check both your email and Canvas daily**, since important information and reminders will be delivered this way. The auto-generated email listserv will use your clemson.edu address. Please make sure that your email is properly configured at http://ccitutil.sites.clemson.edu/email_forwarding to deliver to the email account you wish to use. (By default, email should be sent to your g.clemson.edu address. Using the link above, you can also have email forwarded to other addresses, including non-Clemson addresses.) If you have any trouble receiving email, let the instructor know AND contact CCIT http://www.clemson.edu/ccit/help_support/ for assistance.

Canvas: Canvas (<http://www.clemson.edu/canvas/>) is an electronic course management system that will be used to post major announcements, video lecture links, class notes, assignments, homework clarifications and hints, supplemental readings, links to other resources, grades, and so on. Canvas will also be used to collect homework assignments and submit exam answers. Canvas Discussion Boards will be used to post hints about homework problems and can be used to discuss homework problems and course concepts with other students in the course.

Calculator: For this course you will need a calculator that is capable of performing matrix operations with both complex numbers and symbolic quantities and of performing partial fraction expansion. Both the TI-89 Titanium and the TI-Nspire CX CAS support all these features. (The TI-84 does not easily support matrices of complex numbers or symbolic computation. The TI-Nspire CX, without the “CAS”, does not support symbolic computation.) A cell phone or tablet may NOT be used as a calculator on exams. A short comparison of calculators, calculator tutorial materials, and complex number calculator exercises are available on Canvas.

It is your responsibility to learn how to use your calculator!

Course Description: The goals for this course are to provide the student with an understanding of, and a proficiency in the analysis of, electrical circuits containing both active and passive components under both steady-state and dynamic (time-varying) conditions. These goals will be accomplished by studying and applying the topics found in the topical outline below.

ECE 2620 is a “core” (fundamental, essential) course for all electrical and computer engineering majors. It is the second of two courses on basic electrical circuit analysis, the first course being ECE 2020 – Electric Circuits I. These two courses are among the most fundamental and important courses you will take in the ECE curriculum. Many future courses, both lecture and laboratory, are built on this material. Success in the junior level coursework requires mastery of this material, not only solving circuit problems but also understanding why the methods work and when they should be applied. Mastering the material will require study of the text and class notes, participation in discussions, and *especially* diligent practice of the homework problems.

Topical Outline

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|---|------------|
| 1. Sinusoidal Steady-State Circuit Analysis | (9 hours) |
| 2. Sinusoidal Power Calculation | (6 hours) |
| 3. Introduction to Three- Phase Networks | (3 hours) |
| 4. Laplace Transforms | (6 hours) |
| 5. Laplace-Domain Circuit Analysis | (6 hours) |
| 6. Frequency-Selective Circuits (Filters) | (4 hours) |
| 7. Two-Port Circuits | (2 hours) |
| 8. Ideal Op Amps | (2 hours) |
| 9. Tests | (3 hours) |

Online Course Policies:

ECE2620 is an online course this summer

- Please note that by department policy, Clemson University ECE courses are **intended for students living within three time zones of Clemson University (± 3 hours)**. All posted times, e.g. for homework submission deadlines, exam times, etc., will be provided in local time for Clemson University, i.e. Eastern Daylight Time. The student is responsible for translating the posted times into the corresponding times in the local time zone.
- You will interact with the content, instructor, and classmates in some way every weekday through a combination of videos, homework, and discussion boards.
- A Topical Outline and Schedule, available on Canvas, will list content coverage for each day. This schedule will help you with **time management, which is crucial** for the summer session version of this course.
- All materials, except for the textbook, will be provided through the university’s learning management system, Canvas.
- See the section below for further information on exam format.
- The Student Information Form will be collected early in the semester. Failure to accurately and truthfully complete and submit these forms may result in being dropped from the course or receiving an F in the course.

Grading: Grading will be based on a weighted average of the homework, three midterm exams, and a final exam. The expected weights and grade boundaries are :

Homework	10%	A 90% - 100%
Midterm Exams	57%	B 80% - 90%
Final Exam	33%	C 70% - 80%
		D 60% - 70%
		F 0%- 60%

Further details on calculation of the Midterm Exams grade and Homework grade are provided below.

Exams:

- There will be three midterm exams and a final exam. Due to the compressed schedule during the Summer II Session, there will be an exam about every 8 weekdays. The exam dates and times are provided at the beginning of this syllabus.
- All exams are closed book and closed notes. You are permitted a handwritten one-page (front and back, 8.5"x11") note sheet of diagrams and *formulas*. The note sheet may *NOT* contain worked problems. The note sheet *may* contain diagrams and formulas for standard circuits, such as parallel and series combinations of impedances and the standard linear transformer circuit. Your name should be printed in the upper right corner of the note sheet.
- The exam format is multiple choice, administered through Canvas. You will also have to submit your written work, which must match your answers, though grading focuses on the multiple choice answers.
- For all midterm exams and the final exam, students are permitted 1) writing utensils, 2) a calculator, and 3) note sheet as described above.
- Use of additional materials on exams is strictly forbidden.
- Absolutely no collaboration is permitted on exams.
- You will be required to clear your calculator memory before each exam. (Practice clearing your calculator before doing homework assignments, so that you know how to readjust any settings that might get cleared when clearing the calculator memory.)
- If, *for a good reason discussed with the instructor and agreed upon in advance*, a student has an excused absence during a midterm exam, then the final exam grade will be substituted in place of the missed midterm exam grade. NO makeup exams will be given. Students may be excused from at most one of the three midterms.
- The three midterm exams are equally weighted. If the final exam grade is higher than the lowest midterm exam grade, then the lowest midterm exam grade will be replaced by the average of the final exam grade and the lowest midterm exam grade. This calculation will be performed offline and uploaded to Canvas.

Tentative Proctoring Plan:

- Proctoring arrangements for Summer 2022 are still under revision. The plan will be finalized in early June 2022 and posted in the revised syllabus.
- All exams will require use of Respondus Lockdown Browser and Respondus Monitor. Respondus Monitor records webcam video and audio while you take the exam. The Respondus software is provided through a Clemson site license. Further information about Respondus is provided in the Syllabus Addendum, which is included as the last page of this document.
 - A trial quiz will be set up and administered via Respondus LockDown Browser and Respondus Monitor during the first week of class. It is critical that you get any problems with Respondus worked out *before* the first midterm exam. If Respondus Monitor does not successfully record video on the exam, you will receive a 0 on the exam.

- Two of the exams, most likely the third midterm exam and the final exam, must be taken on site at Clemson University or with an approved proctor (while also using Respondus Lockdown Browser and Respondus Monitor).
 - Students who live or work within 50 miles of Clemson University are required to take exams on campus.
 - Testing centers at accredited universities or colleges are the preferred source of proctors. Private testing centers are not allowed. Many students find community college testing centers especially convenient. Any fees associated with proctoring are the student's responsibility.
 - If you are participating in a coop assignment or technical internship, i.e. a job specifically connected to your engineering studies, then a work supervisor or HR representative may serve as a proctor.
 - Under special circumstances, alternative sources for proctors may be considered. If you believe your circumstances merit an alternative source of proctor, please contact the instructor as soon as possible via email to explain your case.
 - Make testing center reservations early to ensure you have a spot. Date and start times for the exams are listed at the top of the first page of this syllabus. Midterm exams are 1 hour 35 minutes long. The final exam is 2 hours 30 minutes long.

Homework: Homework provides the *necessary practice* for mastering the concepts of the course. An important component of homework is learning how to start previously unseen problems given the concepts you have seen in class (as opposed to just using an example problem as a problem-solving “template”). Developing this skill will prepare you not only for exams in this course but also for subsequent courses that build on Circuits II material.

- Homework problems will be assigned and collected for credit via Canvas.
- Homework assignments:
 - Are assigned daily and focused on that day's video(s). (Homework will post to Canvas a few days before it is officially assigned.)
 - Are typically due a few days after they are assigned, though your goal should be to complete the homework on the day it is assigned.
 - Must be prepared and submitted in accordance with the “**ECE2620 Homework Submission Guidelines**” document posted in the Syllabus tab on Canvas.
 - Multiple assignments will be open simultaneously. Be careful to submit the correct problems to the correct submission location!
- You should attempt every problem on your own. You are encouraged to discuss homework with your peers, in person or on the discussion boards, but you should start and finish problems yourself. All submitted work must be completed by you individually.
- Homework answers (not solutions, just the numeric answers) will be posted a few days before the assignment is due.
- Hints and tips for working selected homework problems will be posted on the Canvas Discussion Boards.
- Any resources other than the provided course materials used while solving homework must be properly cited (including solutions).
- Homework will be graded based on completion. You must show your work to receive credit.
- Late homework: To keep pace with the course, homework should be completed the day it is assigned, but homework is due a day or two after it is assigned.
 - Homework submitted within 24 hours after the posted deadline will not be penalized.
 - Homework submitted between 24 and 48 hours after the deadline will be penalized 50%.
 - Homework submitted more than 48 hours after the deadline will not be accepted.

- There will be approximately 25 homework assignments. **Failing to submit homework assignments will lower your final letter grade in the course.** Missing 5-8 assignments will drop one letter grade, missing 9-12 will drop two letter grades, missing 13-16 will drop 3 letter grades, and missing 17 or more will result in an automatic F in the course.

Study and Exam Preparation Tips

- Videos: Annotate a printed copy of the notes or take your own notes. Be sure to capture the thought process for examples in writing.
- Immediately after videos: Briefly review notes to reinforce high level concepts and problem-solving approaches. Review any calculations or derivations that remain confusing or that went by too fast.
- Homework:
 - Review assigned problems immediately after watching the corresponding video to identify what you know how to do directly and what you are still unsure of. Thinking, actively or even passively, about the problems will improve learning and make the homework easier.
 - To keep on track in the course: Watch videos on the day they are assigned. Start and try to complete the corresponding homework on the day listed on the schedule (rather than by the due date which might be a couple days later). This will ensure that you have time to ask questions about material and to study for exams.
 - If at all possible, draft rough solutions to the problems as you work on them, and then write up neat solutions for submission. In writing up the neat version, you may identify better solution methods, improve the efficiency of calculations, etc. Neat solutions (written by you) are an excellent resource for exam preparation. A fundamental component of the engineering mindset is traceable work, which allows errors to be more readily identified and eliminated.
- Exams:
 - Sample exams (and answers) from previous semesters will be posted on Canvas.
 - Performing well on exams requires both a solid grasp of the concepts and the ability to perform calculations *correctly and efficiently*. Use the sample exams to assess your preparedness, NOT to learn the material in the first place. Take the sample exams under conditions similar to the actual midterm, i.e. timed with access to just a note sheet and calculator.
 - Recommended study process: First, review the notes, textbook, and homework. Make a note sheet, and then take a *timed* sample exam. Review your performance on the sample exam to identify information missing from your note sheet, areas for further study, and computations which need to be done more efficiently. Repeat the cycle.
 - Exams are graded on the basis of multiple choice answers, but I generally find that students who write clear, logical solutions achieve higher scores. This is likely because it is easier to track down mistakes when the important problem solving steps have been written down.

Academic Integrity: As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a 'high seminary of learning.' Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Clemson University has a responsibility to respond appropriately to charges of violations of academic integrity. Further information on Academic Integrity can be found in the [Undergraduate Announcements](#) and in the [Graduate School Policy Handbook](#).

ECE2620-Specific Policies: Collaboration between students on homework assignments is allowed under the guidelines presented above. Keep in mind that the exams will draw from the material covered in the

homework, thus it is advantageous for each student to understand every homework assignment. Absolutely no collaboration is permitted on exams. Note: Use of stored equations or other course material in a calculator during an exam is a violation of academic integrity.

Accessibility: Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to a class should let the instructor know and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848 or by emailing studentaccess@lists.clemson.edu. Students who receive Academic Access Letters are strongly encouraged to request, obtain, and present these to their instructors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. You can access further information here: <http://www.clemson.edu/campus-life/campus-services/sds/>.

ECE2620-Specific Policies: Please submit accommodation letters for ECE2620 as soon as possible. In order to receive accommodations on an exam, an accommodations letter must be received by the instructor at least 5 business days before the exam date.

Title IX: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. The University is committed to combatting sexual harassment and sexual violence. As a result, you should know that University faculty and staff members who work directly with students are required to report any instances of sexual harassment and sexual violence, to the University's Title IX Coordinator. What this means is that as your professor, I am required to report any incidents of sexual harassment, sexual violence or misconduct, stalking, domestic and/or relationship violence that are directly reported to me, or of which I am somehow made aware. There are two important exceptions to this requirement about which you should be aware:

Confidential Resources and facilitators of sexual awareness programs such as "Take Back the Night and Aspire to be Well" when acting in those capacities, are not required to report incidents of sexual discrimination.

Another important exception to the reporting requirement exists for academic work. Disclosures about sexual harassment, sexual violence, stalking, domestic and/or relationship violence that are shared as part of an academic project, a research project, classroom discussion, or course assignment, are not required to be disclosed to the University's Title IX Coordinator.

This policy is located at <http://www.clemson.edu/campus-life/campus-services/access/title-ix/>. Ms. Alesia Smith is the Executive Director for Equity Compliance and the Title IX Coordinator. Her office is located at 223 Holtzendorff Hall, phone number is 864.656.3181, and email address is alesias@clemson.edu.

Safe Campus: Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

- a. Ensure you are signed up for emergency alerts (<https://www.getrave.com/login/clemson>)
- b. Download the Rave Guardian app to your phone (<https://www.clemson.edu/cusafety/cupd/rave-guardian/>)
- c. Learn what you can do to prepare yourself in the event of an active threat (<http://www.clemson.edu/cusafety/EmergencyManagement/>)

Copyright: Materials in this course are copyrighted. They are intended for use only by students registered and enrolled in this course and only for instructional activities associated with and for the duration of the course. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act. Students should be reminded to refer to the Use of Copyrighted Materials and “Fair Use Guidelines” policy in on the Clemson University website for additional information: <https://clemson.libguides.com/copyright>.

Modification: The instructor reserves the right to modify any aspect of the syllabus at any time during the semester for reasons including but not limited to COVID-related situations.

Syllabus Addendum: Remote Proctoring using Respondus

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be built into your computer or can be the type that plugs in with a USB cable. Watch this [short video](#) to get a basic understanding of LockDown Browser and the webcam feature. A student [Quick Start Guide](#) is also available.

Then download and install LockDown Browser from this link:
<https://www.clemson.edu/online/tools/responduslockdown.html>

To ensure LockDown Browser and the webcam are set up properly, do the following:

- Start LockDown Browser, log into <https://www.clemson.edu/canvas/>, and select ECE2620.
- Locate and select the **Help Center** button on the LockDown Browser toolbar.
- Run the **Webcam Check** and, if necessary, resolve any issues.
- Run the **System & Network Check**. If a problem is indicated, see if a solution is provided in the Knowledge Base. Troubleshooting information can also be emailed to our institution's help desk.
- Exit the Help Center and locate the practice quiz named (Posted by first day of class)
- Upon completing and submitting the practice quiz, exit LockDown Browser.

When taking an online exam that requires LockDown Browser and a webcam, remember the following guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach
- Clear your desk of all external materials not permitted — books, papers, other devices
- Before starting the test, know how much time is available for it, and that you've allotted sufficient time to complete it
- Remain at your computer for the duration of the test
- If the computer or networking environment is different than what was used previously with the **Webcam Check** and **System & Network Check** in LockDown Browser, run the checks again prior to starting the test
- To produce a good webcam video, do the following:
 - Avoid wearing baseball caps or hats with brims
 - Ensure your computer or tablet is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed or other surface where the device (or you) are likely to move
 - If using a built-in webcam, avoid tilting the screen after the webcam setup is complete
 - Take the exam in a well-lit room and avoid backlighting, such as sitting with your back to a window
- Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted.