

## **PHY 270: Electronics and Instrumentation** **Gustavus Adolphus College Spring 2022**

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**Homework help, Q&A, and more:** (a.k.a.: Office Hours)  
Monday, Thursday 1:30-2:30, Tuesday 9-10, and by appointment. **Drop by to talk about anything!**

**Course website:** Moodle

**Textbooks:** *Electrical Engineering: Principles and Applications* (5<sup>th</sup> Edition), by Allan R. Hambley  
Laboratory Manual (for PHY271, co-requisite lab course)

**References:** *Analog and Digital Electronics for Scientific Application*, by Dennis Barnaal, Breton Publishers, ©1982  
*Digital Electronics: A Practical Approach*, by William Kleitz, Pearson, ©2008

### **Course Description and Objectives:**

This course and lab comprise electronics theory, design, and testing. Topics include basic and specialized circuits, devices and their characteristics, and modern test equipment. Students will learn in a hands-on setting in both a in studio format in groups and in a laboratory format individually.

### **Course Policies and Evaluation**

**1. Attendance:** Students are expected to attend all classes during the scheduled hours. Students are responsible for informing themselves of material and assignments covered during absences. Students must advise the instructor in writing during the first week of class of any scheduled athletic, music, or other college activities that will require their absence during the semester. Such written notice does not imply a waiver of course requirements or an agreement to reschedule exams.

**2. Studio Activities:** Students will work in assigned groups and roles to build, test, and characterize electronic circuits in a cooperative-learning setting. A worksheet detailing the studio activity will be provided in each class, and each group will complete one worksheet and submit it for a group grade. There will be no make-up for studios missed due to unexcused absence. Failure to follow the assigned group roles will also be cause for a grade reduction.

**3. Reading Quizzes:** Reading assignments are expected to be completed before coming to class. Before each class period that involves reading from the textbook and/or a studio worksheet, each student is required to take an online quiz to demonstrate a basic understanding of the material. The reading quiz **must be completed 15 minutes before class starts, i.e. at 8:15 am.**

**4. Homework:** Problems sets will be assigned approximately every week and are due at the beginning of class on the assigned date. Written homework sets should be neat and organized. Legibility and thorough explanations of answers are required. Each student will submit their own assignment, but you are encouraged to discuss and work problems with each other and your instructor. Copying of homework from any source, including using answers found from the internet, is considered a violation of the academic honor code.

**5. Late Homework:** One late homework assignment will be accepted, up to 48 hours late, without penalty. Subsequent late assignments will begin with an increasing penalty of 25%, 50%, 75%, and 100% (no credit). An additional 25% penalty accrues every 24 hours thereafter. In addition, no assignments will be accepted after the problems have been returned to the class.

**6. Exams:** There will be three one-hour exams and a two-hour final exam. Students are expected to arrange in writing with the instructor well in advance to take an exam/quiz at other than the announced time. Requests to reschedule exams/quizzes for non-emergency reasons will be declined. Missed exams for an unexcused absence will result in a score of zero.

**7. Academic Honesty:** You will abide by the academic honesty policy printed in the Academic Bulletin and abide by decisions of the joint student/faculty Honor Board. **The use of internet solutions or answer books (including any parts of problems or ‘checking’ answers) or parasitizing (including copying) other students for any assignment, studio, reading quiz, or exam, unless specifically stated otherwise, is not allowed, and will result in a zero for the entire assignment, quiz, or exam and reporting to the dean of students as a minimum penalty.** It is your responsibility, as a student, to ask questions if you are not sure about what constitutes academic honesty in any other aspect of this course. Severe (even on the first incidence) or repeat offenders risk a grade of failing for the entire course at the instructor’s discretion.

**8. Accessibility Services:** Gustavus Adolphus College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or you think you may have a disability of any nature) and, as a result, need academic accommodation to participate in class, take tests or benefit from the College’s services, then you should speak with the Disability Services staff for a confidential discussion of your needs and appropriate plans. Course requirements cannot be waived, but reasonable accommodations may be provided based on disability documentation and course outcomes. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact the college’s disability services as early as possible. **When accommodations are given, it is the student’s responsibility to communicate in advance of deadlines and work with the professor to satisfy the accommodations each time they are utilized in this course.**

**9. Incompletes:** An incomplete will only be given if, after the last day to withdraw has passed, unforeseen circumstances beyond the student’s control (usually restricted to illness or emergency) preclude completion of the **remaining** work for the course by the end of the semester. Note that poor planning or having a lot of work to complete at the end of the term are not considered circumstances beyond a student's control. (College policy)

**10. Evaluation:** Course grades will be assigned using the following scale as a guide:

Hour exams 30%	(10% each)	94-100 A	74-78 C+
Final Exam 20%		90-94 A-	70-74 C
Homework 18%		86-90 B+	66-70 C-
Group & Studio work 24%		82-86 B	0-66 F
Reading Quizzes 8%		78-82 B-	

Assignment of the final letter grades will also consider other factors including the instructor's subjective evaluation of attendance, initiative, evidence of improvement, and the quality of independent work.

## **COVID Information:**

All classrooms will follow the most up to date COVID policy of the college with regard to masking, social distance, food and beverage in the classroom, sanitizing of technology and spaces, and exposure.

**Individual faculty members may ask for additional COVID precautions at their discretion.**

It is the policy of Gustavus Adolphus College that all students must abide by rules and standards designed to protect the community. Refusal to comply with any COVID related rules will be handled through the student disciplinary sanction process and will be reported to the Office of Student Life.

- Upon the first and second offense of a failure to abide by COVID rules, I will ask you to leave, and you will not be invited back on that day. You will receive a score of zero for any daily class activity including possible penalty in the final grade.
- Upon the third offense, I will ask you to leave, and you will fail the class.

## **Masking**

When required by Gustavus or government mandate, correctly positioned face masks (covering both your nose and your mouth) must be worn and will be enforced as described above. **When not required by Gustavus or government mandate, it is the expectation in this classroom that masks will still be worn during high local levels of transmission.**

## **Food and Beverages**

No food will be permitted in classrooms unless there is a medical accommodation. Beverages will be permitted in classrooms, but students may only remove face coverings briefly during the time when they are actually drinking, if necessary. **Overuse of the drinking privilege may be considered a violation of the masking policy.**