

ENGN/PHYS 207—Fall 2019
Final Design Project (Two Options Available)

5pm Tues, 03 Dec 2019: Initial validation (frequency response curves): must be completed (firm deadline!)

Thurs, 05 Dec 2019: Final proof of concept (live demo) must be completed by end of your lab period (firm deadline!)

Noon, Tues 10 Dec 2019: Final Report Due

Welcome to the Circuits final design project, meant to be an practical and integrative experience of everything you have learned in Circuits thus far. Oh, and fun too! The final project report is **due no later than noon on Tuesday, 10 Dec, 2019**. This is a firm deadline.

For this design project you are asked to design, build, and test a circuit to solve the problem, and write a report on your findings. **Two options are available; choose only one!** Option A builds an EMG bionic arm; Option B builds an audio-visual light show. Both are intended to be fun, challenging, and exciting big “pay-off”/high satisfaction projects upon completion.

There is no time limit. You may spend as much time in the lab working on the project as you need and/or wish. I estimate that the time required to complete this project and the write-up to be about 15-20 hrs. Please *optionally* note the amount of time you spent working on this project. This information will be used for feedback purposes only and will in no way effect your grade.

The **Rules of Engagement** for the Design Project are somewhat different than standard lab fare:

- Because this assignment will be used to assess both lab practical and theoretical skills, all students must satisfactorily complete this assignment in order to receive a passing grade for the course.
- You may collaborate with up to one classmate, and are encouraged to do so (in part, to avoid the lab equipment bottleneck). **Both members must be fully engaged in all aspects of the project.**
- If you choose to work with a classmate, you must submit:
 1. Joint statement in your final report explicitly stating who did what. Again, the expectation is that both team mates are fully engaged.
 2. Confidential statement emailed directly to the instructor offering a candid and fair review of your performance and contributions, as well as for your team mate.
- You may consult with your class notes and other material generated by you and you alone.

- You may also consult any course materials provided directly from the instructor posted to the course website, such as powerpoints, class hand-outs, lab manuals, and the op-amp datasheets etc.
- You may access URLs/web links explicitly mentioned and linked in the problem statement below.
- You may NOT consult any of the following:
 1. No textbook or any other similar printed resources.
 2. No internet sources outside of those directly linked in the problem statement.
 3. No classmates except for your project team mate.
- If you feel you need to access any other material—e.g, searching for another datasheet—please contact the instructor first.
- There are many possible “good” solutions—i.e., there is more than one correct solution. As such, creativity is encouraged, as is elegant design!
- If you become truly stuck to the point you are not able to proceed, you may trade in a few points from your final grade to get help and/or advice from the instructor.

If you are ever in doubt whether some is in bounds, please consult the instructor before plunging ahead! Your signature below indicates you have read these rules of engagement and will abide by them.

Take a deep breath, relax, and **Good Luck!**

Name: _____

Signature: _____

Time Spent Working on Project: _____