ECEE 3000: Digital Design
Final Project Report Outline: Turn in a final project report with the following sections:

- **Introduction:** Briefly explain (in a paragraph or two) the problem that you have set out to solve and the tools you will use to solve it. Include timeline of deliverables.

- **Background:** Here you should explain the techniques you are going to use (assume as your audience, a 3rd/4th year EE undergraduate student) as well as any pertinent background information specific to your project. (i.e. if you used UART, explain what UART is).

- **Design and Testing Methodology:** Explain how you approached the design of your project from both a software and a hardware standpoint. If there were multiple directions you could have taken, make it clear why you chose one direction over another and why you did this. Include how you tested your design. These tests should convince the reader that the requirements of the project have been met.

    - **Technical Documentation:** Include your code at the end of report. Include schematics of circuits and data flow diagrams in the report:

        - Schematics of circuits should be sufficient for another engineer to understand and reconstruct the circuit on the breadboard. Use standard symbols for components such as resistors, switches, transistors, diodes, etc. Don't assume that the reader has memorized the pin-outs of any chips. There is no need to draw any of the circuitry of the LPCxpresso board; just refer to it by the pin number and name.

        - How is data transferred among the components of your project? Flow diagrams might be useful in illustrating this.

- **Results and Discussion:** Did you accomplish all of the prescribed tasks? If not, what are the shortcomings? How might you address them given more time? As appropriate, how did the design perform (ex. How fast/accurate/reliable was it?). Is there anything you would do differently if you were to redo the project? What improvements could be made on your project? How much did your design cost? Is there anything else interesting worth mentioning?

- **Conclusions:** Briefly summarize what was done and how it performed.
    - How many hours did it take you? Any comments, suggestions, or complaints about the project or the class? This will not count toward your grade, but will help to refine the project for future classes. What were your top three favorite projects?

- **References:** Cite any books, papers, articles, websites you have used.

- **Code (Attach at End of Report):** Quality and clarity of your code is import, and you are being graded on this. Make sure it is well commented and fix any formatting issues.

Estimated length: 6-9 pages, excluding commented code. Your report does not need to be long, but must be complete. Minor deviations from this outline are allowed if it improves the flow of your report. Large font size, unnecessarily large figures, and other similar shortcuts are frowned upon and may result in a

lower report score. This report should be a demonstration of your best work. Please write in past tense.
Final DEMO and REPORT Grading: Projects will be graded on the following criteria:

- **25% Demonstration of Technical Understanding:** To what extent does your report demonstrate a clear understanding of the concepts and techniques from class? How well are the concepts and techniques explained in the background section? To what extent does your use of them in your methods make sense?

- **5% Depth of Technical Understanding:** To what extent does your report show detailed understanding of the inner workings of the techniques? Examples of ways you could demonstrate depth include providing detail in your explanations of techniques, or doing a nice theoretical analysis of your approach's expected performance (as appropriate).

- **10% Quality of your Approach:** How intelligent is your approach? How much thought have you put into the various design choices you've made? How thoroughly did you investigate options for improving your method?

- **20% Creativity and Complexity of your Approach:** Did you push yourself to try new ideas and techniques?

- **20% Quality of Final Result Achieved:** How successful were you in accomplishing your project?

- **20% Clarity and Organization of your Writeup and Code:** How easy is it to understand your report? How well-written is your report? How well-organized is your report? How well is your code structured, commented, etc.? (Non-native English speakers: We take into account the fact that English is not your native language when giving this score.)

Plagiarism: Your project write-up should always be in your own words and should not plagiarize any reference materials you have used. Examples of plagiarism are borrowing sentences from another source, borrowing sentences from another source but changing one or two words or rearranging slightly, borrowing the whole structure and organization of a reference but changing the wording, etc. See www.plagiarism.org for more information on what constitutes plagiarism. Please refer to **www.plagiarism.org** for additional clarification.

How to Submit: Final report should be submitted as a PDF via attachment to Canvas.

*** Due: May. 9th at 10 pm ***

Late submissions will be accepted for a 50% reduction in the overall grade until May. 11th at 5 pm.