ENGR 3410: Final Project

Proposal due December 4, 2025
Report due December 16, 2025

For the final project, you may work in teams of up to four students to design and impelement a digital system of interest to you. You should specify your design using SystemVerilog and you should use the OSS-CAD tool suite to perform your design and verification. You are free to realize your design in simulation or in hardware. A brief list of project suggestions is provided below. You are free to adopt one of these, to adapt one from the list, or to ignore the list and come up with one of your own.

By the start of class on Thursday, December 4, you will need to join a project group and submit a brief (one page) proposal providing a description of what you would like to do for your project along with any relevant references. Your final design files and a final project report documenting your design will be due by the end of the day on Tuesday, December 16.

Project Ideas:

1. Get your RISC-V processor from MP4 running on the iceBlinkPico board and demonstrate it running an assembly language program that blinks the LEDs on the board in some interesting way.

2. Get your RISC-V processor from MP4 running on the iceBlinkPico board and add a memory mapped peripheral and demonstrate it working in some appropriate way. For example, add a UART module and show it printing "Hello, World!!" in a serial terminal window on your computer. Or add a peripheral to drive the WS2812b RGB LED matrix from MP3 and demonstrate Conway's Game of Life running in software on your RISC-V processor.

3. Extend your RISC-V processor from MP4 to implement the RV32M extension of the RV32I instruction set to include multiply and divide instructions, demonstrating them working in simulation.