

ECE 243 Computer Organization
Project Description
March 23, 2020

The final practical part of this course is the project, in which your group will build software (and possibly hardware) of your own choosing, running on the DE1-SoC. With the present circumstances of no in-lab work, that means you'll be using CPULATOR, unless one of your group happens to have their own DE1-SoC. The below plan for the Project assumes that the new grading scheme, announced recently, is approved by majority vote of the class.

The project is meant to give you an opportunity to do something that you find interesting and fun. The amount of work should be roughly equivalent to two labs' worth of work in this course.

The project will still be done in your group of two. We realize that collaboration with your partner may be difficult if you are in different time zones. Please contact your instructor if this is a problem for you.

The project is due on April 9, at 5pm.

There are two possibilities for your project; in both cases the amount of work should be approximately equivalent to two labs' worth of work.

1. Create an animation that you find interesting, that is controlled by the switches or pushbuttons (and possibly the PS/2 mouse or keyboard, also available on CPULATOR). This could be a game, or a tool that makes some kind of dynamic artistic display.
2. Do any project that you like, as long as it connects to the course material, and involves the creation of software running on the DE1-SoC.

A requirement of the project is that it must be different from all the other projects in the class (like your project last term in ECE 241), and so you must get 'uniqueness approval.' To gain uniqueness approval, you must post a 1-line description of your proposed project on the Piazza folder, 'uniqueness.' It will be determined on a first-come-first-served basis as follows:

Please strictly adhere to the guidelines below to make this process manageable.

One member of your group should **make a non-anonymous follow-up discussion to the first note on the Project Uniqueness thread on Piazza:**

- Please include your lab **day** (Monday, Tuesday, Thursday) and **station number and/or TA (if possible)**.
- **The Content** should be a very short yet informative enough description of your project, for example:

*Tuesday, Station 200, TA Marcus van Ierssel
Maze Drawing Game on VGA.*

Before posting, make sure that your project idea has not been claimed by someone else, by scanning all the previous posts. You can post only one project idea. After posting, please monitor your post. The head TA will check your idea and comment on it with either: "**Project accepted**", "**Project already taken**", or "**Project not enough info**".

If you post a new project idea, make a new follow-up to maintain first-come-first-served order.

Project Proposal Form

Once you have obtained 'uniqueness approval' as above, you must submit a project proposal using this form, that is available in the Quercus assignment 'Project Proposal'. The proposal should give more detail on what you plan to build for the project, in point form. Its purpose is to give your TA a chance to provide guidance and feedback; it will be used in the grading of your final project, but will not itself be graded.

Recall that the amount of work of the project should be roughly equivalent to two regular ECE 243 lab, under the new grading scheme.

The proposal should be submitted as soon as you have it ready, to Quercus, but no later than Monday March 30 at 9:15am. Once you've submitted the proposal, please email your TA if you would like feedback on it.

Help from TAs:

Your teaching assistant will be available, during the labs of the week of March 30 and labs of the week of April 4, using zoom.

Submitting Project and Grading:

You will submit your code to the Quercus, by the deadline of April 9 at 5pm. If your project runs on CPULATOR you must provide instructions on how to operate it, and tell the grader what to expect when it is run and operated that way.

If you have your own DE1-SoC (and do a project that cannot be demonstrated on CPULATOR), then you must also submit a video of the project running, no more than 5 minutes long, with you describing it in the audio, in addition to submitting your code on Quercus.

Projects will be graded both on functionality (how well you achieved what you proposed

to do) and difficulty (how challenging was the project). Difficulty comes from both code/algorithm complexity as well as any hardware I/O or device complexity. There will be a meeting among instructors and the TAs to create a uniform grading standard across all projects.