

## Lab 1 Rubric

1. Introduction (~2%)
  - a. Give a short explanation of what was done.
  - b. Does not directly copy from lab page
2. Design and Testing (~40%)
  - a. General requirements throughout section
    - i. Concept – why did we do the lab the way we did?
    - ii. Implementation – how
    - iii. Testing
    - iv. Detailed
  - b. Hardware description
    - i. Full description of circuit
    - ii. Complete schematic
  - c. Software description
    - i. Describes all threads, ISRs, and functions
    - ii. Describe software set up
    - iii. Describe state machines used when applicable
3. Documentation (~10%)
  - a. Commented code
    - i. If you did anything out of the ordinary with your code, please explain it such that we can understand it (and you can understand it a year from now!)
  - b. Do pictures/figures support ideas
    - i. Figures are referenced in text where relevant
    - ii. State machines or complicated circuits/mechanisms **MUST** be included
    - iii. Drawn on computer (use tools such fizzim, Schemelt, Draw.io, LucidChart, etc.)
  - c. Good captions
  - d. All figures and information from external sources (including lab document) must be referenced

**Note: There does not need to be an explicit documentation section. All of the information in this section can be interspersed through the rest of the lab. Use your judgement.**

4. Results (~30%)
  - a. Specific
  - b. Explanation of data/testing
  - c. Qualitative Analysis where applicable
    - i. Describe outputs
    - ii. Examples: TFT flicker, audio/visual outputs
    - iii. What performed "well", what performed "poorly"
    - iv. What does yours do that other groups don't (i.e. what's special about yours)
  - d. Quantitative Analysis where applicable
    - i. What are the metrics of the lab (state metrics required by the lab handout)
    - ii. Error analysis where applicable
    - iii. Graphs/Tables of quantitative data
    - iv. Explanation of oscilloscope readings
    - v. Code speed if applicable

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5. Conclusions (~18%)
  - a. General reflections of lab
    - i. What did you learn
  - b. If it didn't work – opportunity to make up points
    - i. In this case, conclusion can be weighted more
    - ii. Ideally, completely describe how checkoff could have been reached, and possible next steps
    - iii. If possible, complete the lab anyway, so that specific errors are diagnosed.
  - c. Issues faced
    - i. No lab is perfect or goes perfectly. Talk about problems encountered while going through the lab and how the problems were debugged.
  - d. Further improvements
    - i. Further improvements in implementation
    - ii. Further improvements to lab in general
  - e. Additional questions if not addressed elsewhere in lab
    - i. Accurate
    - ii. Logically reasonable

**Point values are variable based on requirements for lab, but these are approximate general guidelines.**