

Table A. Rubrics for grading lab notebooks (maximum score: 6, typical score: 3)

Lab notebook considerations	Unsatisfactory (0)	Meets expectations (1)	Exceeds the norm (2)
Design documentation	No evidence of any design work.	Has initial design in notebook, e.g. circuit diagrams, program flowchart.	Evidence of analysis performed on initial design, e.g. SPICE on circuit. Many notes about the design.
Experiment design	No evidence of thought given to experiments; no evidence of data collected.	Some sketches or description of experimental procedure. Some experimental data recorded.	Thorough explanation of experimental procedures; complete data recording. Evidence of repeatable processes.
Data analysis	No conclusions or notes written about collected data.	Some evidence of preliminary data analysis. Some notes or comments related to the data.	Extensive analysis of collected data.

Table B. Rubrics for grading lab performance (maximum score: 8, typical score: 6)

Lab performance considerations	Unsatisfactory (0)	Minimum performance (1)	Meets expectations (2)	Exceeds the norm (3)
Pre-lab preparation	Absent from lab	No evidence of any pre-lab preparation -- no designs. Does not have necessary parts to implement a design.	Has elements of an initial design in notebook, but may lack some details. Comes to lab with software and parts to test a design.	Evidence of complete initial design(s). May include preliminary analysis, e.g. SPICE. Prepared to try multiple design approaches.
Use of lab time and equipment	Absent from lab. Wastes time on irrelevant activities. Leaves before work is done.	Exhibits random approach to lab work and testing; may be careless with equipment. Cannot think of a test. Accomplishes a few objectives.	Uses lab resources (time and equipment) logically and carefully. Exhibits some logical patterns for experiments. Completes most lab objectives.	Completes all lab objectives. Conducts experiments with precision and repeatability. Has time to help classmates.
Post lab activity	Leaves messy lab area		Cleans lab area.	