

Appendix F
MAKING SEMICONDUCTORS
LABORATORY SKILLS CHECKLIST

Behavior	Tools/Instruments	Task Specifics
Follow 1 2 3	Protocols	For experimental procedures
Use 1 2 3	Wires, batteries, and bulbs	To wire a simple circuit
Use 1 2 3	Multimeter	To make electrical measurements
Make 1 2 3	Using a breadboard and solid-state components	A circuit
Insert and operate 1 2 3	Transistors	In a complex circuit
Make 1 2 3	Using materials provided	Two models of steps in the photolithography process
Use 1 2 3	A microscope	To view samples at the correct magnification
Assemble and test 1 2 3	Using a robotics kit	A robot to perform a particular function
Follow 1 2 3	Using proper equipment (goggles, gloves, aprons, etc.)	Appropriate safety procedures

Criteria for evaluation:

1. Student **demonstrates behaviors** that show precision/accuracy, deliberateness, thoroughness.
2. Student **uses tools and instruments** in a manner that is appropriate, careful, safe.
3. Student **accomplishes the laboratory task** in a way that demonstrates application of science concepts and knowledge of the semiconductor fabrication industry.

Proficiency levels:

0. Student is **nonproficient** (gives no effort and shows no evidence of proficiency).
1. Student **attempts proficiency** (shows little evidence of proficiency).
2. Student **approaches proficiency** (shows some evidence of proficiency).
3. Student **attains or reaches proficiency** (shows strong evidence of proficiency).