

(b) Ability to design and conduct experiments, as well as to analyze and interpret data

Outcome	4 Exemplary	3 Proficient	2 Apprentice	1 Novice
Ability to design and conduct an experiment to identify/quantify/evaluate performance of system or part of a system (Hardware, software or both):				
1. Identifying clear goals for the experiment	Clearly identify the objectives of the experiment, the expected results, and possible pitfalls to watch for.	Clearly identify the objectives of the experiment and some of the expected results but does not think of the possible pitfalls.	Identify some of the objectives of the experiment but omits the expected results and possible pitfalls	Does not identify any objectives for the experiment and/or expected results
2. Choosing the appropriate experimental test bed (Hardware, Software, Emulation, Simulation or hybrid) to achieve the identified objectives of the experiment	Chooses the best test bed suitable for achieving the objectives with proper justification	Chooses the best test bed suitable for achieving the objectives with no justification	Chooses a test bed that is not optimum but somehow achieves the identified objectives	Chooses a test bed that does not achieve the objectives at all
3. Designing and conducting the experiment	Student groups design and conduct the experiment with no errors at all	Student groups design and conduct the experiment with some minor errors that do not adversely affect the objectives	Student groups design and conduct the experiment with some errors that affect the results and the objectives	Student groups design and conduct the experiment with major conceptual or procedural errors that render the results useless and leave the objectives unachieved
Ability to analyze and interpret the data	Analysis and interpretation of results exceed requirements of experiment and demonstrate significant higher-order thinking ability.	Analysis and interpretation of results meet requirements of experiment and demonstrate some higher-order thinking ability.	Results are analyzed but not interpreted; very limited evidence of higher-order thinking ability.	No evidence of significant analysis and interpretation of results; fail to meet requirements of the experiment; demonstrate only lower-level thinking ability