ASSESSMENT METHODS: MEASURABLE OUTCOMES & RUBRICS

The performance rubrics below are established by comparison with the benchmark standard, which defines an \average achievement of outcome." In each case, "poor achievement of outcome" and "good achievement of outcome" can be defined by significant deviations below and above the benchmark, respectively.

1.

• MEASURABLE OUTCOME/RUBRIC 1 (a).

Answer questions and solve problems involving core concepts and general principles of physics. Benchmark Standard: Answer conceptual questions correctly most of the time. For the solution of a problem, the concepts and mathematical equations used are basically correct and the numerical answer has the right order of magnitude.

• MEASURABLE OUTCOME/RUBRIC 1 (b).

Answer questions and solve problems involving specific concepts, principles, and problems of a basic subfield or area of application in physics. Benchmark Standard: Answer conceptual questions correctly most of the time. For the solution of a problem, the concepts and mathematical equations used are basically correct and the numerical answer has the right order of magnitude.

2

• MEASURABLE OUTCOME/RUBRIC 2 (a).

Formulate and solve a physics problem via mathematical and computational techniques. Benchmark Standard: Formulate and solve a problem applying an appropriate set of mathematical and computational techniques. \Appropriate" techniques lead to quantitative, relevant predictions.

• MEASURABLE OUTCOME/RUBRIC 2 (b).

Report on a physics problem in a student seminar. Benchmark Standard: Presentation is basic, with a coherent ow and appropriate use of physics concepts for the problem at hand.

3.

• MEASURABLE OUTCOME/RUBRIC 3 (a).

Conduct an experiment in a controlled laboratory setting and compare the results with a physical model or theory. Benchmark Standard: Conduct an experiment for the intended purpose and gather enough data for meaningful comparison with a model or theory.

• MEASURABLE OUTCOME/RUBRIC 3 (b).

Analyze the results of an experiment conducted in a controlled laboratory setting, using error analysis. Benchmark Standard: Analyze the results of an experiment applying an appropriate set of error-analysis techniques. "Appropriate" techniques lead to statistically meaningful conclusions.