EN PHYS 131 - EZ01

Common Mistakes in Lab 7

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Below are some of the common issues I found in marking Lab 7:

- Calculate values and present plots in the Results section, then discuss what they mean in the Discussion. The discussion section is the most important part of the report! It is where you explain your results, compare to what was expected, and conclude whether the experiment was successfully completed.

- The introduction should begin with the physical principles the lab is focussed on. For examples, in Lab 7 you should have a brief explanation of what non-uniform motion (ie. not a constant acceleration). For Lab 8, you are exploring energy conservation using a pendulum. You should briefly introduce energy conservation, then introduce the important equations in the rest of the intro.

- Label equations. You can then refer to them as “Equation #” throughout your report.

- Include one version of each plot unless otherwise instructed. If the lab manual instructs you to draw a line by-hand on top of a plot, you should not fit a function!

- Where does your error in measurements come from? In the Methods section, you should indicate the measuring device you are using (metre stick) and what the uncertainty in measurements using it is. If you have a new metre stick that is easy to read, half of the smallest interval is probably appropriate (0.05 cm). If it is older and beat up, an error of the smallest increment would be a better choice (0.1 cm)

EN PHYS 131 - EZ01- Lab 8

Due Mon. Feb. 29 @ 5 PM

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Procedure:

1. Obtain a spark record of one swing of the pendulum. Draw a line where the pendulum reaches the bottom (at rest). Number the points starting from one end. **Record the mass, bob radius and spark tape radius from the top of the spark machine**
2. Measure the distance to each point from the centre line you drew in (1). Assign one side of the line as positive displacement, and the other negative. Calculate the instantaneous velocity (as in Lab 7).
3. Record results in a spreadsheet. See lab manual for columns to be included.
4. Calculate kinetic, potential, and total energies at each point, and their respective errors (see Appendix 8.1 for formulas).
5. Calculate the energy loss per second using values given by the TA during the demo

$$\theta = \frac{S}{R} \qquad V = \frac{\Delta S}{\Delta t}$$

$$\mathrm{KE} = \frac{1}{2} m \left(\frac{rV}{R} \right)^2$$

$$\mathrm{PE} = mgr(1 - \cos\theta)$$

$$\mathrm{TE} = \mathrm{KE} + \mathrm{PE}$$

In report:

- 1 plot - kinetic, potential and total energy vs. time
- Schematic of apparatus.
- Do you find energy is conserved?
- Is the energy loss per second you calculated significant?