List of known corrections to the PHY 231C online lectures

Lecture#1 Geometry and Math

Slide 3: the surface area of a cylinder shown on this slide is incorrect – the surface area should be: $2\pi r^2 + 2\pi rh$

Lecture#2 Motion in One Dimension

Motion in 1D: acceleration, slide #3 last line of the table, describing the motion is incorrect. Should read:
Traveling with ~~decreasing~~ **INCREASING** speed in the negative direction

Lecture#6 Momentum

Example: Conservation of Momentum, slide 2. The final result for the velocity of the wrench is incorrect. The correct result is: **15.2 m/s**

Lecture#8 Rotation

8.3 Torque and angular acceleration, slide 7 "the rotation axis matters", I is calculated for each situation. For the first case on the left side~~: I= 0.5 kg*m^2~~ is incorrect. The correct value for the moment of inertia, I is **0.25 kg*m^2.** For the second case on the right side~~: I= 0.3 kg*m^2~~ is incorrect. The correct value for the moment of inertia, I is **0.15 kg*m^2.**

Example: Conservation of angular momentum, slide 1 Figure skater
The total mass of the figure skater should be **56 kg including the mass of each of her arms (3 kg each).**

8.4 Rotational kinetic energy, example slide 3:
Change the second sentence from: "~~The ball rolls and both objects do not feel friction~~." to
The ball rolls without slipping and the block slides without friction.

Lecture#9 Solids and Fluids

9.6 Fluid Motion, slide 3: The text on the slides lists the Greek letter rho => ρ: height this is incorrect it should show: **ρ: density**

Lecture#11 Heat

Example: Radiation, slide 2: Two temperatures are given: 37^{o}C and 20^{o}C When these temperatures are converted to Kelvin, the wrong conversion was used (273.5 was add incorrectly added to each temperature). The correct conversion adds 273.15 to each temperature (the conversion from deg C to K is K=deg.C+273.15). The intermediate result changes to 191 J/s and the final result, rounded to two significant figures is unchanged.

Lecture#12 Thermodynamics, Heat Engines

Example: First Law, slide 2: When inserting the change in the volume into the equation: W=-p*ΔV, the value of ΔV should be negative – the minus sign is missing. The result however is correct.

Lecture#13 Oscillations, Waves

Example: Mass/spring and pendulum, slide 2, part d solution. When calculating both the velocity and acceleration, the value of the period was used instead of the value of the angular frequency.

Incorrect: $v(t) = -\omega A \sin(\omega t) = -\cancel{0.028} \sin(22.4t)$

CORRECT $\boldsymbol{v(t) = -\omega A \sin(\omega t) = -2.24 \sin(22.4t)}$

Incorrect: $a(t) = -\omega^2 A \cos(\omega t) = -\cancel{0.0078} \cos(22.4t)$

CORRECT: $\boldsymbol{a(t) = -\omega^2 A \cos(\omega t) = -50 \cos(22.4t)}$