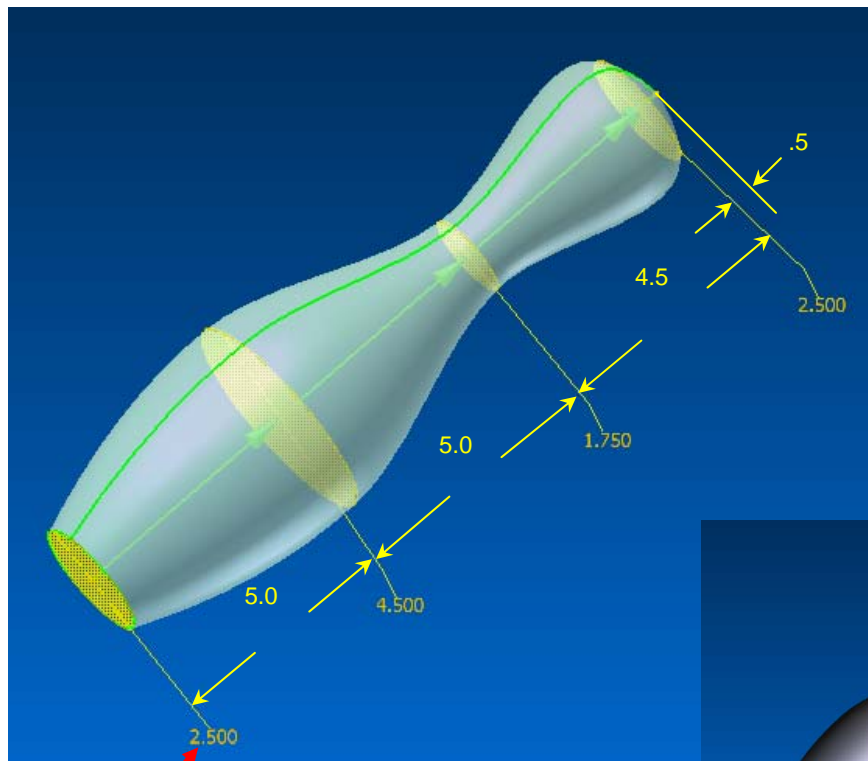


Wind Turbine Design Homework

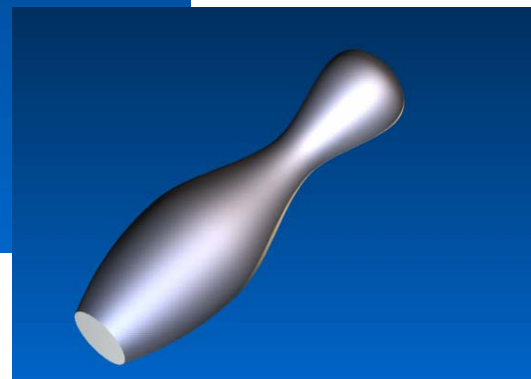
Spring 2008

1. The lecture talked about two types of wind turbines: horizontal axis wind turbines (HAWT), and vertical axis wind turbines (VAWT) and tradeoff factors. Conduct some research on which type of turbine design is used most often, and why this is so. Your answer must be typewritten, and you must cite any sources that you consulted to formulate your answer.
2. Calculate:
 - a. The theoretical power available in the wind blowing at 10 m/s through an area swept by the turbine blade you designed in the lab (6 inches in diameter).
 - b. The maximum power extractable according to the Betz limit.
 - c. What diameter wind turbine would be needed to power a small home installation, which typically might require 10 kW? Assume 10 m/s average wind speed.
3. Using Inventor 2008 (or other solid modeler of your choice), create the bowling pin using the dimensions provided. Turn in a print out of your pin.



Homework

- Create the bowling pin using the dimensions provided. Turn in a copy of the pin.



← Diameter of section profile