Design of Wind Energy Systems – Summer semester 2016
Design-Tutorial 4: Tower design

Tasks to be solved in Tutorial 4:

a) Calculate the required eigenfrequency of your tower in dependency of your nominal rotor speed.

Hint: Think of the excitation of oscillations due to the rotor revolution and include a minimum safety margin of 10%

b) What is the design range used for your turbine?

What is the typical approach in wind turbine design?

c) Calculate the wall thickness of your tower.

What is the impact of the wall thickness in the eigenfrequency and cost? Assume cost of steel to be 500€/ton

Hint: change the value of the thickness and plot the variation of eigenfrequency as function of wall thickness

d) Prepare the Campbell diagram of your turbine and comment your results