Topics to be covered:
• Energy demand and supply, prospects for wind, offshore vs. onshore sites
• Understanding policy and pricing that determines where and how wind energy is successful
• Overview of wind energy conversion. Maximum efficiency, wind variation with height.
• Scaling of wind loads on turbine structure. Turbine performance curves and definitions of rated power, cut-in and cut-out, and survival wind speeds.
• Introduction to the atmosphere. Source of winds, synoptic scales, geostrophic wind, Variability of the wind.
• Assessing the wind energy potential of a site. Wind speed profiles, wind measurement & resource assessment, Weibull probability distribution functions. Using meteorological tower and lidar data.
• How to design turbine blades. Aerodynamics and blade element momentum theory.
• Wind farms, turbine wakes, and array micrositing of wind turbines.
• Birds, bats, and wind turbines. Wind energy and climate change.

Wind Energy Module
(Cheme 6664)

Dates:
Oct 1-31 2015
TTh 255- 410 pm
Snee Hall 1120

For more information contact:
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Prerequisite: A basic course in science/engineering