MECH 575
“Solar and Alternative Energies”

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Outline

I. Solar Photovoltaics (PV): (7 weeks)
   Basics of Solar Energy, Fundamentals of PV, Si Cell Technology, Thin Film PV,
   Emerging PV Technologies, Characterization and testing, PV system design and
   economics, PV in Buildings, Economics for on-grid and off-grid systems.

II. Solar Thermal: (2 weeks)
   Flat plate collectors, Solar water heaters, parabolic trough systems, Hybrid solar
   lighting technologies.

III. Wind Energy: (4 weeks)
   Introduction, Wind characteristics and resources, aerodynamics, mechanics and
   dynamics, applications.

IV. Biofuels: (1 week)

V. Geothermal (1 weeks)

Grading: Homework – 10%, Term paper – 20%, Midterm – 30%, Final Exam – 40%