

Subject: Renewable Energy

Theoretical: 3 hrs/wk

Code: PM406

Class: 4th Year

Tutorial: 1 hr/wk

Overview of energy use: Today's energy use, Fossil fuels and environmental impact,

Renewable energy source and devices,

Solar Energy: Solar radiation, solar thermal energy, Photovoltaics (Solar cells), CO₂

capture and solar fuels

Wind Energy and Hydroelectricity: Availability of wind energy, Wind turbines, wind

parks and power control,

Water sources and power: Water turbines and hydroelectric plants.

Energy Storage: Smart grid systems, Hybrid vehicles, Forms of energy storage, Batteries,

Super-capacitors. Overview on Hydrogen and Fuel Cells, Coal-fired plants and integrated

gasifier fuel cell (IGFC) systems, Biomass and Bio-energy

Thermoelectricity and Waste-Heat Utilization. Utilization of Renewable energy plants as

Distributed generation sources in power systems.