NON CONVENTIONAL ENERGY SOURCES
Code : EI 605D
Contacts : 3L
Credits : 3

Module I
Classification of Energy Sources
Advantages of Non Conventional Energy Sources over Conventional Sources Economics, Impact on Environment [2]

Thermal Energy Generation from Solar Energy:
Solar radiation and its Characteristics, Solar Collector: flat Plate, evacuated tube, focusing, Solar Energy use for water heating, Solar thermal power generation. [5]

Principle of energy conversion in Solar Photovoltaic cells, Different types of PV Cells, Mono-poly crystalline and amorphous Silicon solar cells. Design of PV array. Efficiency and cost of PV systems. [4]

Module II
Electricity Generation from Wind Energy:
Wind as energy source, Design of Wind turbine, Selection of site of Wind farm, characteristics of different types of wind generators used with wind turbines. [5]

Electricity Generation from Bio Energy:
Resources and conversion process: bio gas conversion, bio gas plant, bio mass gasifier, cogeneration. Bio diesel: Sources, usability and advantages over mineral product [6]

Module III
Electricity Generation from Tidal Energy: Principle, selection of site, Economics and future prospect. [2]

Electricity Generation from Wave Energy: Principle , selection of site and future prospect [2]

Electricity Generation from Geo thermal Energy: Principle , location , economics and prospect [2]

Introduction to Energy Conservation & Audit [2]

Books:
1. Bansal, Kleeman & Melisa - "Renewable Energy Sources & Conversion Technology" - TMH New Delhi.
2. S P Sukhatme - "Solar Energy"
3. Twidell & Weir - "Renewable Energy Resources"; ELBS
4. Non Conventional Energy Sources – G. D. Rai