VEER NARMAD SOUTH GUJARAT UNIVERSITY

Proposed syllabus for B. Sc. Semester III or IV

Subject: Renewable Energy sources (GE)

[2 credit course- 3 hours per week]

(In force from year : 2012 – 2013)

Introduction to Renewable energy sources:

- Solar energy: Introduction, direct solar energy, Use of direct solar energy, Technologies for converting solar energy to electricity.
- Wind energy: Introduction, Power generation in the windmill, Advantages disadvantages of windmill.
- Tidal energy: Introduction, types of Tidal power generation systems, Advantages disadvantages of Tidal power.
- Geo-Thermal energy: Introduction, origin and nature of geothermal energy, Geothermal energy extraction. Geothermal fields in India. Advantages disadvantages of geothermal energy.
- Hydroelectric energy: Introduction, hydroelectric power generation, Advantages disadvantages of hydroelectric energy.

Recommended books:

1. Renewable Energy sources and their environmental Impact. by S A Abbasi & Naseema Abbasi. [PHI] 2001.
2. Energy and Environment by E.H. Thorndike, Addison – Wesley 1976.
3. Energy , Resources and Policy by R.C. Dorf, Addison – Wesley 1978.
4. Energy by K. Parikh , The Macmillan Company of India, 1976.

VEER NARMAD SOUTH GUJARAT UNIVERSITY

Proposed syllabus for B. Sc. Semester III or IV

Subject: Non Renewable Energy Sources (GEC)

[2 credit course- 3 hours per week]

(In force from year : 2012 – 2013)

Introduction to Non Renewable energy sources:

- Oil and Natural Gas(Fossil Fuels): Introduction, Crude Oil Reserves, Natural Gas Reserves, Recovering Oil and Gas, Impact on Environment.
- Coal: Introduction, Coal as a Fossil Fuel of the Future, Coal Reserves, Coal Combustion for Power Generation, Environmental Impacts.
- Nuclear Energy: Introduction, Energy and Mass, Nuclear Fission, Chain Reaction, Critical Mass, Power from Nuclear Fission Reactors, Thermonuclear Fusion, Difficulties, About Fuel Reserves, Safety and Waste Issues.
- Unconventional Oil and Gas Resources: Oil Shale, Tar Sands
- Fossil Fuels and Greenhouse Effect: Greenhouse Effect, Energy and Greenhouse Gas Emissions, Weather and Climate, Natural Change of Climate, Global Warming.

Recommended books:

1. Our Future Resources: Alternatives and the environment. Christian Ngô & Joseph B. Natowitz. JOHN WILEY & SONS 2009
2. Energy and Environment by E.H. Thorndike, Addison – Wesley 1976.
3. Energy , Resources and Policy by R.C. Dorf, Addison – Wesley 1978.
4. Energy by K. Parikh , The Macmillan Company of India, 1976.