

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT.**

**S.Y. B.Sc.**

**ENERGY**

**(Effective from 1997-98)**

Energy – introduction, Global energy flow - introduction, the sun, the earth, variation of temperature with latitude, reflection of solar radiation, the atmosphere – radiative effects. convection and evaporation , human influence on global energy flows.

Sources of energy – introduction, figures of merit for energy sources, problems in evaluating energy resources, continuous sources of energy , sources of stored energy, energy resources of India.

The technology of energy use- fossil fuel fired electric generating plants, power form nuclear fission, dangers form nuclear energy, radioactive release form reactors, breeder reactors, power form nuclear fussion , solar energy schemes, fuel cells, heat pumps.

History of use of wind energy, advantages and potentials for wind power machines, efficiency of a horizontal axis windmill, proposed large wind driven generating systems, tidal energy, types of tidal power schemes, hydrogen, as a fuel safety of using hydrogen, production of hydrogen, economics of hydrogen production.

Projections of energy consumption, compound growth, exponential growth, use of energy In India, requirement of energy up to 2001 for India, present consumption, resources and future needs of energy in Gujarat.

Energy conervation and growth reduction, Space heating, transportation, other areas.

Energy growth must eventually stop; , why do need more energy, possible scenarios for the future.

## **Recommended Books and References :-**

1. Energy and Environment by E.H. Thorndike, Addison – Wesley 1976  
Chapters 1,2,4,5,6,13, to 6,16,8, to 8.3,9.2, 9.3, 9.6
2. Energy , Resources and Policy by R.C. Porf, Addison – Wesley 1978  
Chapters 4,14,18.
3. Energy by K. Parikh , The Macmillan Company of India, 1976,  
Chapters 3,4,5.
4. Gujarat Economy in 2001 A.S. – A Study in perspective – S.P. Institute of  
Economic and Social Research, Ahmedabad. 1975  
Chapters 10
5. Energy and Environment by J.M. Eowler , McGraw – Hill Book Co., 1975.