13EE2205-GENERATION OF ELECTRIC POWER

(EEE)

Instruction/week: 4 hrs. Max. Sessional marks: 40
Univ. Exam: 3 hrs. Univ. Exam marks:60

UNIT-I

Thermal Power Stations: Introduction, Selection of site and description of Thermal Power Station (TPS) showing paths of coal, steam, water, air, ash and flue gasses.- Brief description of TPS components: Economizers, Boilers, Super heaters, Turbines, Condensers, Electronic precipitator, Chimney and Cooling towers.

UNIT-II

Hydro-Electric Plants: Introduction, Selection of site for Hydro – electric plants, classification of Hydro – electric plants, Hydel Station layout, Description of main components, types of turbines, pumped Storage plant.

Nuclear Power Stations: Nuclear Fission and Chain reaction.- Nuclear fuels.- Principle of operation of Nuclear reactor.-Reactor Components: Moderators, Control rods, Reflectors and Coolants.- Radiation hazards: Shielding and Safety precautions.- Types of Nuclear reactors and brief description of PWR, BWR and FBR.

UNIT –III

Non conventional sources of energy and plants: Basics of Solar energy generation: Role and Potential of solar energy, solar Radiation, Solar energy collectors, Solar energy storage, solar applications.

Basics of wind energy generations: Role and potential of wind energy option, wind mills, variation of power output with wind speed, Betz criterion, applications.

UNIT –IV

Principle of MHD generation, MHD Cycles and working fluids,open cycle MHD system, Closed Cycle MHD System, advantage of MHD generation, voltage and power output of MHD generator, parameters governing power output.

UNIT –V

Economic Aspects of power generation: Load curve ,load duration and integrated load duration curve, Mass curve,number and size of generator units, Demand factor, Diversity Factor, plant use factor, Plant Capacity Factor, Utilization Factor,Cost of generation and their division into fixed, semi fixed and running cost.Tariff Methods**:**Objectives of Tariff, Tariff methods.

TEXT BOOKS:

1. "Generation of Electrical Energy"- by B.R Gupta-S.Chand Publications.
2. "A Text Book on Power System Engineering" by M.L Soni, P.V Gupta, O.S Bhatnagar- Dhanpat Rai & Co.
3. "Principles of Power System" by V.K Mehta & Rohit Mehta- S.Chand Publications.

REFERENCES:

1. "Generation, Distribution and Utilization of Electrical Energy" by C.L Wadhwa-New age International
2. "Non Conventional Energy Sources" by G.D Roy- Khanna-Publishers.