GUJARAT TECHNOLOGICAL UNIVERSITY

Mechanical Engineering (Thermal Engineering)

M.E Semester: III

Subject Name: **Economics & Management of Thermal Systems**

Sr.No	Course content
1.	**Role of Power in the Development of a Society with Emphasis on Indian Scene:** Both rural and urban as well as agriculture and Industrial development, General economic considerations leading to the choice of a power plant.
2.	**Fluctuating Loads on Power Plants:** Introduction, load curves, Different terms and definitions, Effect of variable load on power plant design and operation, Method to meet variable loads.
3.	**Peak Load Plants:** Requirements, Pump storage power plants, Economical justification of pump storage plant, Their advantages and disadvantages compressed air storage plants, Their advantages and limitation.
4.	**Economic Analysis of Power Plants:** The cost of electrical energy, Selection of the type of generation, Selection of generating equipment, Performance and operating characteristics of power plants, Load division among generators, Tariff methods for electrical energy, Economics of various types of power plants.
5.	**Combined Operation of Power Plant:** Their advantages, Load division between power stations storage type hydro electric plant on combination with steam power plant, Run-off river plant in combination with steam power plant, Coordination hydroelectric and gas turbine plants, Coordination of hydroelectric and nuclear power plants.
6.	**Role of fuels in power plant economics.**

Reference Books:

1. Energy management handbook, by Wayne C. Turner, Culinary and Hospitality Industry Publications Services.
2. Handbook of Energy Audits, by Thumann & Younger, Fairmont Press
3. Renewable Energy: Technology, Economics, and Environment by Kaltschmitt, M.
4. Engineering Economics & Costing, by Agasty, SciTech publication (India) pvt.ltd
5. Industrial organization & engineering Economics, by Banga & Sharma, SciTech publication (India) pvt.ltd