Approval : 10th Senate Meeting

S4. Course Number: ME 639

Course Name: Thermal Power Plant Engineering

Credits: 3-0-0-3

Prerequisites: Instructor's consent

Intended for: M. Tech. /UG/MS/PhD

Distribution: Specialized stream elective course for M. Tech. in Mechanical Engineering with specialization in Energy Systems, and elective course for other students

Semester: Odd/Even

Preamble: Thermal power plants utilizing mainly from heat from coal and other fossil fuel sources are dominating method of power production in current power generation basket. This course will contribute to a comprehensive understanding of thermal power plant technology, which will be helpful for training manpower for operation and design of thermal power plants.

Course Outline: This course will cover the construction details, inter-connection, functionality parameter appreciation and selection of parameters according to scales for various components of thermal power plants.

Course Modules:

Module - 1:
Types of thermal power stations, Steam power stations based on fossil fuels, Economy and thermal scheme of the steam power stations (4 L)

Module - 2:
Thermal power plant equipment - boilers, super heaters, super critical steam generator, economizers, feed water heater, condensers (20 L)

Module - 3:

Combustion chamber and gas loop, turbines, cooling towers, etc. Gas turbine power stations, Combined cycle power plants (12 L)

Module - 4:

Internal combustion engine plant for peak load, standby and start-up (6L)

Text Books:

1. Amiya Ranjan Mallick Practical Boiler Operation Engineering and Power Plant. PHI Learning; 4th Revised edition (30 November 2015)

2. Dr. R. Yadav. Steam and Gas Turbines and Power Plant Engineering, 7th Edition. Central Pub House-Allahabad (2000)

Other Faculty interested in teaching this course:

Proposed by: Dr. Pradeep Kumar/ Dr. Rajeev Kumar School: SE