Course Type	Course Code	Name of Course	L	T	P	Credits
DE	NMED515	Advanced Steam Power Plant	3	0	0	3

Course Objectives

Prerequisite: Basic knowledge of steam power plant is essential

- To impart knowledge dealing with computation aspects of Advanced Steam Power Plant.
- This course is essential for design of Thermal power plant.

Learning Outcomes

- llustrate the fundamental principles and applications of thermal power plant system.
- Obtain heating capacity, output power and efficiency by conducting test on vapour cycles.
- Present the properties, applications and environmental issues of different coal.
- Calculate performance at different loads for thermal power plant systems used for various applications. Operate and analyze the thermal plants.

Unit No.	Topics to be Covered Lecture	Lecture Hours	Learning Outcomes
1	Introduction: Energy sources and scenario	2L	Students will know the use of thermal properties in engineering and other applications
2	Power Plant Cycles – Reheat and Regenerative	10L	An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political ethical health
3	Supercritical – Coupled and Combined Cogeneration Plants	6 L	An ability to design a system and improve the output power of the thermal power plant
4	Exergy Analysis of Power Plant Cycles	3 L	An ability to identify, formulate and utilize maximum amount of energy
5	Coal, its properties and combustion	5 L	The understanding of coal properties and relative technical term combustion in thermal power plant
6	Analysis and seizing of Power Plant Components: Steam generator, Condenser, Cooling tower and other heat exchangers	7 L	Calculations of heating and cooling load, sensible heat and lateral heat in thermal power plant involve the usage of property equations framed earlier
7	Power plant economics and Energy audit	5 L	Known about the economics of the thermal power plant with relative the mathematical equation
8	Recent trends in Power Production	4 L	An ability to identify and formulate the thermal power plant in the current scenario
	Total	**42 hrs**	

Text Books

1. Principle of Energy Conversion by A. W. Culp, Tata McGraw-Hill.

2. Power Plant Technology by M. M. Elwakil, Tata McGraw-Hill.

Reference books

1. Applied Thermodynamics by T. D. Eastop and A. McConkey, ELBS.

2. Modern Power Plant Engineering by J. Weisman and R. Eckart, Prentice Hall.

3. Power Plant Engineering by P. K. Nag, Tata McGraw-Hill.