

SARDAR RAJA COLLEGE OF ENGINEERING, ALANGULAM

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

MICRO LESSON PLAN



SUBJECT : POWER PLANT ENGINEERING

CODE : EE 2252

CLASS : II Year / IV SEM

Prepared By

I. Arul Doss Adaikalam

A.P/EEE

UNIT I THERMAL POWER PLANTS 12

Basic thermodynamic cycles, various components of steam power plant-layout-pulverized coal burners- Fluidized bed combustion-coal handling systems-ash handling systems- Forced draft and induced draft fans- Boilers-feed pumps-super heater- regenerator-condenser- deareators-cooling tower.

UNIT II HYDRO ELECTRIC POWER PLANTS 12

Layout-dams-selection of water turbines-types-pumped storage hydel plants.

UNIT III NUCLEAR POWER PLANTS 12

Principles of nuclear energy- Fission reactions-nuclear reactor-nuclear power plants.

UNIT IV GAS AND DIESEL POWER PLANTS 12

Types, open and closed cycle gas turbine, work output & thermal efficiency, methods to improve performance-reheating, intercoolings, regeneration-advantage and disadvantages- Diesel engine power plant-component and layout.

UNIT V NON-CONVENTIONAL POWER GENERATION 12

Solar energy collectors, OTEC, wind power plants, tidal power plants and geothermal resources, fuel cell, MHD power generation-principle, thermoelectric power generation, thermionic power generation.

L = 45 T = 15 TOTAL = 60 PERIODS

TEXT BOOKS:

1. A Course in Power Plant Engineering by Arora and Domkundwar, Dhanpat Rai and Co.Pvt.Ltd., New Delhi.
2. Power Plant Engineering by P.K. Nag, Tata McGraw Hill, Second Edition , Fourth reprint 2003.

REFERENCES:

1. Power station Engineering and Economy by Bernhardt G.A.Skrotzki and William A. Vopat-Tata McGraw Hill Publishing Company Ltd., New Delhi, 20th reprint 2002.
2. An introduction to power plant technology by G.D. Rai-Khanna Publishers, Delhi- 110 005.
3. Power Plant Technology, M.M. El-Wakil McGraw Hill 1984.

SUBJECT DESCRIPTION AND OBJECTIVES

DESCRIPTION

To expose the students to basics of various power plants so that they will have the Comprehensive idea of power system operation.

The Power Plant's mandate continues to be a touchstone guiding our vision, goals and objectives. The Power Plant is Canada's leading public gallery devoted exclusively to contemporary visual art. It is a vital forum for the advanced artistic culture of our time that offers an exceptional facility and professional support to diverse living artists while engaging equally diverse audiences in their work. The Power Plant pursues its activities through exhibitions, publications and public programming. It fulfills its mandate by generating:

- exhibitions that represent the range of advanced practice in visual arts;
- publications that increase knowledge of contemporary art;
- lectures and symposia that encourage debate and further understanding;
- interpretative tools that invite visitors to question, explore and reflect upon their experiences;
- programming that incorporates other areas of culture when they intersect with visual art.

OBJECTIVE

- To become familiar with operation of various power plants.

MICRO LESSON PLAN

Hours	LECTURE TOPICS	READING
UNIT I THERMAL POWER PLANTS		
1	Basic thermodynamic cycles	T2
2	Various components of steam power plant	T2
3	Layout	T2
4	Pulverized coal burners	T1
5	Fluidized bed combustion	T1
6	Coal handling systems	T1
7	Ash handling systems	T1
8	Forced draft and induced draft fans-	T1
9	Boilers	T1
10	Feed pumps	T1
11	Super heater- regenerator	T2
12	Condenser- dearearators-cooling tower	T1
UNIT II HYDRO ELECTRIC POWER PLANTS		

13	Layout	T1
14&15	Dams	T1
16,17&18	Selection of water turbines	T1
19,20&21	Types	T1
22&23	Pumped storage hydel plants	T1
24	Revision	T1
UNIT III NUCLEAR POWER PLANTS		
25&26	Principles of nuclear energy	T2
27,28&29	Fission reactions	T 2
30,31&32	Nuclear reactor	T2
33,34&35	Nuclear power plants	T2
36	Revision	T2
UNIT IV GAS AND DIESEL POWER PLANTS		
37	Types	T1
38&39	Open and closed cycle gas turbine	T1
40&41	Work output & thermal efficiency	T1
42	Methods to improve performance	T1
43	Reheating, inter cooling	T1
44	Regeneration	T1
45	Advantage and disadvantages	T1
46	Diesel engine power plant	T1
47&48	Component and layout	T1
UNIT V NON-CONVENTIONAL POWER GENERATION		
49	Solar energy collectors	T1
50	OTEC	T1
51&52	Wind power plants	T1
53&54	Tidal power plants	T1
55	Geothermal resources	T1
56	Fuel cell	T1
57&58	MHD power generation-principle	T1
59	Thermoelectric power generation	T1
60	Thermionic power generation	T1

Prepared By

I. Arul Doss Adaikalam

A.P/EEE