

# Ch. Ranbir Singh State Institute of Engg. & Technology

## LESSON PLAN

<b>Semester</b> (B.Tech)	<b>7th</b>	<b>Year</b> 2020	<b>Contact Hours per week =4</b>
<b>Sub: Power Plant Engineering</b>		<b>Branch</b>  Mechanical Engineering	<b>Total Credit 4</b>
<b>TEACHER</b>		<b>Sh. Manjeet Kumar</b>	
<b>Period</b>		<b>July 2020-Dec. 2020</b>	
<b>Sl. No.</b>	<b>Lecture No.</b>	<b>Topics to be covered</b>	<b>No. of Classes</b>
<b>MODULE-1</b>			<b>07</b>
1	Lecture-01	Introduction: Energy resources and their availability,	
2	Lecture-02	types of power plants, selection of the plants,	
3	Lecture-03	Review of basic thermodynamic cycles used in power plants.	
4	Lecture-04	Hydro Electric Power Plants : Rainfall and run-off measurements and plotting of various curves for estimating stream flow and size of reservoir,	
5	Lecture-05	power plants design,	
6	Lecture-06	construction and operation of different components of hydro-electric power plants	
7	Lecture-07	site selection, comparison with other types of power plants.	
<b>MODULE-2</b>			

08	Lecture-8	Steam Power Plants: Flow sheet and working of modern-thermal power plants,	<b>10</b>
09	Lecture-9	super critical pressure steam stations, site selection,.	
10	Lecture-10	coal storage, preparation, coal handling systems,	
11	Lecture-11	feeding and burning of pulverized fuel, ash handling systems	
12	Lecture-12	, dust collection-mechanical dust collector and electrostatic precipitator.	
13	Lecture-13	Combined Cycles: Constant pressure gas turbine power plants, Arrangements of combined plants ( steam & gas turbine power plants )	
14	Lecture-14	re-powering systems with gas production from coal, using PFBC systems,	
15	Lecture-15	with organic fluids, parameters affecting thermodynamic efficiency of combined cycles	
16	Lecture-16	Problems	
17	Lecture-17	<b>Class Test on Module-2</b>	
		<b>MODULE-3</b>	
18	Lecture-18	Nuclear Power Plants: Principles of nuclear energy	<b>09</b>
19	Lecture-19	, basic nuclear reactions, nuclear reactors-PWR, BWR, CANDU,	
20	Lecture-20	Sodium graphite, fast breeder, homogeneous; gas cooled.	
21	Lecture-21	Advantages and limitations, nuclear power station, waste disposal.	
22	Lecture-22	Power Plant Economics: load curve, different terms and definitions,	
23	Lecture-23	cost of electrical energy, tariffs methods of electrical energy,	
24	Lecture-24	performance & operating characteristics of power plants- incremental rate theory,	
25	Lecture-25	input-output curves, efficiency, heat rate,	
26	Lecture 27	economic load sharing, Problems.	
		<b>MODULE-4</b>	
28	Lecture 28	Non-Conventional Power Generation: Solar radiation estimation,	<b>9</b>
29	Lecture 29	solar energy collectors, low, medium & high temperature power plants,	
30	Lecture 30	OTEC, wind power plants, tidal power plants,	
31	Lecture 31	geothermal power plants.	
32	Lecture-32	Direct Energy Conversion Systems: Fuel cell, MHD power generation-principle,.	
33	Lecture-33	open & closed cycles systems,	
34	Lecture-34	thermoelectric power generation	
35	Lecture 35	, thermionic power generation	
39	Lecture-39	<b>Class Test on Module-4</b>	
40		<b>Tips for final exams</b>	

Signature of Teacher

