

**GOPAL KRISHNA COLLEGE OF
ENGINEERING AND TECHNOLOGY
GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005**

LESSON PLAN

Name of the Subject: POWER PLANT ENGINEERING

Name of the Faculty: Er. RASHMI RANJAN MISHRA

Subject Code:MEPE3006

Course Structure:3-0-0

Semester: 6th Semester

Branch:Mechanical

Semester From: December to April

No. of Weeks: 15 Weeks

Week	Day	Theory Topics	Class
1st	1st	Introduction to power generation and energy sources	1
	2nd	Carnot cycle	1
	3rd	Rankine cycle	1
2nd	1st	Reheat cycle	1
	2nd	Regenerative cycle	1
	3rd	Combined cycle power plants	1
3rd	1st	Steam generators: classification	1
	2nd	Fire-tube boilers	1
	3rd	Water-tube boilers	1
4th	1st	Pulverized coal burners	1
	2nd	Fluidized bed combustion (FBC)	1
	3rd	Boiler performance	1
5th	1st	Combined cycle plants: IGCC	1

Week	Day	Theory Topics	Class
	2nd	Coal-based combined plants	2
	3rd	Revision (Module-II)	1
6th	1st	Nozzles: types and applications	1
	2nd	Flow of steam through nozzles	2
	3rd	Supersaturated expansion	1
7th	1st	Steam turbines: classification	1
	2nd	Impulse turbines	1
	3rd	Reaction turbines	1
8th	1st	Turbine efficiencies	1
	2nd	Energy losses in turbines	1
	3rd	Governing and control	1
9th	1st	Condensers: classification	1
	2nd	Jet condenser	1
	3rd	Surface condenser	1
10th	1st	Air leakage and vacuum efficiency	1
	2nd	Condenser efficiency	1
	3rd	Cooling water systems	1
11th	1st	Cooling towers and calculations	1
	2nd	Numerical problems (Modules III–V)	1
	3rd	Revision session	1

Week	Day	Theory Topics	Class
12th	1st	Diesel power plants: layout	1
	2nd	Components and working	1
	3rd	Applications and performance	1
13th	1st	Advantages and disadvantages of diesel plants	1
	2nd	Nuclear power: basics	1
	3rd	Nuclear fuels and reactor components	1
14th	1st	Types of reactors: BWR, PWR	2
	2nd	Gas-cooled reactors	1
	3rd	Reactor control and safety	1
15th	1st	Hydroelectric power plants	1
	2nd	Hydrological cycle	1
	3rd	Hydraulic turbines	1
16th	1st	Environmental impacts and sustainability	1
	2nd	Comprehensive revision	1
	3rd	Doubt clearing and exam preparation	2

Books Recommended

1. Power Plant Engineering — **P. K. Nag**
2. A Course in Power Plant Engineering — **S. C. Arora and S. Domkundwar**
3. Power Plant Engineering — **Frederick T. Morse**
4. Power Plant Technology — **M. M. El-Wakil**
5. Steam and Gas Turbines and Power Plant Engineering — **R. Yadav**

Teaching Methodology

- Chalk and board teaching
- PPT presentations and animations
- Numerical problem-solving sessions
- Tutorial classes and assignments
- Industrial case studies
- Group discussions and revision sessions

Assessment Strategy

- Internal assessment examinations
- Assignment and tutorial evaluation
- Numerical problem-solving tests
- Attendance and classroom participation
- Semester end examination as per Biju Patnaik University of Technology guidelines