



**GOVERNMENT POLYTECHNIC, KORAPUT**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

<b>Discipline:</b> <b>MECHANICAL ENGG</b>	<b>Semester:</b> 4TH	<b>Name of the Teaching Faculty:</b> SHARADLA SABAR
<b>Subject:</b> THERMAL ENGG -2	<b>No. of days/per week class allotted:</b> 4	<b>Semester From date:</b> 20/4/21. <b>To Date:</b> 03/12/21 <b>No. of Weeks:</b> 15

**COURSE OUTCOMES**

Student will develop ability towards.

1. Understanding the power developed in I.C engine and efficiency.
2. Understanding the principle, performance and application of air compressor.
3. Determining thermodynamic properties of steam using steam tables & mollier chart.
4. Comprehending the working of various steam generators i.e. boilers.
5. Comprehending the vapor power cycles and computing work done & efficiencies thereof

Week	Class Day	Theory/Practical Topics
1 <sup>ST</sup>	1 <sup>ST</sup>	Introduction to ic Engine, parts of ic Engine
	2 <sup>ND</sup>	Terminology related to ic engine, indicated power
	3 <sup>RD</sup>	Brake power, mechanical efficiency
	4 <sup>TH</sup>	Indicated thermal efficiency, brake thermal efficiency, relative efficiency, overall efficiency
2 <sup>ND</sup>	1 <sup>ST</sup>	Specific fuel consumption
	2 <sup>ND</sup>	Numericals
	3 <sup>RD</sup>	Numericals
	4 <sup>TH</sup>	Air fuel ratio, types of mixture, calorific value
3 <sup>RD</sup>	1 <sup>ST</sup>	Air compressors, industrial use of compressors
	2 <sup>ND</sup>	Classification of compressors, principle of operations
	3 <sup>RD</sup>	Reciprocating air compressor
	4 <sup>TH</sup>	Terminology related reciprocating air compressor
4 <sup>TH</sup>	1 <sup>ST</sup>	Single stage air compressor with clearance
	2 <sup>ND</sup>	Single stage air compressor without clearance
	3 <sup>RD</sup>	Multistage air compressor with clearance
	4 <sup>TH</sup>	Multistage air compressor with clearance
5 <sup>TH</sup>	1 <sup>ST</sup>	Multistage air compressor without clearance
	2 <sup>ND</sup>	Numericals
	3 <sup>RD</sup>	Numericals
	4 <sup>TH</sup>	Numericals
6 <sup>TH</sup>	1 <sup>ST</sup>	Gas, vapour, pure substance
	2 <sup>ND</sup>	Formation of steam
	3 <sup>RD</sup>	Representation on pv, ts, hs, th diagram
	4 <sup>TH</sup>	Properties of steam
7 <sup>TH</sup>	1 <sup>ST</sup>	Properties of steam
	2 <sup>ND</sup>	Mollier diagram & steam table



8 <sup>TH</sup>	3 <sup>RD</sup>	Flow & non flow process of vapour
	4 <sup>TH</sup>	Flow & non flow process of vapour
	1 <sup>ST</sup>	Numericals
	2 <sup>ND</sup>	Numericals
9 <sup>TH</sup>	3 <sup>RD</sup>	Numericals
	4 <sup>TH</sup>	Numericals
	1 <sup>ST</sup>	Boiler , classification of boiler
	2 <sup>ND</sup>	Types of boiler
10 <sup>TH</sup>	3 <sup>RD</sup>	Cochran boiler
	4 <sup>TH</sup>	Babcock & Willcox boiler
	1 <sup>ST</sup>	Boiler draught
	2 <sup>ND</sup>	Boiler draught
11 <sup>TH</sup>	3 <sup>RD</sup>	Boiler mountings
	4 <sup>TH</sup>	Boiler mountings
	1 <sup>ST</sup>	Boiler mountings
	2 <sup>ND</sup>	Boiler mountings
12 <sup>TH</sup>	3 <sup>RD</sup>	Boiler accessories
	4 <sup>TH</sup>	Boiler accessories
	1 <sup>ST</sup>	Carnot cycle
	2 <sup>ND</sup>	Carnot cycle
13 <sup>TH</sup>	3 <sup>RD</sup>	Rankine cycle
	4 <sup>TH</sup>	Rankine cycle
	1 <sup>ST</sup>	Numericals
	2 <sup>ND</sup>	Numericals
14 <sup>TH</sup>	3 <sup>RD</sup>	Numericals
	4 <sup>TH</sup>	Numericals
	1 <sup>ST</sup>	Modes of heat transfer
	2 <sup>ND</sup>	Fouriers law of heat conduction
15 <sup>TH</sup>	3 <sup>RD</sup>	Newton law of cooling
	4 <sup>TH</sup>	Radiation , law's of radiation
	1 <sup>ST</sup>	Black body radiation, emmissivity, absorbity,transmissibility
	2 <sup>ND</sup>	Heat exchanger
	3 <sup>RD</sup>	Heat exchanger
	4 <sup>TH</sup>	Revision

### LEARNING RESOURCES:

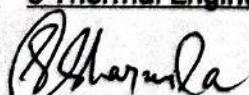
**1 Thermal Engineering R.S. Khurmi S.Chand**

**2 Thermal Engineering A.R.Basu Dhanpat Rai**

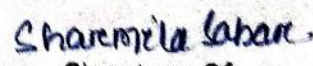
**3 Thermal Engineering A.S. Sarao Satya Prakash**

**4 Engineering Thermodynamics P.k.Nag TMH**

**5 Thermal Engineering Mahesh M Rathore TMH**

  
Sign. Of Faculty  
concerned

  
Principal

  
Signature. Of  
HOD