



GOVERNMENT POLYTECHNIC, KORAPUT
DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: ELECTRICAL ENGG	Semester: 3RD	Name of the Teaching Faculty: B SAI SNATOSH
Subject: ELEMENT OF MECHANICAL ENGG	No. of days/per week class allotted:	Semester From date: _____ To Date: _____ No. of Weeks: 15

COURSE OUTCOMES

On completion of the course content the students will be able to:

1. Explain the principle of working of Boilers, Turbines and condensers.
2. State the different types of boilers and Turbines and their uses.
3. Explain the properties of steam.
4. State and explain thermodynamic laws.

Week	Class Day	Theory/Practical Topics
1 ST	1 ST	Introduction to thermodynamics, scope of thermodynamics, approach of thermodynamics
	2 ND	Thermodynamics system, properties, path, state, process
	3 RD	Thermodynamics equilibrium, point function, path function, reversible, irreversible process
	4 TH	Heat transfer & work transfer
2 ND	1 ST	First law of thermodynamics
	2 ND	Law's of perfect gas
	3 RD	Specific heat capacity, cp, cv
	4 TH	Relationship between cp & cv
3 RD	1 ST	Pure substance, formation of steam
	2 ND	T-v, T-s diagram of water
	3 RD	P-t, p-v diagram of water, dry steam, wet steam
	4 TH	Dryness fraction, mollier diagram
4 TH	1 ST	Numericals related pure substance
	2 ND	Numericals related pure substance
	3 RD	Boiler. Uses, classification
	4 TH	Types of boiler
5 TH	1 ST	Cochran boiler
	2 ND	Babcock & willcox boiler
	3 RD	Boiler mountings
	4 TH	Boiler mountings
6 TH	1 ST	Boiler mountings
	2 ND	Boiler mountings
	3 RD	Boiler accessories
	4 TH	Boiler accessories
7 TH	1 ST	Steam engine, classification
	2 ND	Parts of steam engine
	3 RD	Working principle of steam engine

8 TH	4 TH	Indicator diagram, expression for mean effective pressure
	1 ST	Indicator power, brake power
	2 ND	Indicated thermal efficiency, brake thermal efficiency, overall efficiency
	3 RD	Numericals
	4 TH	Numericals
9 TH	1 ST	Numericals
	2 ND	Numericals
	3 RD	Steam turbine & it's classification
	4 TH	Impulse turbine
10 TH	1 ST	Reaction turbine
	2 ND	Difference between impulse & reaction turbine
	3 RD	Condenser & it's classification
	4 TH	Jet condenser & types
11 TH	1 ST	Jet condenser & types
	2 ND	Surface condenser & types
	3 RD	Surface condenser & types
	4 TH	Ic engine , classification
12 TH	1 ST	Parts of ic engine, terminology related ic engine
	2 ND	4- stroke , 2- stroke diesel engine
	3 RD	4- stroke , 2-stroke petrol engine
	4 TH	Difference between 4-stroke, 2-stroke , petrol & diesel engine
13 TH	1 ST	Properties of fluid
	2 ND	Properties of fluid
	3 RD	Pressure measuring instruments
	4 TH	Pressure measuring instruments
14 TH	1 ST	Types of fluid flow,
	2 ND	Continuity equation,
	3 RD	Energy of fluids , Bernoulli's equation
	4 TH	Bernoulli's equation
15 TH	1 ST	Hydraulic intensifier
	2 ND	Hydraulic lift
	3 RD	Hydraulic accumulator
	4 TH	Hydraulic ram

LEARNING RESOURCES:

- 1 Thermal Engineering R. S. Khurmi S Chhand
- 2 Hydraulics & Hydraulic M/Cs A. R. Basu Dhanpat Rai & Co.
- 3 Thermal Engineering A. S. Sarad Satyaprakashan
- 4 Hydraulics & Hydraulic M/Cs R. K. Bansal Laxmi Publishers

B. Sai Santosh.
Sign. Of Faculty
concerned


Signature. Of
HOD