

GOVERNMENT POLYTECHNIC, VAISHALI
MECHANICAL ENGINEERING, SEMESTER – IV
LECTURE PLAN FOR LEFT SYLLABUS EFFECTIVE FROM 10-04-20
SUBJECT:- THERMAL ENGINEERING (1625404)
SUBJECT TEACHER – DR. THAKUR SANJAY KUMAR

S.NO	UNIT	TOPIC TO BE COVERED	NO. OF PERIOD	BOOK
1	6	Heat Exchangers: - Shell and tube, plate type, multiphase heat exchangers. Materials Used and applications of heat exchangers.	L1	T1,T2
2	4	Generation of steam at constant pressure with representation on various charts such as T-H, T-S, H-S, P-H.	L2,L3	T1,R2
		Properties of steam and use of steam table.	L4	T2,R2
		Quality of steam and its determination with Separating, throttling	L5	T1,T3
		Combined Separating and throttling calorimeter	L6	T2,R2
		Vapour process : - constant pressure, constant volume	L7,L8	T2,R2
		Vapour process : - constant enthalpy, constant entropy (numericals using steam table and Mollier chart)	L9,L10	T2,R2
		Rankine Cycle	L11	T1,R2
		Classification of boilers. - Construction and working of Cochran, Babcock and Wilcox	L12,L13	T1,T2,T3
		La- mont and Loeffler boiler. Boiler draught natural and Mechanical	L14	T1,T2
		Boiler mounting and accessories	L15	T1,T3
3	5	Steam nozzle: - Continuity equation, types of nozzles, concept of Mach number, critical pressure, application of steam nozzles	L16,L17,L18	T1,T2,R2
		Steam turbine: - Classification of turbines, Construction and working of Impulse and Reaction turbine	L19,L20	T1,T3,R2
		Compounding of turbines, Regenerative feed heating, bleeding of steam, nozzle control governing	L21,L22,L23	T1,T2,T3
		Steam condenser: - Dalton's law of partial pressure, function and classification of condensers, construction and working of surface condensers	L24,L25	T2,R2
		Sources of air leakage, concept of condenser efficiency, vacuum efficiency	L26	T1,T2
		Cooling Towers. - Force draught, natural draught and induced draught.	L27	T1,T3

BOOKS:-

- (1) T 1 :- A Course in Thermal Engineering BY Domkundwar V. M.
- (2) T2 :- A Course in Thermal Engineering BY P. L. Ballaney.
- (3) T3 :- A text book of Thermal Engineering BY R. S. Khurmi.
- (4) T4 :- A Course in Thermal Engineering R. K. Rajput.
- (5) R1 :- Heat Engine Vol. - I & II BY Patel and Karmchandani.
- (6) R2 :- Engineering Thermodynamics BY P. K. Nag.
- (7) R3 :- Thermal Engineering BY Rajiv Kr Singh.
- (8) R4 :- Thermal Engineering BY B. K. Sarkar.