JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA MATHEMATICS & SCIENCE DEPARTMENT	
Name of the Faculty: B. Kichan, S. Dwibedi	Session: 2022-23
Course code.: Th3	Course Name: HM&IFP
Programe: Diploma	Department: Mechanical
Semester: 5th	Section:M1/M2
Branch:MECHANICAL	

WEEK	PERIOD	Unit	Hours	Topic to be Covered
1.	1.	1	15	Definition and classification of hydraulic turbines
	2.			Construction and working principle of impulse turbine
	3.			Velocity diagram of impulse turbine
	4.			work done of impulse turbine and derivation of various efficiencies of impulse turbine
2.	5.			Velocity diagram of Francis turbine
	6.			work done of Francis turbine
	7.			derivation of various efficiencies of Francis turbine
	8.			Problem on impulse turbine
3.	9.			Velocity diagram of Francis turbine
	10.			work done of Francis turbine and derivation of various efficiencies of Francis turbine
	11.			Problem on Francis turbine
	12.			Velocity diagram of Kaplan turbine
4.	13.			work done of Kaplan turbine and derivation of various efficiencies of Kaplan turbine
	14.			Problem on Kaplan turbine
	15.			Distinguish between impulse turbine and reaction turbine
	16.	2	5	Construction of centrifugal pumps
5.	17.			working principle of centrifugal pumps
	18.			work done of centrifugal pumps.
	19.			various efficiencies of centrifugal pumps.
	20.			Problem on centrifugal pumps
6.	21.	3	12	construction of single acting reciprocating pump.
	22.			working of single acting reciprocating pump
	23.			Derivation for power required to drive the single acting reciprocating pump
	24.			Problem on single acting reciprocating pump
7.	25.			construction of double acting reciprocating pump
	26.			working of double acting reciprocating pump
	27.			Derivation for power required to drive the double acting reciprocating pump
	28.			Problem on double acting reciprocating pump
8.	29.			construction of double acting reciprocating pump
	30.			Slip: positive & negative , coefficient of discharge
	31.			relation between slip & coefficient of discharge
	32.			Problem on slip & coefficient of discharge reciprocating pump

9.	33.	4	12	PNEUMATIC CONTROL SYSTEM ELEMENT: filter
	34.			regulator
	35.			lubrication unit
	36.			Pressure control valves: Pressure relief valves
10.	37.			Pressure control valves: Pressure regulation valves
	38.			Direction control valves: 3/2DCV,5/2 DCV,5/3DCV
	39.			Direction control valves: Flow control valves
	40.			Direction control valves: Throttle valves
11.	41.			ISO Symbols of pneumatic components
	42.			Pneumatic circuits: Direct control of single acting cylinder
	43.			Pneumatic circuits: Operation of double acting cylinder
	44.			Pneumatic circuits: Operation of double acting cylinder with metering in and metering out control
12.	45.	5	16	Hydraulic system, its merit and demerits
	46.			Hydraulic accumulators: Pressure control valves
	47.			Hydraulic accumulators: Pressure relief valves
	48.			Hydraulic accumulators: Pressure regulation valves
13.	49.			Direction control valves: 3/2DCV,5/2 DCV,5/3DCV
	50.			Direction control valves: Flow control valves
	51.			Direction control valves: Throttle valves
	52.			Fluid power pumps: External gear pumps
14.	53.			Fluid power pumps: internal gear pumps
	54.			Fluid power pumps :Vane pump ,Radial piston pumps
	55.			ISO Symbols for hydraulic components
	56.			Actuators
15.	57.			Hydraulic circuits: Direct control of single acting cylinder
	58.			Hydraulic circuits: Operation of double acting cylinder
	59.			Hydraulic circuits: Operation of double acting cylinder with metering in and metering out control
	60.			Comparison of hydraulic and pneumatic system

Signature of faculty

Signature of i/c HOD