Lesson Plan

Name of the Institute:	**C. V. Raman Polytechnic**
Department:	**Mechanical Engineering**
Semester/Division/Branch:	**5th Sem/ME**
Subject Name with code:	**Hydraulic Machines & Industrial Fluid Power (HM&IFP) (Th-3)**
Total No. of Class (Required):	**60**
Faculty Name:	**Mr. Manoj Kumar Nayak**

Class No.	Brief Description of the Topic/Chapter to be taught	Remarks
1	Definition and classification of hydraulic turbines	
2	Construction and working principle of impulse turbine.	
3	Construction and working principle of impulse turbine.	
4	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.	
5	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.	
6	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	
7	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	
8	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	
9	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine	
10	Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine	
11	Numerical on above	
12	Numerical on above	
13	Distinguish between impulse turbine and reaction turbine.	
14	Revision	
15	Revision and Doubt clearing	
16	Construction and working principle of centrifugal pumps	
17	Construction and working principle of centrifugal pumps	
18	Work done and derivation of various efficiencies of centrifugal pumps.	
19	work done and derivation of various efficiencies of centrifugal pumps.	
20	Numerical on above	
21	Describe construction & working of single acting reciprocating pump.	

22	Describe construction & working of single acting reciprocating pump.	
23	Describe construction & working of double acting reciprocating pump.	
24	Describe construction & working of double acting reciprocating pump.	
25	Derive the formula for power required to drive the pump (Single acting & double acting)	
26	Derive the formula for power required to drive the pump (Single acting & double acting)	
27	Define slip.	
28	State positive & negative slip & establish relation between slip & coefficient of discharge.	
29	State positive & negative slip & establish relation between slip & coefficient of discharge.	
30	Solve numerical on above	
31	Solve numerical on above	
32	Revision and Doubt clearing	
33	Elements –filter-regulator-lubrication unit	
34	Pressure control valves	
35	Pressure relief valves	
36	Pressure regulation valves	
37	Direction control valves	
38	ISO Symbols of pneumatic components	
39	1 3/2DCV,5/2 DCV,5/3DCV	
40	1 3/2DCV,5/2 DCV,5/3DCV	
41	Flow control valves, Throttle valves	
42	Direct control of single acting cylinder	
43	Operation of double acting cylinder	
44	Operation of double acting cylinder with metering in and metering out control	
45	Operation of double acting cylinder with metering in and metering out control	
46	Hydraulic system, its merit and demerits, Hydraulic accumulators	
47	Pressure control valves, Pressure relief valves	
48	Pressure regulation valves	
49	Direction control valves	
50	3/2DCV,5/2 DCV,5/3DCV	
51	3/2DCV,5/2 DCV,5/3DCV	
52	Flow control valves, Throttle valves, Fluid power pumps	
53	External and internal gear pumps	
54	Vane pump, Radial piston pumps	
55	ISO Symbols for hydraulic components, Actuators, Hydraulic circuits	

56	Direct control of single acting cylinder	
57	Operation of double acting cylinder	
58	Operation of double acting cylinder with metering in and metering out control	
59	Comparison of hydraulic and pneumatic system	
60	Revision and Doubt clearing	

Signature of the Faculty

Signature of the H.O.D