LESSON PLAN - FLUID MECHANICS & FLUID POWER (MEPC207,TH:4)

SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH, BBSR

Faculty Name-Dr. Sitesh Mahapatra
Department: Mechanical Engineering
Semester: 3rd Semester
Academic Session: 2026-27
Total Periods: 45

Sl.No	Unit	Lecture Topic	Period	Cumulative
1	Unit-I	Properties of Fluid & Hydrostatics	1	1
2	Unit-I	Fluid Classification and Properties	1	2
3	Unit-I	Density, Specific Weight & Gravity	1	3
4	Unit-I	Viscosity and Surface Tension	1	4
5	Unit-I	Fluid Pressure	1	5
6	Unit-I	Hydrostatic Force	1	6
7	Unit-I	Centre of Pressure	1	7
8	Unit-I	Manometers	1	8
9	Unit-I	Buoyancy and Floatation	1	9
10	Unit-II	Types of Flow	1	10
11	Unit-II	Streamline, Pathline and Streakline	1	11
12	Unit-II	Fluid Energies	1	12
13	Unit-II	Continuity Equation	1	13
14	Unit-II	Bernoulli's Theorem	1	14

15	Unit-II	Applications of Bernoulli	1	15
16	Unit-III	Orifices and Coefficients	1	16
17	Unit-III	Weirs and Notches	1	17
18	Unit-III	Rectangular Notch	1	18
19	Unit-III	Triangular Notch	1	19
20	Unit-III	Pipe Flow	1	20
21	Unit-III	Darcy and Chezy Formula	1	21
22	Unit-III	Hydraulic Gradient	1	22
23	Unit-III	Nozzle and Applications	1	23
24	Unit-III	Power Transmission Through Nozzle	1	24
25	Unit-IV	Hydraulic Turbines	1	25
26	Unit-IV	Pelton Wheel	1	26
27	Unit-IV	Francis Turbine	1	27
28	Unit-IV	Kaplan Turbine	1	28
29	Unit-IV	Draft Tubes	1	29
30	Unit-IV	Cavitation	1	30
31	Unit-IV	Centrifugal Pumps	1	31
32	Unit-IV	Priming and Multistage Pumps	1	32
33	Unit-IV	Pump Efficiencies	1	33
34	Unit-IV	Reciprocating Pumps	1	34
35	Unit-IV	Slip and Negative Slip	1	35
36	Unit-V	Introduction to Fluid Power	1	36
37	Unit-V	Pascal Law	1	37
38	Unit-V	Hydraulic Reservoir and Filters	1	38

39	Unit-V	Pressure Control Valves	1	39
40	Unit-V	Direction Control Valves	1	40
41	Unit-V	Flow Control Valves	1	41
42	Unit-V	Actuators	1	42
43	Unit-V	Hydraulic Pumps	1	43
44	Unit-V	Hydraulic Circuits	1	44
45	Unit-V	Revision and Class Test	1	45

REFERENCES: 1. Fluid Mechanics and Hydraulic Machines – R. K. Bansal, Laxmi Publications, NewDelhi.

2. Fluid Mechanics and Hydraulic Machines, S.S. Rattan, Khanna Publishing House, New Delhi.

3. Hydraulics and fluid mechanics including Hydraulic machines – Modi P.N. and Seth S.M., Standard Book House. New Delhi.

4. Hydraulics and Fluid Mechanics - Jagadish Lal- Metropolitan Book

5. Fluid Power with Applications - AnthonyEsposito -Pearson Education Limited.

6. Hydraulic, fluid mechanics and fluid machines – S. Ramamrutham, Dhanpat Rai and Sons, New Delhi.

Faculty Signature: _____

HOD Signature: _____