



R. K. Institute of Engineering and Technology

Approved by AICTE, New Delhi and Affiliated to SCTE&VT, Odisha

MECHANICAL ENGINEERING

SEMESTER : 3rd (SEC-A)

FROM :01/07/2026 TO :05/11/2026

NAME OF THE FACULTY : Er. DEVI PRASAD JENA

SUBJECT : FLUID MECHANICS & FLUID POWER

TOTAL CLASS AVAILABLE IN SEMESTER: 45 nos

NO. OF PERIODS : 03/ WEEK

Class	Unit	Topic	Method	Outcome
1	I	Introduction to Fluid Mechanics & Definition of Fluid	Lecture	Understand basics of fluid
2	I	Classification of Fluids	Lecture	Differentiate fluid types
3	I	Density, Specific Weight, Specific Gravity	Lecture + Examples	Define basic properties
4	I	Viscosity (Newton's law of viscosity)	Lecture	Understand viscosity concept
5	I	Surface Tension & Capillarity	Demo	Explain surface effects
6	I	Units of Fluid Properties	Problem solving	Use correct SI units
7	I	Fluid Pressure & Hydrostatic Law	Lecture	Understand pressure variation
8	I	Pressure Measurement Devices	Charts	Identify instruments
9	I	Manometers (Simple)	Lecture + Numericals	Solve basic problems
10	I	Differential & Inverted Manometers	Lecture	Analyze pressure differences
11	I	Hydrostatic Force on Vertical Surfaces	Numerical	Calculate pressure force
12	I	Hydrostatic Force on Inclined Surfaces	Numerical	Solve force problems
13	I	Hydrostatic Force on Horizontal Surfaces	Numerical	Apply formulas
14	I	Hydrostatic Force on Curved Surfaces	Lecture	Understand resultant force
15	I	Centre of Pressure Concept	Lecture	Locate CP
16	I	Buoyancy & Archimedes Principle	Demo	Understand floatation
17	I	Stability of Floating Bodies	Lecture	Analyze stability
18	I	Unit Test I	Test	Evaluate Unit I
19	II	Types of Fluid Flow	Lecture	Classify flow types



R. K. Institute of Engineering and Technology

Approved by AICTE, New Delhi and Affiliated to SCTE&VT, Odisha

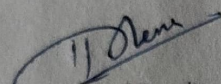
Class	Unit	Topic	Method	Outcome
20	II	Streamline, Pathline, Streakline	Diagram-based	Visualize flow patterns
21	II	Circulation & Vorticity	Lecture	Understand rotational flow
22	II	Continuity Equation (Conservation of Mass)	Derivation	Apply equation
23	II	Bernoulli's Equation Derivation	Lecture	Understand energy equation
24	II	Assumptions & Limitations of Bernoulli	Discussion	Identify constraints
25	II	Applications of Bernoulli	Problem solving	Apply theory
26	II	Venturimeter – Working Principle	Diagram	Understand flow measurement
27	II	Venturimeter Numericals	Practice	Solve discharge problems
28	II	Pitot Tube – Principle	Lecture	Measure velocity
29	II	Flow Measurement Devices (Current meter)	Lecture	Identify instruments
30	II	Unit Test II	Test	Evaluate Unit II
31	III	Orifice – Definition & Types	Lecture	Understand flow through orifice
32	III	Coefficients (C_c , C_v , C_d)	Lecture	Define discharge coefficients
33	III	Relationship between Coefficients	Derivation	Solve numericals
34	III	Weirs & Notches	Lecture	Understand open channel flow
35	III	Rectangular Notch Flow	Numerical	Calculate discharge
36	III	Triangular Notch Flow	Numerical	Solve V-notch problems
37	III	Pipe Flow Basics	Lecture	Understand pipe flow
38	III	Darcy's Equation	Numerical	Calculate head loss
39	III	Chezy's Formula	Lecture	Compare formulas
40	III	Hydraulic Gradient Line (HGL & TEL)	Diagram	Visualize energy loss
41	III	Nozzles & Applications	Lecture	Understand jet flow
42	III	Maximum Power Transmission through Nozzle	Derivation	Solve design problems
43	IV	Introduction to Turbines	Lecture	Classify turbines
44	IV	Pelton Wheel – Construction & Working	Diagram	Understand impulse turbine

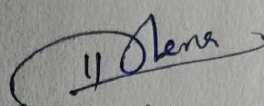


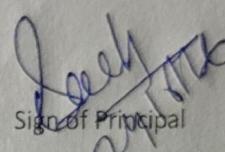
R. K. Institute of Engineering and Technology

Approved by AICTE, New Delhi and Affiliated to SCTE&VT, Odisha

Class	Unit	Topic	Method	Outcome
45	IV	Francis & Kaplan Turbines	Lecture	Compare reaction turbines


Sign of Faculty


Sign of HOD


Sign of Principal
Principal

R. K. INSTITUTE OF ENGG & TECH
KANTAPADA, NIALI, CUTTACK