

Fluid Mechanics - Course Study Sheet

Course: Fluid Mechanics Cluster: Engineering Foundations

Analyzes fluid properties, pressure, conservation laws, pipe flow, dimensional analysis, and external flow.

Five-module course map

Module	Active evidence to produce
1. fluid statics	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
2. continuity	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
3. momentum balance	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
4. energy equation	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
5. viscous and dimensional analysis	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.

Reliable learning method

define control volume, draw flows and forces, state assumptions, apply conservation, calculate, and check regime and units

Representative application

Estimate pressure loss in a pipe and explain how diameter, roughness, flow rate, and flow regime affect the result.

Weekly study cycle

1. Preview the objective and write two questions. 2. Attend or engage and capture decisions rather than every sentence. 3. Reconstruct the main idea within 24 hours. 4. Complete independent practice. 5. Analyze the first unsupported move on each error. 6. Use feedback. 7. Schedule a delayed mixed recheck.

Self-check before moving on

Can you explain the idea without notes, complete a fresh task, detect a near-miss, verify the result, and state a limitation? Watch especially for: using Bernoulli equation without checking viscosity, pumps, losses, elevation, control points, or units.

What to save

a fluid-system model with control volume, equations, regime check, calculation, and design interpretation

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