Bernoulli and Review

Lecture 14

ME EN 412
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Outline

Bernoulli

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Incompressible and Steady:

$$P + \frac{1}{2}\rho V^2 + \rho g z = \text{ constant } \textit{along a streamline}$$

If also irrotational:

$$P + \frac{1}{2}\rho V^2 + \rho g z = \text{ constant } \textit{everywhere}$$

Limitations:

Incompressible:

$$\frac{P}{\rho} + \frac{V^2}{2} + gz = \text{ constant } \textit{along a streamline}$$

Compressible:

$$e + \frac{P}{\rho} + \frac{V^2}{2} + gz = \text{ constant } \textit{along a streamline}$$

$$h = e + \frac{P}{\rho}$$