

ME 201

Thermodynamics

Template for 1st Law Problem Solving

System Type:
 Substance Type:
 Process Type (or Device for control volume system):
 Is state 1 (initial or inlet) fixed?:
 Is state 2 (final or outlet) fixed?:
 Heat Transfer: value or ???
 Shaft Work: value or ???
 Boundary Work: value or equation
 Conservation of Mass: equation
 Conservation of Energy: equation

State 1	State 2	State in or out
(inlet or initial)	(outlet or final)	(only for transient system)
$T_1 =$	$T_2 =$	$T_{in} =$
$P_1 =$	$P_2 =$	$P_{in} =$
$v_1 =$	$v_2 =$	$v_{in} =$
$u_1 =$	$u_2 =$	$u_{in} =$
$h_1 =$	$h_2 =$	$h_{in} =$
$s_1 =$	$s_2 =$	$s_{in} =$
$m_1 =$	$m_2 =$	$m_{in} =$
fluid phase:	fluid phase:	fluid phase:

Approach: Provide a strategy for how the unknowns will be determined.