ENGR 212-503

Conservation Principles in Thermal Sciences

Problem Set #9 Second law of thermodynamics

Date distributed : 10.22.2003
Date due : 10.29.2003 at 5:00 pm

Return your solution either in class or in my mail box (WERC Rm. 235H) by the date shown above. Please show all your work and follow the rules outlined in the course syllabus.

1 Problems 5.79 using EES

Rework problem 5.79 without assuming constant specific heats. You will have to use EES to do this. Also, allow the heat lost from the system via cooling to vary from 0 to 10 Btu/lbm in increments of 2 Btu/lbm.

Submit a printout of equations, formatted equations, a table of $q$, $T_2$, $h$, and a plot of $q$ versus $T_2$.

HINTS: watch the signs. Use the specific volume function under fluid properties.

2 Problems from Chapter 6

Work problems 24, 34, 45C, 55E, 83, 99E, 110, and 117.