Heat and Mass Transfer: Fundamentals & Applications

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Errata Sheet

Chapter 1

p. 49, Prob. Prob. 1-29, Answers: Change Answers to "0.0306 m^3/s, 5.52 m/s".

p. 57, Prob. 1-120, last line: Change "windchill" to "wind chill"

p. 59, Prob. 1-147, 3rd line: Change "1.2 W" to "0.12 W"

Chapter 2

p. 116, Prob. 2-19E, 1st line: Change "a 800-W" to "an 800-W"

p. 121, Prob. 2-61, Answer: Change "7079 W" to "7389 W"

p. 121, Prob. 2-64, Answer: Change "127°C" to "117°C"

p. 122, Prob. 2-70E, Answer: Change "46,660 Btu/h" to "46,630 Btu/h"

p. 125, Prob. 2-90, 5th line: Change "w/cm^3" to "W/cm^3"

p. 129, Prob. 2-142, Answers: Change Answers to "255.6°C, 256.2°C"

p. 130, Prob. 2-144, Answer: Change "9.0°C" to "9.1°C"

Chapter 3

p. 197, Prob. 3-20, Answers: Change Answers to "154 W, 16.7°C"

p. 200, Prob. 3-37, 7th line: Change "28°C" to "24°C". Do the same in the figure. [This is needed to avoid negatif value for the insulation thickness]

p. 211, Prob. 3-135, Answer: Change "555 W" to "492 W"

p. 211, Prob. 3-131: Place a computer-EES icon "  " to this problem.

p. 221, Prob. 3-216, Last line: Change "(d) 3.4 cm" to "3.3 cm"

Chapter 4

p. 281, Prob. 4-47, Answers: Change "22,270 kJ/m" to "22,270 kJ"

p. 231, Example 4-2: Replace the calculations with the followings. Only change the "changed" values

$$L_c = \frac{V}{A_s} = \frac{(\pi D^2/4)L}{\pi DL} = \frac{D}{4} = \frac{0.050\ \text{m}}{4} = 0.0125\ \text{m}$$

$$Bi = \frac{hL_c}{k} = \frac{(450\ \text{W/m}^2\cdot\text{K})(0.0125\ \text{m})}{63.9\ \text{W/m}\cdot\text{K}} = 0.088 < 0.1$$

$$b = \frac{hA_s}{\rho c_p V} = \frac{h}{\rho c_p L_c} = \frac{450\ \text{W/m}^2\cdot\text{K}}{(7832\ \text{kg/m}^3)(434\ \text{J/kg}\cdot\text{K})(0.0125\ \text{m})} = 0.01059\ \text{s}^{-1}$$

$$\frac{T(t)-T_\infty}{T_i-T_\infty}=e^{-bt} \quad \rightarrow \quad t=-\frac{1}{b}\ln\left[\frac{T(t)-T_\infty}{T_i-T_\infty}\right]=-\frac{1}{0.01059\,\text{s}^{-1}}\ln\left[\frac{95-40}{850-40}\right]=\mathbf{254\,s}$$

p. 359, Prob. 5-64, 2nd line: Change "Fig. 5-64" to "Fig. P5-64"

Chapter 5

p. 353, Prob. 5-25: Change the problem statement to: "5-25  Repeat Prob. 5-24 using EES (or other) software."

p. 358, Prob. 5-55, last line: Change to "*Answers:* (*b*) $T_1 = T_4 = 93°C$, $T_2 = T_3 = 86°C$"

p. 359, Prob. 5-60: Change the problem statement to: "5-60  Repeat Prob. 5-59 using EES (or other) software."

p. 359, Prob. 5-63: Change the problem statement to: "5-63  Repeat Prob. 5-62 using EES (or other) software."

p. 369, Prob. 5-136, 17th line: Change "28°C" to "20°C". Do the same in the problem figure. Also, 3rd line from last: Change "Δt = 4 s" to "Δt = 5 s".

p. 369, Prob. 5-137, 2nd line: Change "3 s" to "5 s"

Chapter 7

p. 461, Prob. 7-127, (c): Change "2.5 m" to "2.9 m"

Chapter 8

p. 511, Prob. 8-48, Answers: Change "584" to "582"

p. 513, Prob. 8-78: Change problem number to "8-78E"

p. 516, Prob. 8-103: Change problem number to "8-103E"

Chapter 9

p. 567, Prob. 9-37, 8th line: Change "the transfer" to "the heat transfer"

p. 568, Prob. 9-39, the line before last: Change "10-h" to "15-h"

p. 572, Prob. 9-78: Insert a laptop-EES icon to this problem like that in Prob. 9-75.

p. 573, Prob. 9-86, Answer: Change "11.9" to "9.90"

p. 575, Prob. 9-112, Answers: Change "1764" to "1762"

p. 579, Prob. 9-137, First line: Change "0.5-m-high" to "0.9-m-high"

Chapter 10

p. 621, Prob. 10-38, Answers: Change "1609" to "1610" and Change "0.761" to "0.762"

p. 621, Prob. 10-39: Change "160°C" to "155°C"

p. 623, Prob. 10-69, Answer: Change "12.8" to "12.9"

Chapter 11

p. 676, Prob. 11-117: Change to "11-117C"

p. 677, Prob. 11-129, Answers: Change "50.6" to "48.0"

p. 678, Prob. 11-132, Answer: Change "3.27" to "3.74"

p.680, Prob. 11-156, (c): Change “1380” to “1350”

Chapter 12

p. 723, Prob. 12-28, Answers: Change Answers to “(a) 491,300 kW, (b) 125.5 kW”

p. 724, Prob. 12-51, Answers: Change Answers to “ 0.513, 29.1 kW/m^2 ”

p. 727, Prob. 12-82, Answers: Change “$39” to “$40”

p. 729, Prob. 12-103, 6th line: Change “200” to “2000”

Chapter 13

p. 781, Prob. 13-21: Change “L = D” to “*L* = *D*”

p. 785, Prob. 13-58: Delete the answer.

p. 786, Prob. 13-73, 1st line: Change “0.20” to “0.10” (This is needed because shield has a diameter of 0.20 m)

p. 790, Prob. 13-110, Answers: Change “5.2” to “12.7”

p. 790, Prob. 13-111, Answer: Change “1066” to “1058”

Chapter 14

p. 849, Prob. 14-14, Answer: Change “0.144” to “0.143”

p. 849, Prob. 14-16E, Answer: Change “1.7 percent” to “1.6 percent”

p. 852, Prob. 14-50, Answer: Change “2.87×10^{-15} kg/s” to “1.15×10^{-14} kg/s”

p. 854, Prob. 14-71, Answer: Change “0.00011 mm” to “0.0011 mm”.

p. 856, Prob. 14-95, Answer: Change “2827 days” to “1702 days”

p. 861, Prob. 14-157E, Answers: Switch the answers for parts (a) and (b).