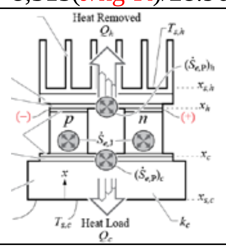
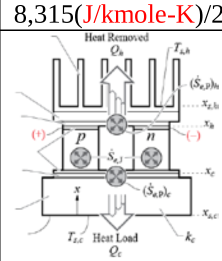
Errata for *Essentials of Heat Transfer*

Page	Location	Correction	
		Original	**Revised**
24	under figure	Figure 1.4(a) Figure 1.4	Figure 1.5(a) Figure 1.5
25	(1.12) and (1.13)	$\mathbf{q} = \rho c_p \mathbf{u}$	$\mathbf{q} = \rho c_p \mathbf{u} T$
57	Problem 1.13(a)	For the conditions given below, determine …	For the conditions given below, plot ….
57	Problem 1.13(a)	$\tau = \rho c_p V R_t$	$\tau = \rho c_v V R_t$
72	Paragraph 2, lines 6-7	..medium 1 (for example a gas), but radiation or convection in other medium (for example a solid).	..medium 1 (for example a solid), but radiation or convection in other medium (for example a gas).
72	Last line	This relationhas allowed us…	This relation has allowed us…
90	Example 2.6	$\dot{s}_{r,c} = -2.942\times 10^{6} \rho_{\mathrm{F}}^{-0.3} \rho_{\mathrm{O}}^{1.3}$…	$\dot{s}_{r,c} = -2.942\times 10^{16} \rho_{\mathrm{F}}^{-0.3} \rho_{\mathrm{O}}^{1.3}$…
91	Line 10	The constants are given in Example 2.5 and …	The constants are given in Example 2.6 and …
92	Section 2.3.1(C)	In Section (C), Nuclear Fission Reaction …. with an example (Examples 2.8).	In Section (C), Nuclear Fusion Reaction ….with an example ~~(Examples 2.8)~~.
126	Problem 2.4	… $c_{p,s}$ = 1,930 J/kg-K , …	… $c_{p,s}$ = 1,930 J/kg-K, …
128	Problem 2.6.(a)	$h_{\mathrm{P}} f = h_{\mathrm{P}} \frac{\lambda}{c}$	$h_{\mathrm{P}} f = h_{\mathrm{P}} \frac{c}{\lambda}$
168	Example 3.2	8,315(J/kg-K)/28.964(kg/kmole)	8,315(J/kmole-K)/28.964(kg/kmole)
231	In Figure 3.28(b)		
233	3 lines from bottom	… T = 300 from Table C.14).	… T = 300 K from Table C.14).
234	2 lines from bottom	... $\alpha_S J_e (T_h - T_c)$. The optimum …	... $\alpha_S J_e (T_h - T_c)$. (new paragraph) The optimum ..
236	Example 3.13	Use T_h = 308.60 K.	Use T_h = 308.6 K.
249	Example 3.16(a)	$\frac{T(r=0, \mathrm{Fo}_R = 0.5371) - \tau(t=0)}{T_s - T(t=0)}$	$\frac{T(r=0, \mathrm{Fo}_R = 0.5371) - T(t=0)}{T_s - T(t=0)}$
254	Paragraph 3. [right after (3.144)]	… where from (3.136) $\partial\eta/\partial x = 1/(2\alpha t)^{1/2}$ and …	… where from (3.136) $\partial\eta/\partial x = 1/(4\alpha t)^{1/2}$ and …
254	Paragraph 4, 3 lines from bottom	$q_{\rho c_p k}$ tends to zero. …	$q_{\rho ck}$ tends to zero. …
255	Table 3.6	$Q_{\rho ck}(t) = A_k q_{\rho ck}$, W $= [T(t=0) - T_s]/R_{\rho ck}(t)$	$Q_{\rho ck}(t) = A_k q_{\rho ck} = [T(t=0) - T_s]/R_{\rho ck}(t)$ (W)
290	Problem 3.25, paragraph 2	Figure Pr.3.25 shows a thin circular heater used to …	Figure Pr.3.25 shows a thin heater used to …
310	Problem 3.50	…, for molds (i), (ii) and (iii).	…, for molds (a), (b) and (c).
326	Section 4.1.2, 3 lines from bottom	… $n_{ph} h_{\mathrm{P}} f = n_{ph} h_{\mathrm{P}} \lambda/c$, where …	… $n_{ph} h_{\mathrm{P}} f = n_{ph} h_{\mathrm{P}} c/\lambda$, where …
330	(4.6)	$... = \frac{2\pi^5 k_{\mathrm{B}}^4}{15 h_{\mathrm{P}}^3 c_o^2} \equiv \sigma_{\mathrm{SB}} T^4 (\mathrm{W/m^2})$	$... = \frac{2\pi^5 k_{\mathrm{B}}^4}{15 h_{\mathrm{P}}^3 c_o^2} T^4 \equiv \sigma_{\mathrm{SB}} T^4 (\mathrm{W/m^2})$
340	Line 3	Commonly, $n_l$ambda and $\kappa_l$ambda are	Commonly, n_λ and κ_λ are also called…

		also called…	
353	Figure 4.11(d)	$F_{2\text{-}2} = 1\frac{1}{R^*} + ...$	$F_{2\text{-}2} = 1 - \frac{1}{R^*} + ...$
356	Table 4.3	$Q_{r,i} = A_{r,i}q_{r,i}$, W $= [E_{b,i} - (q_{r,o})_i]/(R_{r,\epsilon})_i$, $Q_{r,i\text{-}j} = A_{r,i}q_{r,i\text{-}j}$, W W $= [(q_{r,o})_i - (q_{r,o})_j]/(R_{r,F})_{i,j}$,	$Q_{r,i} = A_{r,i}q_{r,i}$, W $= [E_{b,i} - (q_{r,o})_i]/(R_{r,\epsilon})_i$, $Q_{r,i\text{-}j} = A_{r,i}q_{r,i\text{-}j}$, W $= [(q_{r,o})_i - (q_{r,o})_j]/(R_{r,F})_{i\text{-}j}$,
373	second equation	1.273	127.3
381	Example 4.13(a)	$Q_{k,H\text{-}1} = \ldots$	$Q_{k,H\text{-}1} = \ldots$
412	Problem 4.44(a)	$q_{r,x} = \frac{4\epsilon_r\sigma_{SB}T^3(T_1' - T_2)}{2-\epsilon_r}$.	$q_{r,x} = \frac{4\epsilon_r\sigma_{SB}T^3(T_{1'} - T_2)}{2-\epsilon_r}$.
438	Between (6.23) and (6.24)	… through $\partial T_f/\partial y/\vert_{y=0+}$.	… through $\partial T_f/\partial y\vert_{y=0+}$.
438	(6.24)	$\frac{\partial T_f}{\partial y}\vert_{y=0^+} = -\frac{Pe_L^{1/2}}{\pi}\frac{T_s - T_{f,\infty}}{L}$	$\frac{\partial T_f}{\partial y}\vert_{y=0^+} = -\frac{Pe_L^{1/2}}{\pi^{1/2}}\frac{T_s - T_{f,\infty}}{L^{1/2}}$
439	Between (6.26) and (6.27)	… as the product $(k_f\rho c_p)_f u_{f,\infty}$ increases.	… as the product $(k\rho c_p)_f u_{f,\infty}$ increases.
441	Figure 6.6		x axis: remove every other tick mark, the labels should be 10^2, 10^3, 10^4, 10^5
466	First paragraph in Section 6.5	This is due to the interaction of the gravity vector g and the …	This is due to the interaction of the gravity vector $\boldsymbol{g}$ and the …
471	(6.80)	…= $rho_f g\beta_f (T_f - T_{f,\infty})$	…= $\rho_f g\beta_f (T_f - T_{f,\infty})$
473	Between (6.85) and (6.86)	Since we assume that $Gr_L \geq 0$, whenever $T_{f,\infty} < T_s$, …	Since we assume that $Gr_L \geq 0$, whenever $T_{f,\infty} > T_s$, …
473	(6.86)	$u_f^*(x^* = 0, y^*) = v_f^*(x^* = 0, y^*)$, …	$u_f^*(x^* = 0, y^*) = v_f^*(x^* = 0, y^*) = 0$, …
474	Between (6.87) and (6.88)	Compared to (6.47), $k_f\partial T_f/\partial y\vert_{y=0+} = \ldots$	Compared to (6.47), $\partial T_f/\partial y\vert_{y=0+} = \ldots$
485	(6.99)	$\langle Nu\rangle_L = \frac{L}{A_{ku}\langle R_{ku}\rangle_L k_l} = \frac{Ja_l^2 Bo_L^{1/2}}{a_s^3 Pr_l^n}$	$\langle Nu\rangle_L = \frac{L}{A_{ku}\langle R_{ku}\rangle_L k_l} = \frac{Ja_l^2 Bo_L^{1/2}}{a_s^3 Pr_l^{n-1}}$
512	Example 6.13(b)	where from Table 3.1 $R_{k,1-2} = \frac{\ln(R_2/R_1)}{2\pi Lk_s}$ Table 3.1	where from Table 3.2 $R_{k,1-2} = \frac{\ln(R_2/R_1)}{2\pi Lk_s}$ Table 3.2
529	Example 6.16	Figure Ex. 6.16	$Q_{r,1\text{-}\infty}$ and $Q_{ku,1\text{-}\infty}$ are not zero
534	Problem 6.1(f)	…(ideal insulation)? vspace*-6pt	…(ideal insulation)? ~~vspace*-6pt~~
601	Table 7.5. (below "Iso-diametral Cylinders")	Add: For All Geometries $\begin{cases} \langle Nu\rangle_{D,p} = \frac{D_p/k_f}{A_{ku}\langle R_{ku}\rangle_{D,p}}(\frac{\epsilon}{1-\epsilon}) = 2 + (0.4 Re_{D,p}^{1/2} + 0.2 Re_{D,p}^{2/3}) Pr^{0.4} \\ D_p = \frac{6V_s}{A_{ku}} = \frac{6V(1-\epsilon)}{A_{ku}}, Re_{D,p} = \frac{\rho_f\langle u_f\rangle D_p}{\mu_f(1-\epsilon)}, NTU = \frac{1}{\langle R_{ku}\rangle_{D,p}(\dot{M}c_p)_f} \end{cases}$	
610	Example 7.4	Start from (2.72)…	Start from (2.9)…
610	Example 7.4	Starting from (2.72)…	Starting from (2.9)…
612	Example 7.5	NTU	$-NTU$
616	(7.56)	…$q_{<ku,h>}$ +d$q_{u,h}$/dx	…$q_{ku,h}$ +d$<q_{u,h}>$/dx
617	(7.64)	=	= -
669	Problem 4.7(c)	…= 3.680×10^{-4} W/m^2-μm	…= 3.368×10^{-4} W/m^2-μm
673	Problem 6.53(c) and (d)	= - 2.036 W, and = - 0.0006069 K/s	= -20.96 W, and = - 0.03306 K/s
Online	Table C.27, under k_l k_g	mW/m-K	W/m-K