Errata to the First Printing (April 17, 2014)

1. page 39, Eq. 2-5 should read as: $P = P_{atm} + \frac{m_p\, g}{A_c}$

2. page 61, line 6. The line should read: as shown in Figure 2-16. ….

3. page 272: The duplicate statement in the EES code at the bottom of the page is missing a N. It should appear as: duplicate i=1,N

4. page 273: EES code directly under Eq. 5 should read as:

```
W_dot_total=sum(W_dot_t[i],i=1,N)            "total turbine power"
```

5. page 82, line4, 0=(P-P_o)/R_v+dVfdt, P_o should be P_atm

6. page 867, Table 13-2. The Chemical Formula for n-Butane should be C_4H_{10}. This error occurs for both the liquid and gas rows.

7. page 870, Table 13-3. The Chemical Formula for n-Butane should be C_4H_{10}. This error occurs for both the liquid and gas rows.

8. page 900, Table 13-4. The Chemical Formula for n-Butane should be C_4H_{10}. This error occurs for both the liquid and gas rows.

9. page 690 Eqn 10-172. The second integral (which is crossed out) should end with dP, not dT.

10. page 773, Eq. (11-233) should read for i = 1..C rather than for i=1,C.

11. page 67 - after Fig. 4 - "a valve placed in the bottom of the tank opens". Add THE

12. page 70 - before Eq. 2-32 – The last sentence should read”

    The molar mass (also called the molecular weight) is the ratio of the mass of the substance to the number of moles.

13. page 413 “pump 1” in the sentence under Eq. (8-60) should be “pump 2”.

14. page 864. First sentence in section 13.3.1. Add the word “the” before “same manner”

15. page 474, directly below equation (8-103). The EES code should be

    W_comp=m[2]*u[2]-m[1]*u[1]   “compression work”

16. page 897. The word "reactants" on the 2nd and 3rd lines of text should be "products".

17. page 636. Paragraph above Figure 10-6, 3rd line. Change “reduced pressure” to “reduced temperature”

18. page 674: Equation 10-120 should read as follows: Note that the first partial derivative on the rhs of the equation should have P rather than s be the constraint.

$$\left(\frac{\partial s}{\partial T}\right)_P = \underbrace{\left(\frac{\partial s}{\partial h}\right)_P}_{1/T} \underbrace{\left(\frac{\partial h}{\partial T}\right)_P}_{c_P} + \underbrace{\left(\frac{\partial s}{\partial P}\right)_h}_{-v/T} \underbrace{\left(\frac{\partial P}{\partial T}\right)_P}_{0}$$

19. page 978: Equation 15-30 should read as follows:

$$\varepsilon_x = \frac{1}{2} m \tilde{V}_x^2 = \frac{p_x^2}{2m} = \frac{h^2}{2m\lambda^2} = \left(\frac{n_x^2 h^2}{8ma^2}\right) \text{ for } n_x = 1, 2, 3, \ldots.$$

20. page 979. The paragraph after Equation (15-32) should read as follow:

One possible energy level for this system is $\varepsilon_i = h^2/\left(8ma^2\right)$ which corresponds to $n_x^2 + n_y^2 + n_z^2 = 3$. The degeneracy of this energy level is g = 1 since this there is only one way for the particle moving in three dimensions to have this energy level when it is recognized that the lowest value for a quantum number is 1. Another possible energy level for the system is $\varepsilon_i = 6h^2/\left(8ma^2\right)$, which corresponds to $n_x^2 + n_y^2 + n_z^2 = 6$. The degeneracy of this energy level is g = 3 because the possible quantum number combinations that lead to this energy level are (2,1,1), (1,2,1), and (1,1,2). If $n_x^2 + n_y^2 + n_z^2 = 9$, the degeneracy of this energy level would also be g = 3. The possible quantum number combinations that lead to this energy level are (2,2,1), (2,1,2), (1,2,2). The degeneracy of the energy level $\varepsilon_i = 66h^2/\left(8ma^2\right)$ corresponding to $n_x^2 + n_y^2 + n_z^2 = 66$ is g = 12.

21. page 1016: Temperature conversion From Rankine. The second to last equation should be

T[°F] = T[R] – 459.67

22. page 1017: in Table A-4 in the Length category, the 5th entry is missing the unit m after 0.025400

23. page 67, the second line after Figure 4 should read "…a valve placed in the bottom of the tank…"

24. page 70, the line before Eq. (2-32) should read "…is the ratio of the mass to the number of moles of a substance:"

25 page 705, Equation 10-220. The limits of integration for the integral on the right side of the equation should be f_1 and f_2.

$$\Delta g_T = \int_{g_1}^{g_2} dg_T = RT \int_{f_1}^{f_2} d\ln(f)$$

26 T should be T1 in Equation 10-148 just before the integral. It should appear as:

$$c_P\left(P,T_1\right) = c_P^{\circ}\left(P,T_1\right) - T_1 \int_0^P \left(\frac{\partial^2 v}{\partial T^2}\right)_P dP$$

27. page 914. Problem 13.B-22. Change methanol to enthanol in two places in the problem statement.

28. page 301. Figure 6-16b. $\tilde{V}_{s,out}$ should be $\tilde{V}_{out}$

29. A number of small changes need to be made to Example 8.3-4 due to typographical errors. These changes are summarized here.

page 461. (13 lines from bottom): Change K_p=0.45 to K_p=0.65

page 464. Line 1: Change AF=269.3 to AF=536.2

page 465. 2nd line from bottom: Change $\tilde{V}_{10} = 373.2$ to $\tilde{V}_{10} = 354.8$

page 466. 2nd text line from top: Change $\dot{m} = 128.1$ to $\dot{m} = 152.1$

page 466 4th text line from top: Change *SFC*=0.562 to *SFC*=0.668

page 466 3rd text line from bottom: Change

Solving provides η_{th} = 0.411 (41.1%), η_p = 0.817 (81.7%), and η_o = 0.336 (33.6%).

to

Solving provides η_{th} = 0.336 (33.6%), η_p = 0.842 (84.2%), and η_o = 0.283 (28.3%).

page 466. Table 1 should be as follows:

Table 1: Comparison of the turbojet engine and turbofan engine.

Parameter	Turbojet (Example 8.3-3)	Turbofan (Example 8.3-4)
Thrust force	15 kN	15 kN
Nozzle exit velocity	973.4 m/s	354.8 m/s
Mass flow rate of air	20.17 kg/s	152.1 kg/s
Specific fuel consumption	1.327 lb_m/hr-lb_f	0.668 lb_m/hr-lb_f
Propulsive efficiency	42.1%	84.2%
Thermal efficiency	33.8%	33.6%
Overall efficiency	14.2%	28.3%

30. Page 951: P_bar should be set to 1 [bar] in the EES code

31. Page 386: Equation (8-3) reads "Q_3_4/m=s_3-s_4" should be $\frac{Q_{3-4}}{m} = T_C\left(s_3 - s_4\right)$

32. Page 805: on the Psychrometric chart on the 30 degree C iso-wet bulb temperature line, "30 WFT BULB..." should be "30 WET BULB...",

33. Figure 10-10. Page 650. The blue and black lines are switched. The caption should read:
Figure 10-1: The compressibility factor of nitrogen determined using the Redlich-Kwong (1949) equation of state (blue line with symbols) and the correlations in EES (black line) as a function of reduced pressure for various values of reduced temperature; (a) focuses on the region near the critical point while (b) extends over a broad range of reduced pressure.

34. Page 799: next to the last line on the page. The parenthetical comment currently is (i.e., with a humidity ratio ϕ_2=1) but it should read as (i.e., with relative humidity ϕ_2=1).