Fundamentals of Electric Circuits, by Charles Alexander and Matthew Sadiku, 3rd Edition, McGraw-Hill

Errata, by Chris Mack, chris@lithoguru.com

While teaching out of this book at the University of Texas at Austin, Fall 2008, I discovered the following errors:

p. 185, Figure 5.19 – the caption reads "For Example 5.9", but it should say "For Example 5.5".

p. 254, second paragraph of section 7.2, first sentence begins "Consider a series combination … shown in Fig. 7.1" This circuit of two components could just as easily be considered a parallel combination, thus I think the word "series" should be deleted.

p. 267, definition (blue box) of the unit impulse function is incorrect. The definition given is for an impulse function. For a unit impulse function, the definition should include the constraint that the function has unit area. (Also, I think it would be valuable to mention that this function sometimes goes by the name "Dirac delta function".)

p. 322, Figure 8.9. It's a bit confusing that parts (a) and (b) are for the case where $I_o = 0$, but (c) has a non-zero initial current. I suggest that at the very least, the caption should specify that (a) and (b) are examples for the case where $I_o = 0$.

p. 327, equation (8.34). In this equation, the roles of A_1 and A_2 are reversed compared to the very similar equation (8.21). While not technically an error, it is confusing to the average student.

p. 332, second paragraph. The term $v_{ss}(t)$ is referred to in the sentence and in equation (8.41). However, by definition, v_{ss} is not dependent on time (it is the steady state response). Thus, it should not have the (t) argument.

p. 354, equation (8.16.9). The final equal sign should be an "approximately equal" sign, and the sentence before or after this equation should mention that only the largest term in the full equation for the voltage has been kept.

p. 406, Figure 9.46, the bottom line/connection of the circuit is missing.

p. 432, Practice problem 10.11 – the answer given is wrong. The correct answer (for the voltage piece) is 2.108cos(5000t-18.44°).

p. 481, Figure 11.27, the capacitor in the circuit diagram uses a different symbol than all of the other capacitors in the text.

p. 509, Figure 12.10, the right-hand side of the figure is cut off, making the "B" label hard to read.

p. 512, equation (12.20), the final voltage is shown with an angle of -150, but it should be +150.

p. 541, Figure 12.39, the label "Neutral" is placed in the figure such that it is impossible to tell which line it refers to (it should be the horizontal line, but could easily be mistaken for the vertical line).

p. 546, problem 12.14, Figure 12.47. There are two problems with this figure. In the delta-load, the positions of B and C are swapped compare to all of the other delta-load figures found in the book. As a result, the figure shows the b-line crossing the c-line, implying incorrectly that they are connected. Second, the Vbn source has a reverse polarity (+ at the neutral terminal) than standard. If this is the intention, then this problem cannot be called a balanced Y-Delta connection (the title for this section of homework problems). In any case, the solution found in the solutions manual for this problem is wrong.

p. 548, problem 12.30, the units of the load impedance in Figure 12.56 should be specified as Ohms.

p. 550, problem 12.57, Figure 12.64 doesn't have V_b labeled.

p. 556, the last sentence of the Maxwell historical sketch, the unit "maxwell" is a CGS unit, which should be discouraged from use. I would delete this reference.

p. 560, the sentence just before equation (13.20a) says "Applying KVL to coil 1", but it should say "Applying KVL to the loop containing coil 1".

p. 564, the sentence between equations (13.29) and (13.30) should clearly specify that this statement only applies to linear materials. For ferromagnetic materials (such as iron), the total energy *does* depend on how we reach the final conditions (a phenomenon called hysteresis).

p. 604, problems 13.42, 13.46, and 13.47 all show voltage sources in their respective figures without units (that is, not labeled as having units of V).

p. 621, section on Quadratic pole/zero. Unfortunately, the meaning of a quadratic pole/zero (as distinguished from a pair of simple poles/zeros) is not stated. To use a quadratic pole as described in this section, written in terms of s, factoring (using the quadratic equation) will lead to complex roots for s. If, instead, factoring using the quadratic equation leads to two real roots, then you would have two simple poles/zeros. This is equivalent to stating that if $\zeta < 1$, you have a quadratic pole, but if $\zeta \geq 1$, you should factor the second-order polynomial into two simple poles. This is important, as practice problem 14.5 and end-of-chapter problem 14.21 should demonstrate.

p. 622, Figure 14.12(a), the graph includes a curve for $\zeta = 1.5$. However, quadratic poles should only be used if $\zeta < 1$.

p. 631, the sentence following equation (14.32). Equation (14.32) has four solutions (four values of frequency that satisfy it) – two positive and two that are negative. Thus, in equation (14.33) we select the two positive solutions.

p. 632 & 635, equations (14.39) and (14.46), it seems quite logical here to point out that the bandwidth B is equal to 2α, where α is the damping coefficient from the transient analysis we did in chapter 8. Likewise, it should be noted that the resonant frequency of equations (14.26) and (14.44) is also the same as that obtained from the transient analysis. This is not a coincidence.

p. 628, Practice Problem 14.5. The quadratic pole in the problem can be factored into two simple poles (since $\zeta = 2$). It should be plotted using the two simple poles rather than the one quadratic pole. This topic is not discussed in the text.

p. 634, equation (14.41), H should be in bold (and not italics) since it is a phasor.

p. 638 – 640. I find it amazing that the frequency response plots shown for the various filters in this section are not shown in standard Bode plot form!

p. 665, Problem 14.2, Figure 14.69 shows the source labeled as V_o rather than V_i.

p. 666, Problem 14.21, the quadratic pole has $\zeta = 1.5$ and thus should be factored into two simple poles. The solution in the back of the book does not do this.

Additionally, my copy of this book had numerous pages bound out of order (for example, pages 263&4 were swapped with pages 265&6). Very irritating.

As a whole, this textbook has fewer errors than most I have used.