

ERRATA

Linear Systems and Signals, 3rd ed., B. P. Lathi and R. A. Green

What follows is a sequential list of known errors (as of July 24, 2018) in the third edition of Linear Systems and Signals (Oxford University Press, 2017). Not every printing of the third edition will contain every listed error. If you find additional errors in the book, please email them to Roger Green at Roger.Green@ndsu.edu.

p. 183, bottom of the page, final expression for $c(t)$ should read

$$c(t) = \begin{cases} 1 - 2e^{-t} & t \geq 0 \\ -e^{2t} & t \leq 0 \end{cases}$$

p. 225, Fig. P2.4-1 should appear as

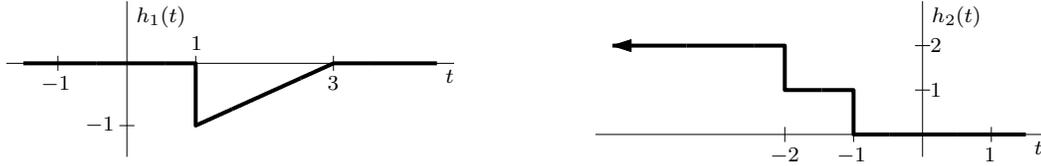


Figure P2.4-1

p. 226, Fig. P2.4-4 should appear as

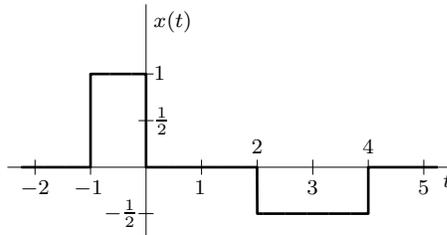


Figure P2.4-4

p. 234, Fig. P2.6-3 should appear as

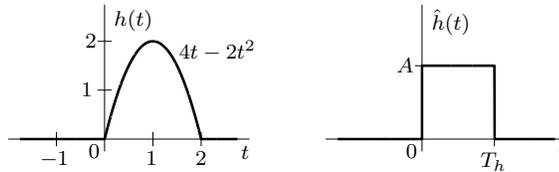


Figure P2.6-3

p. 321, Prob. 3.7-7, $a_0 = a_1 = a_2 = \dots = a_{N-1} = 0$ should instead read $a_1 = a_2 = \dots = a_N = 0$.

p. 404, Fig. 4.32 should not have gray bars on resistors. Instead, it should appear as

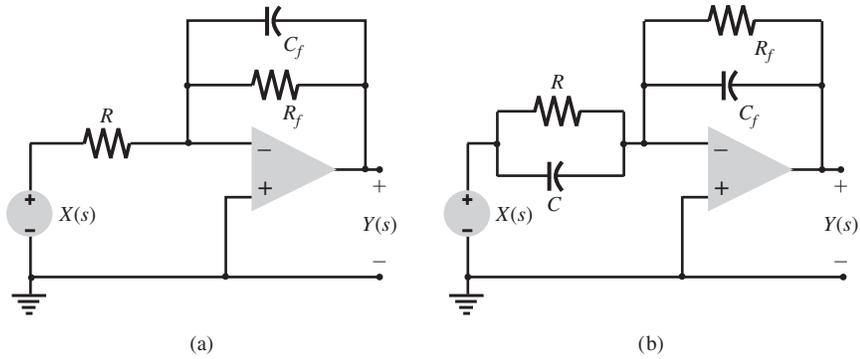


Figure 4.32 Op-amp circuits for Drill 4.14.

p. 461, Fig. 4.66 should appear as

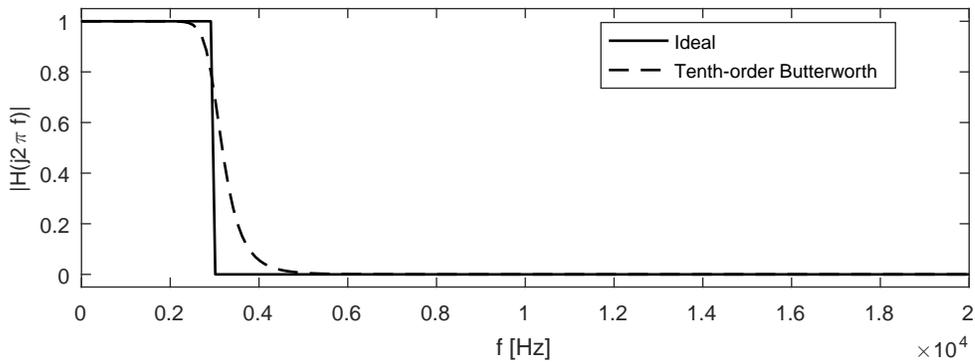


Figure 4.66 Magnitude response $|H_{BW}(j2\pi f)|$ of a tenth-order Butterworth filter.

p. 575, Fig. P5.1-2, $y[n]$ should instead read $x[n]$.

p. 576, Fig. P5.1-3 should appear as

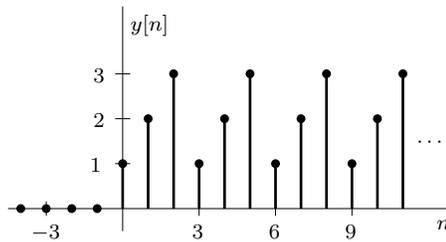


Figure P5.1-3

p. 577, Prob. 5.2-12c, $x - ii[n]$ should instead read $x_{ii}[n]$.

p. 585, Prob. 5.6-4d, “impulse response” should instead read “impulse response” (replace “inpulse” with “impulse”).

p. 672, Prob. 6.3-3, $x(t)$ should instead be defined as

$$x(t) = 3 \cos t + \sin \left(5t - \frac{\pi}{6}\right) - 2 \cos \left(8t - \frac{\pi}{3}\right).$$

p. 675, Prob. 6.3-14, $D_1[n]$ should instead read $X_1[n]$ (three occurrences).

p. 678, Prob. 6.5-11, the problem introduction should include the definition of Laguerre polynomials and should therefore read:

6.5-11 A function can be expanded in terms of many different types of basis functions, not just the complex exponentials of Fourier analysis. For example, Walsh functions are explored in Prob. 6.5-9. Another possible set of basis functions are *Laguerre* polynomials $L_k(t)$, which have support on the interval $[0, \infty)$. The Laguerre expansion of $x(t)$ is given by $x(t) = \sum_{k=0}^{\infty} c_k L_k(t)$, where $L_0(t) = 1$, $L_1(t) = (1 - t)$, \dots , $L_k(t) = e^t \frac{d^k}{dt^k} (t^k e^{-t})$. As with a Fourier series, we can truncate the expansion using any number of terms we choose. For the Laguerre expansion, we define orthogonality a little differently as

$$\int_0^{\infty} e^{-t} x(t) y(t) dt = 0.$$

Notice the presence of the e^{-t} term in the integral. Using this definition, Laguerre polynomials are orthonormal.

p. 679, Prob. 6.5-11(e), “part (d)” should instead read “part (d)”.

p. 701, last sentence before Sec. 7.3, “nothing that a...” should instead read “noting that a...” (replace “nothing” with “noting”).

p. 766, Prob. 7.3-4, the spectrum $X(\omega) = \frac{1}{\omega^2} (e^{j\omega} - j\omega e^{j\omega} - 1)$ should instead read

$$X(\omega) = \frac{1}{\omega^2} (e^{-j\omega} + j\omega e^{-j\omega} - 1).$$

p. 769, Prob. 7.4-3, the impulse response $h(t) = 8\text{sinc}(4t) \cos(2\pi t)$ should instead read $h(t) = 8\text{sinc}(4\pi t) \cos(2\pi t)$.

p. 769, Prob. 7.4-4, the impulse response $h(t) = \sin(3t) \text{sinc}^2\left(\frac{t}{\pi}\right)$ should instead read $h(t) = \sin(3t) \text{sinc}^2(t)$.

p. 769, Prob. 7.4-4(c), the plot interval $-10\pi \leq \omega \leq 10\pi$ should instead read $-10 \leq \omega \leq 10$.

p. 775, Prob. 7.9-8, the interval $T_0/t \leq |t| \leq T_0/2$ should instead read $T_0/6 \leq |t| \leq T_0/2$.

p. 831, fourth line of Sec. 8.7-3, “our truncating” should instead read “or truncating” (replace “our” with “or”).

p. 838, Prob. 8.1-14(f), sampling rate $2/N$ should instead read $4/N$.

p. 838, Prob. 8.2-3(a), “the linear interpolation” should read “linear interpolation” (delete the word “the”).

p. 838, Prob. 8.2-3(b), “the frequency and magnitude responses” should instead read “the frequency response”.

pp. 841–842, Prob. 8.4-1, “ $f_0 =$ ” should be deleted from all parts (a) through (d).

p. 842, Prob. 8.5-3, for notational consistency with Sec. 8.5, $0 \leq t \leq T$ should instead read $0 \leq t < T_0$.

p. 844, Prob. 8.7-7, the expression for x_q should read

$$x_q = \frac{x_{\max}}{2^{B-1}} \lfloor \frac{x}{x_{\max}} 2^{B-1} \rfloor.$$

p. 902, Fig. P9.2-13, the graph is missing the sample value of 1 at $n = 0$ ($z[0] = 1$).

p. 904, Fig. P9.3-7, graphs (a) and (b) are missing the sample value of 0 at $n = 0$ ($x[0] = 0$).

p. 904, Fig. P9.3-7, to avoid notational confusion, the signals $x[n]$ in graphs (a) and (b) should instead be labeled as $y_a[n]$ and $y_b[n]$, respectively.

p. 904, Fig. P9.3-8, the graph is missing the sample value of 0 at $n = 0$ ($x[0] = 0$).

p. 904, Fig. P9.3-8, to avoid notational confusion, the signal $x[n]$ should instead be labeled as $y[n]$.

p. 904, Prob. 9.3-9, the final equation should label the defined spectrum as $X(\Omega)$ rather than $Y(\Omega)$. That is, the final equation should instead read

$$X(\Omega) = \begin{cases} |2\Omega/\pi| & -\pi/2 \leq \Omega \leq \pi/2 \\ 0 & \text{otherwise} \end{cases}$$

p. 904, Prob. 9.3-13, the assumption $\Omega_0 < \pi/2$ should instead read $|\Omega_0| < \pi$.

p. 904, Fig. P9.3-14(e), integration should be specified with respect to frequency by inserting the missing $d\Omega$ term.

pp. 970–973, the section number of all problem numbering is off by 1. Problems labeled 10.1- should be labeled as 10.2-, problems labeled 10.2- should be labeled as 10.3-, and so forth.

p. 971, Prob. 10.3-2 (which should be labeled Prob. 10.4-2), the signal $x(t) = \sin 100t$ should instead read $x(t) = \sin(100t)u(t)$.

p. 973, Fig. P10.5-1, the two subsystems shown as $\frac{1}{s+b}$ should both instead be shown as $\frac{1}{s+a}$.