

SP First ERRATA. These are mostly typos, but there are a few crucial mistakes in formulas. Underline is not used in the book, so I've used it to denote changes. *JHMcClellan, December 10, 2003*

1. page 10*, Figure 2-4, last line of text in figure: $\implies \underline{x} = r \cos(\theta)$

2. page 13*, righthand column, last line of text, change 3 to 2, ... negative slope of $-\frac{2}{3}$ for $\frac{1}{2} < t \leq \underline{2}$. Now ...

3. page 41, (bottom left), The CDROM citation should read:
LAB: #3 AM and FM Sinusoidal Signals

4. page 53, (2nd line of equations for a_k), denominator should be: $\underline{-j(2\pi/T_0)k}$, so we would have

$$= \left(\frac{1}{T_0} \right) \frac{e^{-j(2\pi/T_0)k(\frac{1}{2}T_0)} - e^{-j(2\pi/T_0)k(0)}}{-j(2\pi/T_0)k}$$

5. page 56, 2nd line of equation(3.37), exponent in exponential needs changing, should be: $\underline{e^{-j(2\pi/T_0)kt}}$. The entire line should read:

$$+ \frac{1}{T_0} \int_{\frac{1}{2}T_0}^{T_0} (2(T_0 - t)/T_0) e^{-j(2\pi/T_0)kt} dt$$

6. page 63, righthand column, line 18, (insert a space) ...signals, such as a Touch-Tone phone.

7. page 83, The CDROM citation should read:
LAB: #3 Chirp Synthesis from Chapter 3

8. page 91, The CDROM citation should read:
DEMO: Reconstruction Movies

9. page 111, The CDROM citation should read: **LAB: #6 Digital Images: A/D and D/A**

10. page 126, The CDROM citation should read:
LAB: #7 Sampling, Convolution, and FIR Filtering

11. page 132, 3rd line of Example 6-2, Missing $-\pi/3$ which should be colored. ... and $\angle H(e^{j\pi/3}) = \underline{-\pi/3}$.

12. page 133, righthand column, 2nd line, algebraic steps in (6.6) show that $y[n]$ can finally be expressed as a cosine signal.

13. page 153, righthand column, middle, *dsty* in the middle of the equation should be deleted.

$$\begin{aligned} & H(e^{j2\pi(250)/1000}) \\ &= \frac{\sin(\pi(250)(11)/1000)}{\sin(\pi(250)/1000)} e^{-j2\pi(250)(5)/1000} \\ &= 0.0909 e^{-j\pi/2} \end{aligned}$$

14. page 156, (bottom right), The CDROM citation should read:
LAB: #9 Encoding and Decoding Touch-Tones
15. page 174, Exercise 7.6, equation for $w[n]$ should have minus sign instead of plus:
 $w[n] = x[n] - x[n - 1]$
16. page 176, The CDROM citation should read:
DEMO: Three Domains - FIR
17. page 181, first paragraph of Section 7-7 should read:
Now we can exploit our new knowledge to design filters with desirable characteristics. In this section, we will look at a special class of bandpass filters (BPFs) that are all close relatives of the running-sum filter.
18. page 250*, Figure 9-5 (caption), Scaled unit-impulse signal is symbolized...
19. page 295, The CDROM citation should read:
LAB: #13 Numerical Evaluation of Fourier Series
20. page 302, The CDROM citation should read:
LAB: #15 Fourier Series (Ch. 12)
21. page 319*, line 8, righthand column, (insert comma)
necessary condition, for having a Fourier transform.
22. page 326, line 11, righthand column,
...we showed in (10.3)...
23. page 329*, equation in righthand column is missing T^2 ,

$$y(t) = x(t) * h(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} T^2 \left(\frac{\sin(\omega T/2)}{(\omega T/2)} \right)^2 e^{j\omega t} d\omega$$

or T could be removed from the denominator and it could be written as:

$$y(t) = x(t) * h(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} \left(\frac{\sin(\omega T/2)}{(\omega/2)} \right)^2 e^{j\omega t} d\omega$$

24. page 349*, Figure P-12.4(b), input signal to first block should be $x(t)$, instead of $x[n]$
25. page 351, line 1, righthand column,
remove the words “filtersFrequency selective” so that it reads:
... frequency selective filters. In this section,...
26. page 354*, Figure 12-9, 2nd line of caption, (subscript not italic)
...to give the output signal $y_{lp}(t)$.

27. page 355, The CDROM citation should read:
LAB: #14 Design with Fourier Series
28. page 364, Figure 12-20, misspelled word inside the first block: Half-Wave Rectifier
29. page 379, Figure 12-35(d), the rightmost label $2\pi\gamma$ contains an extraneous γ ; should be 2π
30. page 383, Figure P-12.8, inside block (bad spacing)
LTI System
31. page 384, Figure P-12.9, inside block (bad spacing)
LTI System
32. page 410, top, lefthand column, section title should be:
13-8.2 Spectrograms in MATLAB
33. page 392, before equation (13.8), lefthand column, (insert space)
.....equation (12.61) on p. 376, that the DTFT of...
34. page 438*, Figure A-13 (caption),
For the vectors shown, $|z_1| > 1$ and $|z_3| < 1$.
35. page 460, top line, lefthand column,
Use the built-in MATLAB editor, or an external one...

Optional:

1. page 26, The suggested change in wording was not made:
Change **LAB: #2, Adding Sinusoids and Complex Amplitudes**
to **LAB: #2 Introduction to Complex Exponentials**.
Note: this change was made correctly on page 31.
2. page 46, The CDROM citation should read:
DEMO: Spectrograms: Simple Sounds: Square Wave
3. page 416, The CDROM citation should read:
DEMO: Ch 3, Spectrograms

CD-ROM Errata:

1. Exercise 3.8 solution is wrong because the $k = 3$ term was evaluated incorrectly. The last two line should be:

$$\begin{aligned}
 x_N(t) &= \frac{1}{2} - \frac{2}{\pi} e^{j50\pi t} - \frac{2}{\pi} e^{-j50\pi t} - \frac{2}{3^2\pi} e^{j150\pi t} - \frac{2}{3^2\pi} e^{-j150\pi t} \\
 &= \frac{1}{2} - \frac{4}{\pi} \cos(50\pi t) - \frac{4}{9\pi} \cos(150\pi t)
 \end{aligned}$$

2. Exercise 7.6 solution was not consistent with the printed version (1st and 2nd printing) of the text. However, the error is with the text, so the solution is not changed.