

**ERRATA for Ambardar's Analog and Digital Signal Processing, Brooks-Cole, 1999**  
**Last Updated: December 22, 2009**

- Page 11:** Line 6 (equation): Lower limit of both integrals should be  $-\infty$ .
- Page 20:** After second bullet: Replace  $y(t) = r(t) - r(t - 3) - 3u(t)$  by  $y(t) = r(t) - r(t - 3) - 3u(t - 3)$
- Page 31:** Prob 2.8 Figure for Signal 4: Replace x-labels [3,6] by [2, 4]
- Page 43:** Last equation: Replace  $x_o[n] = 0.5x[n] + 0.5x[-n]...$  by  $x_o[n] = 0.5x[n] - 0.5x[-n]...$
- Page 75:** Example 4.5(e)  $y'(t + 4) + 2y(t + 4) = x(t + 2)$ . This is causal, dynamic and timevarying.
- Page 95:** Prob 4.39, In the equation in Line 1: Replace  $4y(t)$  by  $4y'(t)$
- Page 95:** Prob 4.40(b), In the equation, Replace  $4y(t)$  by  $4y'(t)$
- Page 106:** Example5.6(b)Line 5, Replace  $-A \sin(0.5n\pi)$  by  $A \sin(0.5n\pi)$
- Page 109:** Example5.7(c)Line 13, Replace  $-0.5 + A(-1)^n + B(2)^n$  by  $-3 + A(-1)^n + B(2)^n$
- Page 113:** Example5.11(b), Line 5, Replace  $4h_0[n] - h_0[n - 1]$  by  $2h_0[n] - 6h_0[n - 1]$
- Page 116:** Example5.15(c), End of Line 5: Replace  $\delta[n - 2]$  by  $\delta[n - 1]$
- Page 121:** Prob5.8 (e) and (f): append  $u[n]$
- Page 129:** Prob5.50 (a),(b),(c),(d): Replace  $-0.5y[n]$  by  $-0.5y[n - 1]$
- Page 134:** Exmple6.2(b), In first intergal: Replace  $u(\lambda + 1)$  by  $u(\lambda + 3)$
- Page 138:** Example6.3(h), Line 5 (equation), Replace last term  $+r(t + 2)$  by  $+r(t - 2)$
- Page 141:** Example6.7 Table, column 2 (Range:  $2 \leq t \leq 4$ ), in integral: Replace  $2\lambda d\lambda$  by  $2d\lambda$
- Page 157:** Eq(6.46): Replace  $r_{xx}(t) \leq r_{xx}(0)$  by  $|r_{xx}(t)| \leq r_{xx}(0)$
- Page 157:** Line after Eq(6.46):  
Replace 'is finite and nonnegative for all  $t$ ' by 'is nonnegative at  $t = 0$  and finite for all  $t$ '
- Page 158:** Review Panel6.23: Last item  $r_{xx}(t) \leq r_{xx}(0)$  by  $|r_{xx}(t)| \leq r_{xx}(0)$
- Page 191:** Prob7.18, Line 1: Replace  $y[n] - 0.5y[n] = x[n]$  by  $y[n] - 0.5y[n - 1] = x[n]$
- Page 200:** Example8.1(b):  
Line 2: Replace 'a second ( $k = 2$ ) and a tenth ( $k = 10$ ) harmonic' by 'the fundamental ( $k = 1$ ) and a fifth ( $k = 5$ ) harmonic'  
Line 3: Replace ' $a_2 = 1$ , and  $b_{10} = -2$ ' by ' $a_1 = 1$ , and  $b_5 = -2$ '
- Page 204:** Example 8.2(e) Line 1: Delete the word 'hidden'
- Page 213:** Example8.5(c) Line 2: Replace  $G[k] = X[k] - Y[k]$  by  $G[k] = X[k] + Y[k]$
- Page 223:** Example8.9(b) Replace  $g(t) = 12 + 6 \cos(2\pi t)$  by  $g(t) = 8 + 6 \cos(2\pi t)$ .
- Page 238:** Prob 8.1(a), Replace term  $2 \sin(4\pi t + \frac{\pi}{4})$  by  $2 \sin(4\pi t)$
- Page 260:** Example9.5(b) Switch signs of the rect terms in  $y(t)$  and the sinc terms in  $Y(f)$
- Page 260:** Example9.5(c) Delete the factor  $e^{j2\pi f}$  in  $V(f)$
- Page 261:** Example9.5(d) Replace  $G(f) = 2\text{sinc}^2(2f) - \text{sinc}^2(f)$  by  $G(f) = 4\text{sinc}^2(2f) - \text{sinc}^2(f)$
- Page 261:** Example9.5(e) Delete the factor  $e^{j2\pi f}$  in first equation for  $H(f)$
- Page 262:** Example9.5(f)  
Line 1: Replace  $\text{rect}(t)$  by  $\text{rect}(t/2)$  in two places.  
Line 3: Replace  $\text{rect}(t) \Leftrightarrow \text{sinc}(f)$  by  $\text{rect}(t/2) \Leftrightarrow 2 \text{sinc}(2f)$  and replace equation below Line 3 by:  
 $S(f) = 0.5[\delta(f + 0.5) + \delta(f - 0.5)] \star 2 \text{sinc}(2f) = \text{sinc}[2(f + 0.5)] + \text{sinc}[2(f - 0.5)]$
- Page 278:** Line 5, Replace 'less than' by 'greater than'
- Page 279:** Example9.15(a) Replace  $H(f) = 2\text{rect}(f/2)$  by  $H(f) = 2\text{tri}(f/2)$
- Page 286:** Example 9.17(b), Delete ')' from denominator of  $H(f)$
- Page 289:** Prob 9.2 Figure for Signal 4: Replace x-labels [3,6] by [2, 4]
- Page 290:** Prob 9.9(b): Replace last term  $-r(t - 4)$  by  $+r(t - 4)$
- Page 299:** Prob 9.70(b): Replace the term  $4y(t)$  by  $4y'(t)$
- Page 333:** Table 11.2, Entry 12: Replace the integrand  $x(t) dt$  by  $x(\tau) d\tau$
- Page 348:** Review Panel 11.12, Replace  $x''(t) \Leftrightarrow s^2 X(s) - sx'(0) - x''(0)$  by  $x''(t) \Leftrightarrow s^2 X(s) - sx(0) - x'(0)$
- Page 366:** Prob 11.36 and Prob 11.37(b): Replace the term  $4y(t)$  by  $4y'(t)$
- Page 397:** Prob 12.35(b): Replace the term  $4y(t)$  by  $4y'(t)$
- Page 399:** Review Panel 13.2: **Chebyshev I and II:** Switch the words 'monotonic' and 'rippled'
- Page 401:** Line 6 end: Replace  $B = \omega_4 - \omega_1$  by  $B = \omega_3 - \omega_2$
- Page 406:** Example 13.2(b), last line: Replace  $\nu^{10}$  by  $\nu^8$
- Page 407:** Example 13.2(e), in denominator of  $H(s)$ : Replace 444.29 by 444.29s
- Page 409:** Example 13.3(a), in denominator of  $H_2(s)$ : Replace 675.44.05s<sup>2</sup> by 675.44s<sup>2</sup>

**Page 410:** Example 13.3(c), Line 2: Replace '70 Hz' by '55 Hz'.  
Line 3: Replace '[30, 50, 70, 100]' by '[30, 50, 55, 100]' and  $f_2 f_3 = 3500$  by  $f_2 f_3 = 2750$

**Page 440:** Prob 13.5, line 1: Replace 'third-order and a fourth-order' by 'second-order and a third-order'

**Page 471:** Paragraph below Fig.14.24: Delete sentence 'After encoding, modulation...'

**Page 471:** Paragraph below Fig.14.24: Replace last sentence of paragraph with:  
'For a recording time of an hour, this translates to about 600 MBytes.'

**Page 483:** Sec15.2: Line 4: Replace 'Fourier' by 'scaled Fourier',  $X(f)$  by  $SX(f)$  and  $SX_p(F)$ ... by  $X_p(F)$ ...

**Page 483:** Sec15.2: Line 5:  $SX_p(F)$  by  $X_p(F)$  and  $X(f)$  by  $SX(f)$ .

**Page 483:** Review Panel 15.2 penultimate line: Replace  $X(f) = SX_p(F)$ ... by  $SX(f) = X_p(F)$ ...

**Page 483:** Review Panel 15.2, last line: Replace  $SX_p(F)$  by  $X_p(F)$  and  $X(f)$  by  $SX(f)$

**Page 487:** Table 15.2, Modulation entry: Replace  $0.5[(\Omega + \Omega_0) + X_p(\Omega - \Omega_0)]$  by  $\pi[X_p(\Omega + \Omega_0) + X_p(\Omega - \Omega_0)]$

**Page 492:** Eq(15.18): Replace  $\delta(f - kF_0)$  by  $\delta(F - kF_0)$

**Page 492:** Eq(15.19): Replace lower limit of summation  $k = 0$  by  $n = 0$

**Page 492:** Review Panel 15.13: Replace  $\delta(f - kF_0)$  by  $\delta(F - kF_0)$

**Page 492:** Example 15.3(a), equation for  $X_p(F)$ : Replace  $\delta(f - \frac{k}{4})$  by  $\delta(F - \frac{k}{4})$

**Page 493:** Example 15.3(b), Replace  $k = 0, 1, \dots, 5$  by  $k = 0, 1, \dots, 4$  and  $\delta(f - \frac{k}{5})$  by  $\delta(F - \frac{k}{5})$

**Page 497:** Review Panel 15.16, first line: Replace ' $F = 0$  (or  $\Omega = \pi$ )' by ' $F = 0.5$  (or  $\Omega = \pi$ )'

**Page 498:** first line: Replace '0.556 and  $H_p(0.5) = \dots$ ' by '0.556 and  $H_p(0.5) = \dots$ '

**Page 499:** Example 15.7(a), Line 2: Replace  $(1 - e^{-j\Omega})$  by  $(1 - \alpha e^{-j\Omega})$

**Page 536:** Table 16.1, Last entry: Move factor  $\frac{1}{N}$  from left-hand-side to right-hand-side.

**Page 541:** Eq(16.9), denominator: Replace  $1 - e^{-j2\pi k/N}$  by  $1 - \alpha e^{-j2\pi k/N}$

**Page 545-546:** Example 16.4(a): Delete negative sign in all exponentials for  $n = 0, n = 1, n = 2, n = 3$   
For  $n = 3$  (after above correction): replace  $e^{j9\pi/2}$  by  $j2e^{j9\pi/2}$

**Page 553:** Example 16.8(a), Line 4: Replace '0.1953' by '0.25'

**Page 570:** Example 16.14, In the 4x4 matrix: Replace all lowercase 'w' by uppercase 'W'

**Page 573:** Table 16.5, Entries 6 and 7: Replace  $\log_2 M$  by  $\log_2 N$  and (last col of 6): Replace  $\frac{N}{2}N$  by  $\frac{N}{2}$

**Page 585:** Problem 16.34(a) Replace 'sampling  $S_{\min}$  rate' by 'sampling rate  $S_{\min}$ '

**Page 595:** After Fig 17.1, fourth line: Replace  $0 > |z| > p|_{\max}$  by  $|z| > |p|_{\max}$

**Page 595:** Last equation, Entries 6 Replace 'ROC:  $|z| > |\alpha|$ ' by 'ROC:  $|z| < |\alpha|$ '

**Page 601:** Example 17.4(a), Line 3: Replace  $z = -\frac{1}{3}$  by  $z = \frac{1}{3}$

**Page 606:** Review Panel 17.15: Lines 2 and 3: Switch *ascending* and *descending*

**Page 609:** Example 17.9(a), Line 3: Replace  $z - 0.24$  by  $z - 0.25$

**Page 610:** Last line on page: Replace  $\frac{-0.5}{z-2}$  by  $\frac{-0.5z}{z-2}$

**Page 611:** Line4: Replace  $0.25 - j0.25$  by  $0.25 - j0.75$  and Line 5: append  $u[n]$

**Page 611:** Example17.9(e): Replace  $B\alpha^n \cos(n\Omega)u[n] \iff$  by  $B\alpha^n \sin(n\Omega)u[n] \iff$

**Page 617:** Example 17.14(c): Replace  $X_1(z) = 2 - z^{-1}$  by  $X_1(z) = 2 + z^{-1}$

**Page 619:** Example 17.15(c), last line: Replace  $4(0.25)^n u[n]$  by  $4(0.5)^n u[n]$

**Page 620:** Example 17.16(b): Replace  $\frac{Y(z)}{z} = \dots = \frac{8}{z-0.5} - \frac{4}{z-1}$  by  $\frac{Y(z)}{z} = \dots = \frac{8}{z-1} - \frac{4}{z-0.5}$   
Last equation should read  $Y(z) = \frac{8}{z-1} - \frac{4}{z-0.5}$   $y[n] = 8u[n] - 4(0.5)^n u[n]$

**Page 621:** Line 7, in equation for  $Y_{zi}(z)$ : Replace  $0.75z$  by  $1.2z$

**Page 626:** Prob 17.13(d), Replace  $z > 3$  by  $|z| > 3$

**Page 636:** Prob17.82 (a)-(d) and Prob 17.83(a): Replace  $-0.5y[n]$  by  $-0.5y[n-1]$

**Page 651:** Fig 18.9 For all plots, Replace labels ' $K = \dots$ ' by ' $G = \dots$ '

**Page 688:** Table 19.3, second row: Replace  $\frac{2}{t_s}(x[n] + x[n-1])$  by  $\frac{t_s}{2}(x[n] + x[n-1])$

**Page 696:** Line 4: Replace  $K = \frac{\tan(\pi/8)}{\tan(\pi/4)} = 0.4142$  by  $K = \tan(\pi/8) \tan(\pi/4) = 0.4142$

**Page 698:** Example 19.9(b), Line 3: Replace  $\Omega_2 = 2\pi(6/25)$  by  $\Omega_2 = 2\pi(9/25)$

**Page 730:** Review Panel 20.5, Line 5: Replace  $A_{WP} \leq A_s$  by  $A_{WP} \leq A_p$

**Page 736:** Lines 6 and 7: Replace  $h_{BP}[n]$  by  $h_{BS}[n]$

**Page 776:** Ex21.20, Line 4: Replace 1600 by 8192. In Matlab code: replace  $\mathbf{z}=\mathbf{y}(1:1600)$ ; by  $\mathbf{z}=\mathbf{y}(1:8192)$ ;