

Errata Sheet - 24th September 2009

This document lists all errata the authors are aware of for the second edition of "Digital Signal Processing: Concepts And Applications" by Bernard Mulgrew, Peter M. Grant and John S. Thompson, published by Palgrave Limited (ISBN: 0-333-96356-3).

List of Errata for Main Text

- P11: In the formula on the top line of this page, A_n should be A_{-n} and B_n should be B_{-n} .
- P97: On the third line of this page, $1/2\Delta t$ should be $1/(2\Delta t)$. The same applies when this formula is repeated in paragraph two.
- P133: SAQ 5.6 asks for the direct form of the filter, but in view of the solution on P357, it should be the canonical form.
- P136: In the parallel structure shown in Figure 5.7, changing the gain C will change the shape of the frequency response of the filter. This could be avoided by instead scaling all N transfer functions $K_n(z)$ by the gain C .
- P189: In the legend of Figure 7.6, the second (a) should be replaced with (b) and in last line (b) should be replaced with (c).
- P197: Five lines from bottom, it should be eqn (7.6) that is referred to, not equation (7.5).
- P197: The solution to Example 7.1 says that z is replaced by $\exp(-j\omega\Delta t)$. It should be $\exp(+j\omega\Delta t)$.
- P250: The Fourier transform shown in Figure 9.1 (a) shows two positive valued impulses. This is, strictly speaking, the Fourier transform for a time domain cosine wave, not a time domain sine wave as shown.
- P251: Figure 9.2(b) is not strictly an expanded view of Figure 9.1(d). For a rectangular window, the spacing from the sinc function peak ω_0 to the first zero-crossing should be $\Delta\omega$. Examining Figure 9.2(b) shows that the distance from the first peak ω_0 is actually more than $2\Delta\omega$. This could occur if a non-rectangular window was applied to the data, such as those listed in Table 9.1 (P268). More discussion of this issue can be found in section 9.3 of the textbook.
- P283: The equation for $x(n)$ in question 9.2 should equal 1 when n is greater than **or equal** to zero and less than **or equal** to $(L - 1)$.
- P297: The equation $(N/2) \log_2 N$ should be $(N/2)(\log_2 N - 1)$.
- P310: The heading for Example 11.1 should read "Downsampling" not "Upsampling".

Errata For Questions and Solutions

- P169: The text of SAQ 6.9 should refer back to SAQ 6.8 not SAQ 6.7.
- P181: In question 6.1, 21 taps should be assumed for the length of the filter (as in question 6.2).
- P182: In question 6.5, when it asks "If the appropriate amount of stopband rejection ... how many coefficients should be used in the second low pass filter $H_2(\omega)$?", it is not clear what the transition band for $H_2(\omega)$ should be. Consider what would happen if the transition band is (i) the same as and (ii) half of that for $H_1(\omega)$.
- P348: The solution to SAQ 1.6 should not have a minus sign at the start of the second line of the equation.
- P349: The y-axis of the solution to SAQ 2.1 is labelled wrongly. The value 1.0 should read 2.0 and the value 0.5 should read 1.0. Changing these numbers ensures that the pulse function integrates to 1 in both cases.
- P350: The time constant of an inductor/resistor pair is L/R (sec). The solution for $h(t)$ given for SAQ 2.3 is incorrect - the denominator of the exponential function should read L/R not R/L .
- P359: The solution for SAQ 6.9 refers to SAQ 6.7, but this should be SAQ 6.8.