Errata for the Second Printing of *Engineering Vibrations*, 2nd Edition, by D.J. Inman

Inside front cover, last equation. The expression for A is missing a + sign and should read: $A = \sqrt{\dfrac{\left(v_0 + \omega_n \zeta x_0\right)^2 + \left(x_0 \omega_d\right)^2}{\omega_d^2}}$

p. 17: third line from the bottom, the last term is missing the factor x_0 and should read:

$$\dot{x}(t) = v_0 = -\zeta \omega_n x_0 + x_0 \omega_d \cot\phi$$

p. 48: seventh line from the bottom: change criteria to criterion.

p. 62: 7th line below Figure 1.38 change `x0 = [0  0.25]'` to `x0 = [0  0.25]`

p. 84: Figure P1.64 change N/m to kN/m for each spring.

p.114: 8 lines from the top change "(2.52) and (2.54)", to "(2.56) and (2.58)", and (2.52) to (2.56).

9 lines from the top change (2.54) to (2.58),

Last complete sentence on the page should read:
"First note that the frequency ratio r for both plots is independent of the damping ratio whereas the peak value of r has a different dependence on the damping ratio (Figure 2.8 will be different for each)."

p. 115: 1st line following the Figure, change ω_n to r.

p. 138: last equation in Example 2.7.3, last term, change 8 to 4 in the denominator to read: $\sqrt{\dfrac{3\pi f_0 m^2}{4kC\rho A}}$

p. 145: first equation from the bottom change "$k(x)$" to "$f_k(x)$".

p. 149: second equation from the top, the term following the equal sign should be "15 cosωt" not "150 cos ωt".

p. 165: last line change "$k(x)$" to "$f_k(x)$".

p. 166: in problems 2.79, 2.80 and 2.81 change "$k(x)$" to "$f_k(x)$". Note that in 2.80 and 2.81 this also needs to be changed at the end of each problem statement.

p. 204: two lines up from equation (3.81) change (3.79) to (3.80).

p. 205: one line below equation (3.83) change (3.74) to (3.77)

7 lines up from Figure 3.16 change (3.78) to (3.77)

6 lines up from Figure 3.16 change (3.81) to (3.84)

1 line up from Figure 3.16 change Section 3.8 to Section 3.

p. 239: Problem 3.49, change "equation (3.96)" to "equation (3.99)"

p. 252: first line following the end of the example, change (4.2) to (4.11)

p. 265: 5th line up from the bottom, change $\begin{bmatrix} v_{11} \\ v_{22} \end{bmatrix}$ to $\begin{bmatrix} v_{11} \\ v_{21} \end{bmatrix}$

p. 266: 4th line up from the bottom add "1/" after the equal sign in the expression for α to read: $\alpha_i = 1/\sqrt{\mathbf{u}_i^T M \mathbf{u}_i}$

p. 269 5th line up from the bottom change "(4.65) and (4.66)" to "(4.66) and (4.67)".

p. 272: 5th line up from the bottom, change Example 4.1.6 to Example 4.1.7

p. 273: 8th line up from the bottom, change Example 4.1.6 to Example 4.1.7

p. 276: Equation (4.81) has a k_i missing from in front of the second term and should read:

$$m_i\ddot{x}_i + k_i(x_i - x_{i-1}) - k_{i+1}(x_{i+1} - x_i) = 0 \quad i = 1,2\ldots,n$$

p. 282: 4th line up from Equation (4.104): Change "orthoganility" to "orthogonality"

p. 304: 3rd equation from the top is missing and m and should read:

$$T = \frac{1}{2}m\left[\dot{x} - e\dot{\theta}\cos\theta\right]^2 + \frac{1}{2}J\dot{\theta}^2$$

p. 305: 3rd equation from the bottom the second term should be "-" not "+" to read

$$J\ddot{\theta} - me\cos\theta\ddot{x}\cdots$$

p. 307:4th line down in Example 4.8.1 remove "= k_3"

p. 309: first equation, change the last + sign to an = sign.

p. 323: 5th line down from the top, change "orthoganal" to "orthogonal".

p. 339: 4th line of equations down from the top change "!" to "1" in A1

p 340: 4th line down from the top change "w=2.73655 "to "w=2.75655"

p. 354: Problem 4.63, 2nd line, change q_3 to x_3.

p.407: In figure 5.31, change $\frac{\omega_r}{\omega}$ to $\frac{\omega}{\omega_r}$.

p. 421: Problem 5.12, replace part (b) with: "(b) Design a metal spring that provides the appropriate stiffness using Section 1.5 (refer to Table 1.2 for material properties)."

p. 449: 4th equation from the bottom, remove σ_m from the denominator on the left so that the left side reads: $0.03\sin\left(\frac{(2m-1)\pi}{2}\right) =$

In the following equation the expression for c_n becomes;

$$c_n = \frac{0.06(-1)^{n+1}}{c\sigma_n \ell} = \frac{0.12\ell(-1)^{n+1}}{c\pi(2n-1)} = 7.46\times10^{-6}\frac{(-1)^{n+1}}{2n-1}\text{m}, \quad n = 1,2,3\ldots$$

In the following two equations: replace 2.43 x 10^{-5} with 7.46 x 10^{-6}, replace 500 with 512.35, and replace $(2n\text{-}1)^2$ with $(2n\text{-}1)$ in the denominators.

p. 457: in figure 6.9 change bx^2-c to in bx^2-a two places

p. 465: 3rd column heading. Remove superscript [b] from the word Mode Shape

p. 473: 1st equation from the bottom change ω_{nm} to ω_{mn}.

p. 483: 2nd of Example 6.8.2, change N/kg to N.

p. 561: line following equation (8.100) change K_{21}^2 to K_{21}^T.

p. 592: 7 lines from the bottom. Add ' to the second L to read "…`K*inv(L')`"

p. 604: 7 lines down change "*Technical*" to "*Techniques*"

p. 606: second line from the top, last term in problem 2.6, change "+0.0299sin 8.162*t*" to "+ 0.299cos 8.162*t*"

fourth line down from the top, change problem 2.7 (b) by deleting the constant term and changing the coefficient of the middle term from 0.50 to 0.05 to read:

(b) $x(t) = 2.795\times10^{-3}\sin\sqrt{20}t + 0.05\cos\sqrt{20}t - 1.25\times10^{-3}\sin 10t$

6th line down from the top in 2.14, change "θ = -1.285 rad" to "θ = 1.856 rad"

in problem 3.14, change the second to last minus sign to a plus sign to read

$$x(t) = 5(t-\sin t) + 5[\sin(t-4) - t + 4]\Phi(t-4)$$

in problem 3.16, change the coefficient of the second term from 0.5 to 0.05 to read: $x(t) = 0.5t - 0.05\sin(10t)$ m