

Errata and Addenda for
**Intermediate Engineering Dynamics: A Unified Treatment of Newton-Euler and
 Lagrangian Mechanics.** Cambridge University Press (2008).
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I am grateful to Karla Vega for pointing out the typographical error on page 98 and Ali Lahi-janian for pointing out the corrections to pages 150 and 151.

page 61: The expression for the normal vector \mathbf{e}_n should read

$$\mathbf{e}_n = \frac{\text{sgn}(f'')}{\sqrt{1+f'^2}} (\mathbf{E}_2 - f' \mathbf{E}_1),$$

page 98: The expression for \mathbf{N} in Exercise 3.6 (d) should read

$$\mathbf{N} = \left(-\frac{2E_0}{R_0} + 3mg \cos(\phi) \right) \mathbf{e}_R.$$

page 108: $q^{6-k} = \mathbf{r}_3 \cdot \mathbf{E}_k$ should read $q^{6+k} = \mathbf{r}_3 \cdot \mathbf{E}_k$

page 110: “rearranging” is misspelled in the line prior to (4.9).

page 126: The row index in the matrix equation following (4.31) should read M instead of $3N$:

$$\begin{bmatrix} a_{1(M+1)} & a_{1(M+2)} & \cdots & a_{1(3N)} \\ a_{2(M+1)} & a_{2(M+2)} & \cdots & a_{2(3N)} \\ \vdots & \vdots & \ddots & \vdots \\ a_{M(M+1)} & a_{M(M+2)} & \cdots & a_{M(3N)} \end{bmatrix} = \begin{bmatrix} 0 & 0 & \cdots & 0 \\ 0 & 0 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & 0 \end{bmatrix}.$$

page 150: In the third of the equations of motion, the following correction is needed to the left-hand side: m_2 should replace m_1 . That is,

$$\frac{d}{dt} \left(m_2 (L_0 - r_1)^2 \dot{\phi}_2 \right) - m_2 (L_0 - r_1)^2 \dot{\theta}_2^2 \sin(\phi_2) \cos(\phi_2) = m_2 g (L_0 - r_1) \sin(\phi_2),$$

page 151: In the two expressions for \dot{E} , m_2 should be replaced by m_1 .

page 165: In the first footnote, insert “the” following “found”

page 192: In the first line of the Rodrigues vector section, remove “:” following vector.

page 209: In the seventh line following (7.5) replace θ with ϕ . In equation (7.6) and the discussion following it on page 210, replace $\mathbf{Q}(t)$ with $\mathbf{Q}(t)\mathbf{Q}^T(t_0)$.

page 230: In Exercise 7.6(b), replace “an expression” with “expressions”

page 366: “this representation” should read “the representation”