Errata

*Page 91 Figure 5.5 The vertical axis should be marked as y (not x)

*Page 91 Figure 5.6 The vertical axis should be marked as z (not x)

* Page 114, 5.15 on first line, $a\cos(\omega t)\sin(\delta)$ should read: $a\cos(\omega t)\cos(\delta)$

* Page 160, Section 7.9 Exercises, Question 7.1

(c) should be $\int \frac{1}{x^3} dx$

(m) should be $\int \frac{4x^2}{(x^3-7)^2} dx$

* Page 290, Section 12.10 Exercises, Question 12.19

(f) should read $(\frac{1}{2} - 2x)^5$

* Page 343 Section 13.10 Exercises, Question 13.1 (a) should be A^T

* Page 345 Section 13.10 Exercises, Question 13.11 (a) (ii) should read (1,1,-2).

* Page 381 Section 14.9 Exercises, Question 14.8 Third sentence should read 'The extension x_1 and velocity x_2 of the spring obey the system of differential equations'

* Page 446 Chapter 18 Vector Calculus 2nd equation should be

$$\nabla\phi=\left(\mathbf{i}\frac{\partial}{\partial x}+\mathbf{j}\frac{\partial}{\partial y}+\mathbf{k}\frac{\partial}{\partial z}\right)\phi$$

3rd equation should be $\nabla\phi=\left(\frac{\partial}{\partial x},\frac{\partial}{\partial y},\frac{\partial}{\partial z}\right)\phi$

* Page 448 Example 18.2 should begin: Given $\phi= z - x^{\frac{1}{2}} - y^{\frac{1}{2}}$

* Page 448 After heading **'The ∇ (del) operator'** it should read:

We defined $\nabla\phi=\left(\frac{\partial}{\partial x},\frac{\partial}{\partial y},\frac{\partial}{\partial z}\right)\phi$ or equivalently $\nabla\phi=\left(\mathbf{i}\frac{\partial}{\partial x}+\mathbf{j}\frac{\partial}{\partial y}+\mathbf{k}\frac{\partial}{\partial z}\right)\phi$

We can see that ∇ (del) can be considered as an operator defined by

$\nabla=\left(\frac{\partial}{\partial x},\frac{\partial}{\partial y},\frac{\partial}{\partial z}\right)$ or equivalently $\nabla=\left(\mathbf{i}\frac{\partial}{\partial x}+\mathbf{j}\frac{\partial}{\partial y}+\mathbf{k}\frac{\partial}{\partial z}\right)$

* Page 449 halfway down page should read

$$\nabla\times\mathbf{F}=\left(\frac{\partial}{\partial x},\frac{\partial}{\partial y},\frac{\partial}{\partial z}\right)\times(F_x,F_y,F_z)=\begin{vmatrix}\mathbf{i} & \mathbf{j} & \mathbf{k}\\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z}\\ F_x & F_y & F_z\end{vmatrix}$$

* Page 452 Top of page should read:
Substituting for x,y,z in terms of t, as above, we get

$$\int_1^4 -24t^2 - 36t^3 dt = \left[\frac{24t^3}{3} - \frac{36t^4}{4}\right]_1^4 = \left[-8t^3 - 9t^4\right]_1^4 = -4\times64-9\times256 -(-8-9)=-2560+17=-2543$$

* Page 453 In Example 18.6 and for the calculation of $\int_{C\ to\ A} \mathbf{F.dr}$ the fifth and sixth lines should read

$$= \int_0^1 -48t^3 + 70t^2 - 16t - 3dt$$
$$= \left[-12t^4 + \frac{70t^3}{3} - 8t^2 - 3t\right]_0^1$$

* Page 455 The right-hand-side of the 4th equation should read

$$\int_0^3 \int_0^3 \left[x + \frac{2x^3}{3}\right]_0^3 dydz$$

* Page 456 In the 6th expression down, the last sign on the left-hand-side should be '+' i.e.

$$\left[e^{-1}\frac{(z-1)^2}{2} + e^{-1}z + e^{-z}\right]_0^1$$

* Page 518 At the bottom of the page, the expression for the probability density function $N(\mu,\sigma^2)$ should be

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

Answers to Exercises

* Page 533 Chapter 2 Exercise 2.13 (a) Should be $-3 < x < 3$

* Page 535 Chapter 7 Exercise 7.12 Should be 2.121

* Page 535 Chapter 9 Exercise 9.13 (a) Should read 0.4636 radians to x-axis and 1.107 radians to y-axis

* Page 538 Chapter 13 Exercise 13.12 (a) There is a missing vector on the right in the given expression which should be:

$$\begin{pmatrix}\sigma_x\\ \sigma_y\\ \sigma_z\end{pmatrix}=\frac{E}{1-3\nu^2-2\nu^3}\begin{pmatrix}1-\upsilon^2 & \upsilon+\upsilon^2 & \upsilon+\upsilon^2\\ \upsilon+\upsilon^2 & 1-\upsilon^2 & \upsilon+\upsilon^2\\ \upsilon+\upsilon^2 & \upsilon+\upsilon^2 & 1-\upsilon^2\end{pmatrix}\begin{pmatrix}\varepsilon_x\\ \varepsilon_y\\ \varepsilon_z\end{pmatrix}$$

* Page 540 Chapter 17 Exercise 17.1. The given answer is for part (a). Missing answers for (b), (c) and (d) are: (b) $1+y-4/y$, $x+4x/y^2$ (c) $y/(y^2+x^2)$,$-1/(y^2+x^2)$ (d) $\frac{4}{y}e^{-x^2}-\frac{8x^2}{y}e^{-x^2}$,$-\frac{4x}{y}e^{-x^2}$

* Page 540 Chapter 18 Exercise 18.1 (e) should read $(-x^2y^2,\ -y+15z^2,\ 2xy^2z+z)$

* Page 540 Chapter 18 Exercise 18.3 should read (a) –7/6 (b)-36

* Page 540 Chapter 18 Exercise 18.6 should read (a) 0 (b)-8/3 (c) ¼

* Page 541 Chapter 20 Exercise 20.1 should read $L=\{a^nbc|n\geq 1\}$