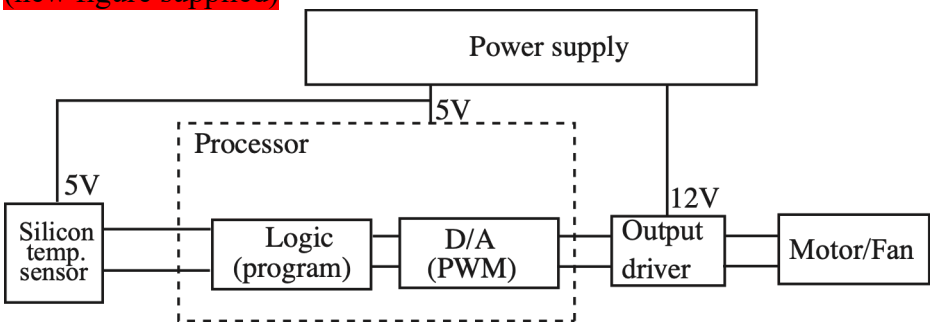
Corrections for Sensors, Actuators and their Interfaces 1st edition

Corrections marked in green – optional, not critical

Page 20, Example 1.4
C/V in the relation shown should not be italic

Page 18, Fig 1.9
Change: output
To: Output
(new figure supplied)



Page 41, Eq. (2.3)
Change: 20 log|span...
To: 20 $\log_{10}$|span…

Page 41, Eq. (2.4)
Change: 20 log|span...
To: 20 $\log_{10}$|span…

Page 41, 1st relation below Eq. (2.4)
Change: 10 log(19....
To: 10 $\log_{10}$(19.…

Page 41, 2nd relation below Eq. (2.4)
Change: 10 log(19....
To: 10 $\log_{10}$(19.…

Page 46, 2nd first and second relations in example 2.12
Leave space between result and units

Page 61, 7th line from bottom of page
Change: R_0 is the temperature…

To: R_0 is the resistance…

Page 65, 1st line in part b of Problem 2.18
Change: $\sin 2\pi f$
To: $\sin 2\pi ft$

Page 99, 2nd row in Table 3.9.
Change: 51,7
To: 51.7

Page 122, 1st line in Part c of problem 3.16
Change: Which reading is…
To: Which reading (part a or part b)is…

Page 125, 2nd line in part b of problem 3.23.
Change: measured temperature
To: measured junction voltage

Page 127, last line in Part b of problem 3.29
Remove the text: while the internal pressure stays at 1013.25 mbar (101,325 Pa)

Page 128, last line in problem 3.33
Change: actuating cylinder
To: wax pellet (l)

Page 133, 1st line below Eq. (4.1)
Change: J/s
To: J.s
Change: eV
To: eV.s

Page 134, 1st line in Example 4.2
Change: Minimum
To: Longest

Page 134, 3rd line in Example 4.2
Change: lowest wavelength
To: longest wavelength

Page 139, Eq. (4.7)
Change: L
To: L^2

Page 143, 1st line under Figure 4.6
Change: …may be reverse…
To: …may be forward…

Page 143, 2nd line under Figure 4.6
Change: …forward biased…
To: …reverse biased…

Page 152, 6th line in Example 4.7
Change: …light densities…
To: …light power densities…

Page 152, 1st line in table at bottom of page
Change: Light density
To: Power density

Page 161, 3rd line in Example 4.10
Change: 446 mV/ºC
To: 446 μV/ºC

Page 161, 5th line in Example 4.10
Change: …and a heat capacity C =…
To: …and a specific heat capacity C_s =…

Page 161, last expression on the page
Change: $C_f = C_m$ =…
To: $C = C_s m$ =…

Page 161, 1st line above last expression on the page
Change: The specific heat…
To: The heat capacity…

Page 161, 2nd line above 2nd expression from the bottom of the page
Change: …denoted as C_f.
To: …denoted as C.

Page 162, 3rd expression from top of page
Change: 2854.4 mV
To: 2854.4 μV

Page 162, 4th expression from top of page
Change: S =
To: s=
Change: 1.955×10^5 mV/W/m^2
To: 1.955×10^5 μV/W/m^2

Page 162, 1st line below 4th expression from top of page
Change: 1.955 V
To: 1.955 μV

Page 162, 2nd line below 4th expression from top of page
Change: power of 10^{-5}
To: power density of 10^{-5}

Page 168, 1st line in Problem 4.3
Change: J/s
To: J.s

Page 168, 2nd line in Problem 4.3
Change: eV
To: eV.s

Page 171, 3rd line in Problem 4.13
Change: 500 μm^2
To: 1 mm^2

Page 171, 4th and 3rd line from bottom of page
Change: light intensity
To: power density

Page 171, 1st line from bottom of page
Change: light intensity
To: power density

Page 173, 5th line in Problem 4.19
Change: light intensity
To: power density

Page 174, 4th line in Problem 4.25
Change: s = 170 mV/ºC.
To: s = 170 μV/ºC.

Page 174, 6th line in Problem 4.25
Change: …and a heat capacity C =…
To: …and a specific heat capacity C_s =…

Page 174, 5th line in Problem 4.26
Change: …and a heat capacity of…
To: …and a specific heat capacity of…

Page 182, Eq. (5.3)
Change: $C=\alpha$[…
To: $C \propto$ […
(use the "proportionality" symbol, not alpha!)

Page 221, 3rd line in the statement of Example 5.9

Change: B=0.6 T

To: B=0.8 T

Page 221, 3rd expression in example 5.9

Change: $$R = \frac{a}{\sigma bc} = \frac{0.5}{4 \times 0.25 \times 1} = 1\ \Omega$$

To: $$R = \frac{a}{\sigma bd} = \frac{0.5}{4 \times 0.25 \times 8} = 0.0625\ \Omega$$

Page 221, 1st line above Figure 5.48

Change: 62.5 GW

To: 3.9 GW

Page 221, 1st line below Figure 5.48

Change: 62.5 GW

To: 3.9 GW

Page 221, Figure 5.48

Change: a = 1 m

To: a = 0.5 m

Change: b = 0.5 m

To: b = 0.25 m

Page 221, 2nd line below Figure 5.48

Change: 250 kV

To: 15.625 kV

Page 222, 1st expression from top of page

Change: $$R = \frac{a}{\sigma bc} = \frac{0.5}{2.4 \times 10^7 \times 0.25 \times 1} = 8.33 \times 10^{-8}\ \Omega$$

To: $$R = \frac{a}{\sigma bd} = \frac{0.5}{2.4 \times 10^7 \times 0.25 \times 8} = 1.042 \times 10^{-8}\ \Omega$$

Page 222, 2nd expression from top of page

Change: 8.33

To: 1.042

Change: 5.208×10^3

To: 621.25

Page 222, 1st line under 2nd expression from top of page

Change: or just over 5.2 kW. The voltage of the source is only 20 mV.

To: The voltage of the source is only 26 mV.

Page 256, Eq. (5.70)

Change: $$F = \frac{B^2 S}{\mu_0} = \frac{\mu_0 N^2 I^2 S}{L^2}$$

To: $$F = \frac{B^2 S}{2\mu_0} = \frac{\mu_0 N^2 I^2 S}{2L^2}$$

Page 259, 1st expression on the page

Change: $$F = \frac{\mu_0 N^2 I^2 S}{L^2} = \frac{4\pi \times 10^{-7} \times 2000^2 \times 0.5^2 \times (\pi \times 0.009^2)}{0.01^2} = 3.198 \text{ N}$$

To: $$F = \frac{\mu_0 N^2 I^2 S}{2L^2} = \frac{4\pi \times 10^{-7} \times 2000^2 \times 0.5^2 \times (\pi \times 0.009^2)}{2 \times 0.01^2} = 1.599 \text{ N}$$

Page 259, 2nd expression on the page

Change: $$F = \frac{\mu_0 N^2 I^2 S}{L^2} = \frac{4\pi \times 10^{-7} \times 2000^2 \times 0.5^2 \times (\pi \times 0.009^2)}{0.005^2} = 12.791 \text{ N}$$

To: $$F = \frac{\mu_0 N^2 I^2 S}{2L^2} = \frac{4\pi \times 10^{-7} \times 2000^2 \times 0.5^2 \times (\pi \times 0.009^2)}{2 \times 0.005^2} = 6.3955 \text{ N}$$

Page 266, Eq. (5.79)

Change: μ_0

To: μ

Page 267, 3rd and 4th line in Problem 5.1

Change: … x_1 and x_2 …

To: … $x_1 = 10$ mm and $x_2 = 50$ mm…

Page 267, 3rd line in Part b of Problem 5.1

Change: 2.25

To: 2.0

Page 268, 3rd line in Problem 5.3

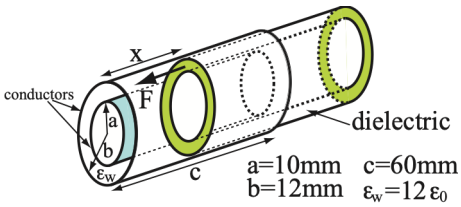
Change: Teflon that is free to move

To: a dielectric that allows free movement

Page 268, Figure 5.101

Correct the term ε_0 in the figure. It should not be a superscript.

(a new figure is supplied)



Page 270, 1st line under Fig. 5.104
Change: …position d and…
To: …position *d* and…

Page 271, 3rd line from top of page
Change: 1500
To: 150

Page 272, last line in Problem 5.15
Delete the line

Page 272, 3rd line in Problem 5.16
Change: b = 8 m long, d = 0.5 m high
To: d = 8 m long, b = 0.5 m high

Page 277, 5th line in Problem 5.30
Change: L = 20 mm
To: L = 5 mm

Page 317, Eq. (6.17)
Change: P_t
To: P_s

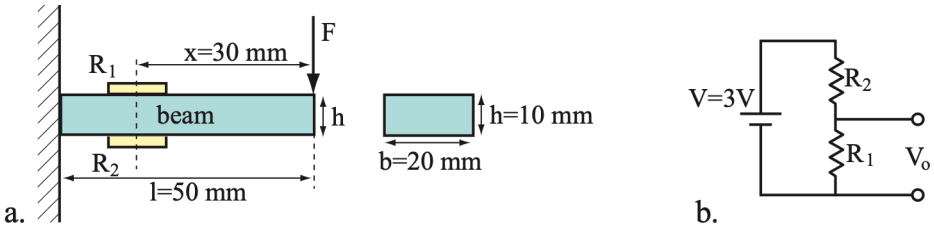
Page 325, last line in Problem 6.2
Change: at 0.1% strain and at – 0.1% strain
To: at 0.1% strain and at – 0.2% strain

Page 325, last line in Problem 6.3
Change: at 0.1% strain and at – 0.1% strain
To: at 0.2% strain and at – 0.1% strain

Page 325, 4th line in Problem 6.4
Change: Young's modulus
To: modulus of elasticity (Young's modulus)

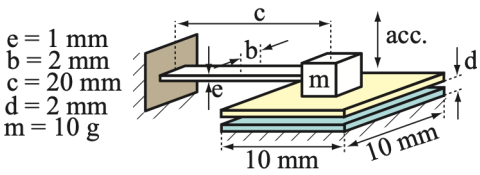
Page 325, 3rd line above Figure 6.44
Change: …force of the four sensors…
To: …force for the four sensors…

Page 327, Figure 6.47a
Change: 35 mm
To: 30 mm
(New figure is provided)



Page 327, 5th line in Problem 6.9
Change: permittivity of 2.25
To: permittivity of 2.0

Page 329, Figure 6.52
Change: d = 1 mm
To: d = 2 mm
(New figure is provided)



Page 329, 3rd line from bottom of page
Change: Calculate the span of
To: Calculate the span of acceleration

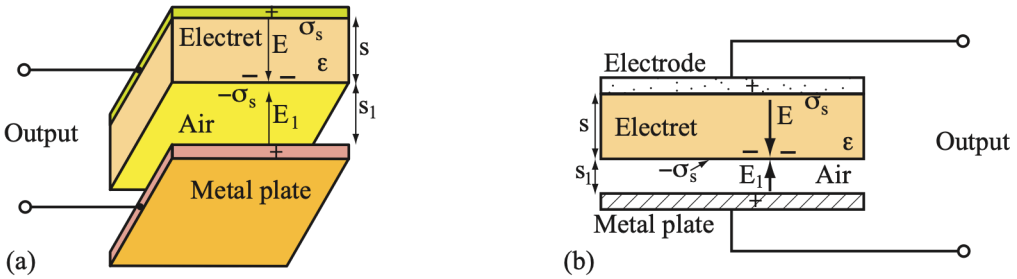
Page 331, 5th line from top of page
Change: 5 mA
To: 10 mA

Page 333, Subtitle under Figure 6.56
Change: **Optical gyroscopes**
To: **Mechanical and optical gyroscopes**

Page 333, 7th line in Problem 6.26
Change: At a reference temperature
To: At a reference pressure

Page 355, paragraph above Eq. (7.27)
Replace the whole paragraph with the following:
The surface charge density of the electret is negative. This trapped charge density generates positive charge densities on the conducting diaphragm and on the metal back plate by induction (see **Figure 7.14b**). The charge distribution generates two opposing electric fields as shown. The two fields produce two opposing potentials, one between the lower electrode and the lower surface of the electret, the other between the metal back plate and the lower surface of the electret. In most electret microphones, these voltages

are equal in magnitude and the output in the absence of sound pressure is zero. The electric field intensity in the air gap in the absence of sound pressure (pointing up) is **(A new Figure 7.14 is supplied)**



Page 355, Eq. (7.27)

Change: $$V = \frac{\sigma_s s_1}{\varepsilon_0 s + \varepsilon s_1} \quad [\text{V}]$$

To: $$E = \frac{\sigma_s s_1}{\varepsilon_0 s + \varepsilon s_1} \quad \left[\frac{\text{V}}{\text{m}}\right]$$

Page 356, Eq. (7.28)

Change: $$\Delta V = \frac{\sigma_s \Delta s}{\varepsilon_0 s + \varepsilon s_1} \quad [\text{V}]$$

To: $$\Delta V = E\Delta s = \frac{\sigma_s s_1}{\varepsilon_0 s + \varepsilon s_1}\Delta s \quad [\text{V}]$$

Page 356, Eq. (7.29)

Change: $$\Delta s = \frac{\Delta p}{\gamma p_0 s_1 + 8\pi T / A} \quad [\text{m}]$$

To: $$\Delta s = \frac{\Delta p}{(\gamma p_0 / s_0) + 8\pi T / A} \quad [\text{m}]$$

Page 356, 3rd line below Eq. (7.29)

Change: and Δp is the change…

To: Δp is the change…

Page 356, beginning of the 4th line below Eq. (7.29)

Change: sound. Thus…

To: sound, and s_0 is the effective thickness of the air gap. In practice s_0 can be approximated by s_1. Thus…

Page 356, Eq. (7.30)

Change: $$\Delta V = \frac{\sigma_s}{\varepsilon_0 s + \varepsilon s_1}\left(\frac{\Delta p}{\gamma p_0 s_1 + 8\pi T / A}\right) \quad [\text{V}]$$

To: $$\Delta V = \frac{\sigma_s s_1}{\varepsilon_0 s + \varepsilon s_1}\left(\frac{\Delta p}{(\gamma p_0 / s_1) + 8\pi T / A}\right) \quad [\text{V}]$$

Page 357, 7th line above from top of page

Change: …tension of 2 N…

To: …tension of 2 N/m…

Page 357, 3rd line above the first expression in the example

Change: 0.2 μC/m^2

To: 200 μC/m^2

Page 357, 1st expression in the example

Change: $$\Delta V = \frac{\sigma_s}{\varepsilon_0 s + \varepsilon s_1}\left(\frac{\Delta p}{\gamma p_0 s_1 + 8\pi T / A}\right) \quad [\text{V}]$$

To: $$\Delta V = \frac{\sigma_s s_1}{\varepsilon_0 s + \varepsilon s_1}\left(\frac{\Delta p}{(\gamma p_0 / s_1) + 8\pi T / A}\right) \quad [\text{V}]$$

Page 357, 1st line in the 2nd expression in the example, in the nominator

Change: 0.2 x 10^{-6}

To: 200 x 10^{-6} x 0.2 x 10^{-3}

Page 357, 2nd line in the 2nd expression in the example, in the denominator

Change: 1.4 x 0.2 x 10^{-3} x 101,325

To: 1.4 x 101,325/0.2 x 10^{-3}

Page 357, 3rd line in the 2nd expression in the example

Change: = 5.19 Δp

To: = 3.733 x 10^{-3} Δp

Page 357, 1st line below the 2nd expression in example

Change: …of 5.134 mV/Pa.

To: …of 3.733 mV/Pa.

Page 357, paragraph below the 2nd expression in example

Change: For a normal level of speech (45 dB to 70 dB) the pressure is 3.5 x 10^{-3} Pa to 6.3 x 10^{-12} Pa (see **Example 7.1**), producing an output of 18 to 327 mV, the microphone will produce a change in voltage of 10.268 to 20.536 mV, a level that is not only sufficient but also rather high for a microphone of the dimensions assumed here. Note however that this change is on top of the existing voltage given in **Equation (7.27).**

To: For a normal level of speech (45 dB to 70 dB) the pressure is 3.5 x 10^{-3} Pa to 6.3 x 10^{-12} Pa (see Example 7.1), producing an output of 13 to 235.2 μV.

Page 389, 1st line below Eq. (7.60)

Change: 10^{-3}^{o}C

To: 10^{-3} ^{o}C

Page 391, 8th and 9th line in Problem 7.6
Remove the text: that spreads in a 30º cone as it propagates into water

Page 392, 1st line from top of page
Change: …artifact 2 mm…
To: …artifact 1 mm…

Page 392, 5th line in Problem 7.8
Change: …in **Table 7.1.**
To: …in **Tables 7.1 through 7.4.**

Page 394, 6th line in Problem 7.14
Change: …100 N**.**
To: …100 N/m**.**

Page 434, 2nd expression from bottom of page
Change: 1.3889*H*
To: 1.3889*RH*

Page 441, 1st line above Eq. (8.27)
Change: NaH_3
To: NaN_3

Page 441, Eq. (8.27)
Change: NaH_3
To: NaN_3

Page 442, Example 8.13
Change: NaH_3 **(five locations)**
To: NaN_3 **(five locations)**

Page 443, 10th line under Fig. 8.30
Change: The role of DC…
To: The role of the DC current…

Page 443, 2nd line under Eq. (8.28)
Change: [g-eq/mole]
To: [g-eq/mol]

Page 446, 4th line from bottom of page
Change: Metal Oxide Sensors
To: Electrochemical Sensors

Page 447, 5th line in Problem 8.8
Change: 18.5%.

To: 18.5% (by volume).

Page 450, 5th line from top of page
Change: 0.2 mg
To: 2 mg

Page 454, 3rd line in Problem 8.31
Change: NaH_3
To: NaN_3

Page 455, 2nd line from top of page
Change: …rises by 50ºC above ambient.
To: …rises to 50ºC.

Page 458, 1st line below Eq. (9.1)
Change: J/s
To: J.s
Change: eV/s
To: eV.s

Page 499, 4th line from bottom of page
Change: …at a velocity v the radar, operating…
To: …at a velocity v = 40 km/h. The radar operates…

Page 504, 2nd line from bottom of page
Change: …J/kg/ºK…
To: …J/kg/K…

Page 505, 10th line from top of page
Change: …J/kg/ºK…
To: …J/kg/K…

Page 520, 1st expression from bottom of page
Change: =6
To: =3

Page 520, 2nd expression from bottom of page
Change: =[6
To: =[3

Page 520, 3rd expression from bottom of page
Change: =6
To: =3

Page 521, 1st expression from top of page
Change: =6x

To: =3x
Change: =0.010464
To: =0.0157

Page 521, 1st line under the 1st expression from top of page
Remove the sentence "This is a reasonable strain (1%) for silicon."

Page 544, Eq. (10.12)
Make the outer brackets larger (as in **Eq. (10.13)**

Page 545, Eq. (10.13)
Change: cos
To: sin

Page 557, 5th line in Problem 10.5
Change: 10 g
To: 1 g

Page 558, 4th line in Problem 10.6
Change: 4 g
To: 1 g

Page 561, 5th line in Problem 10.13
Change: …upward travel…
To: …downward travel…

Page 561, 6th line above Figure 10.56
Change: …as 4d were made equal to d…
To: …as 4*d* were made equal to *d*…
(d should be italic)

Page 562, 7th line in Problem 10.16
Change: …for the signal…
To: …for the modulated carrier signal…

Page 562, 3rd line in Problem 10.17
Change: 10 MHz
To: 1 MHz

Page 557, 7th and 8th line in Problem 10.4
Change: 110 MPa
To: 75 GPa

Page 558, 4th line in Problem 10.7
Change: The sensors…
To: The strain gauges…

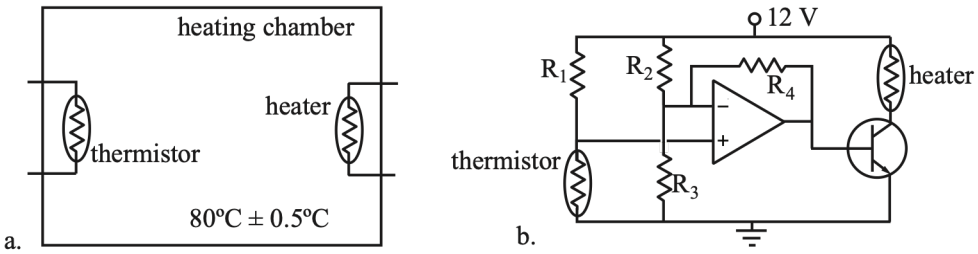
Page 558, 7th line in Problem 10.7
Change: silicon carbide
To: strain gauges

Page 589, NAND column in Table 11.1
Change 1
1
1
1
To: 1
1
1
0

Page 633, 2nd line above Fig. 11.68
Change: $0.0001L$
To: $0.0001L/\text{cm}^3$

Page 639, 2nd line above Figure 11.71…
Change: amplifier.
To: amplifier at 50ºC.

Page 642, Figure 11.75a
Change: 120ºC
To: 80ºC
(new figure is provided)



Page 642, 7th line in Problem 11.12
Change: resistors R_1, R_2, and R_3
To: resistors R_1, R_2, R_3, and R_4

Page 644, 4th line in Problem 11.19
Change: pulse width
To: pulse period

Page 644, 2nd line in Problem 11.23
Change: comparator
To: amplifier

Page 649, end of the 3rd line in Problem 11.36
Add the following sentence: Neglect the effect of the bridge rectifier.

Page 680, 5th line below 4th expression from top of page
Change: 0.9575
To: 0.9375

Page 680, 3rd line above 2nd expression from bottom of page
Change: 0.9575
To: 0.9375

Page 680, 2nd line above 2nd expression from bottom of page
Change: 0.9575 – 0.9315 = 0.026
To: 0.9375 – 0.9315 = 0.006

Page 680, 1st line above 2nd expression from bottom of page
Change: 2.5 – 0.026 = 2.474
To: 2.5 – 0.006 = 2.494

Page 680, 2nd expression from bottom of page
Change: 2.474
To: 2.494
Change: 0.979
To: 0.9952

Page 680, 1st line below 2nd expression from bottom of page
Change: 293.7
To: 298.56

Page 680, 3rd line below 2nd expression from bottom of page
Change: 2.474
To: 2.494

Page 680, 3rd line above 1st expression from bottom of page
Change: 2.474
To: 2.494

Page 680, 2nd line above 1st expression from bottom of page
Change: 2.474 + 0.625 = 3.099
To: 2.494 + 0.625 = 3.119

Page 680, 1st expression from bottom of page
Change: 3.099 (3 locations)
To: 3.119 (3 locations)
Change: 391.247

To: 397.96

Page 681, 1st expression from top of page
Change: 391.247 (2 locations)
To: 397.96 (2 locations)
Change: 195.9
To: 203.63

Page 681, 1st line below 1st expression from top of page
Change: 195.9
To: 203.63

Page 700, 1st line in part b of Problem 12.2
From: …H valve…
To: …C valve…

Change: Page 707, 3rd line in Problem 12.24
From: 230 Ω
To: 75 Ω

Change: Page 707, 4th line in Problem 12.24
From: 75 Ω
To: 230 Ω

Change: Page 711, answer to 1.21
From: 1.35582
To: 0.73756

Change: Page 711, answer to 1.26
From: bytes
To: bits
From: GB
To: Gbits

Change: Page 711, answer to 1.27
From: μW
To: $\mu W/m^2$

Change: Page 711, answer to 2.5
From: 2235
To: 1485

Change: Page 711, answer to 2.1
From: –23.72
To: –23.73

Change: Page 711, answer to 2.2
From: 5.6755
To: 6.3221
From: 0.2666
To: 0.089

Change: Page 712, answer to 2.10
From: 130 dB, 130 dB
To: 120 dB, 130 dB

Change: Page 712, answer to 2.16
From: 3578.82 K, 66.4%, 41.2%
To: 3578.82 K. (b) 66.42%. (c) 66.48%

Change: Page 712, answer to 3.4
From: 0.00443ºC
To: 0.006136ºC

Change: Page 712, answer to 3.10
From: (a) 33.754 Ω. (b) 0.675 Ω. (c) 2.0252 Ω.
To: (a) 337,540 Ω. (b) 6.75 Ω. (c) 20.252 Ω.

Change: Page 713, answer to 3.25
From: (a) $error = 200d\left(\frac{1}{331.5\sqrt{\frac{T}{273.15}}} - \frac{1}{343.4218}\right)$ [%]

To: (a) $error = 100\left(\frac{343.4218}{331.5\sqrt{\frac{T}{273.15}}} - 1\right)$ [%]

Change: Page 713, answer to 3.32
From: 120 mm
To: 126 mm

Change: Page 713, answer to 3.33
From: 2664.8 mm^3
To: 848.23 mm^3
From: 15 mm
To: 4.8 mm

Change: Page 713, answer to 4.9
From: 337.4
To: 337.42
From: $33.9x10^{12}$

To: 3.39×10^{11}

Change: Page 713, answer to 4.11
From: 3377.75
To: 3377
From: 1509.25
To: 1529

Change: Page 713, answer to 4.12
From: (a) $s = \dfrac{Lhcd\eta T\lambda\tau}{ew\left(\mu_e + \mu_p\right)\left(nhcd + \eta PT\lambda\tau\right)^2}$

To: (a) $s = -\dfrac{Lch\eta T\lambda\tau}{ew\left(\mu_e + \mu_p\right)\left(n_i hcd + \eta PT\lambda\tau\right)^2}$

From: (b) 519.9
To: (b) –4,255

Change: Page 713, answer to 4.13
From: 1.612
To: 1.61

Change: Page 713, answer to 4.14
From: 2.94
To: 0.474
From: 0.406 mW
To: 26.35 μW

Change: Page 714, answer to 4.15
From: 644.6
To: 429.74
From: 100.0
To: 180
From: 611.3
To: 407.5
From: 111.5
To: 200.77

Change: Page 714, answer to 4.18
From: $5V_0 = \ldots$
To: $V_0 = \ldots$

Change: Page 714, answer to 4.20
From: 8.08
To: 8.078

Change: Page 714, answer to 4.25

From: $s = 136.48\ \text{V}\cdot\text{m}^2/\text{W}$

To: $s = 54.6\ \text{V}/\left(\text{W}/\text{m}^2\right) 949.93$

Change: Page 714, answer to 4.30

From: 945.89

To: 949.93

From: 118.23

To: 118.74

Change: Page 714, answer to 5.1

From: 10.628 pF

To: 9.45 pF

From: 53.14 pF

To: 47.23 pF

From: 1.0628×10^{-9} F/m

To: 944.64×10^{-12} F/m

Change: Page 714, answer to 5.4

From: (a) $R_{empty} = 85{,}454.5\ \Omega$, $R_{1/4} = 55{,}121.2\ \Omega$, $R_{1/2} = 37{,}303.0\ \Omega$, $R_{3/4} = 18{,}181.8\ \Omega$.

To: (a) $R_{empty} = 85{,}519\ \Omega$, $R_{1/4} = 55{,}609\ \Omega$, $R_{1/2} = 37{,}309\ \Omega$, $R_{3/4} = 18{,}219\ \Omega$.

From: (b) $R = -83{,}139t + 80{,}782\ [\Omega]$.

To: (b) $R = -83{,}611t + 81{,}197\ [\Omega]$ (t is the fraction of tank fill).

From: Maximum nonlinearity 5.7%.

To: Maximum nonlinearity 5.48%.

Change: Page 714, answer to 5.5

From: (a) $R_x = \dfrac{2L}{\sigma\pi\left(d - 2\times 10^{-3} t c_r\right)}\ [\Omega]$, t is in *years*.

To: (a) $R = \dfrac{4L}{\sigma\pi\left(d - 2\times 10^{-3} t c_r\right)}\ [\Omega]$, c_r is the corrosion rate, t is in *years*.

Change: Page 714, answer to 5.6

From: 1.494

To: 1.4932

From: 1.488

To: 1.4862

From: 0.667

To: 0.571

Change: Page 714, answer to 5.7

From: $R = \dfrac{9d + 2c - 5b}{6\sigma ab}\ [\Omega]$

To: $R = \dfrac{7d + 2c - b}{6\sigma ab}\ [\Omega]$

From: 2.833
To: 3.0
From: 10.33
To: 8.833
From: 0.75
To: 0.583

Change: Page 714, answer to 5.10

From: (a) $K_H = 1.06\times10^{-10}\left[\frac{\mathrm{m}^3}{\mathrm{A\cdot s}}\right]$, $s = 1.59\times10^{-8}$ V/T.

To: $K_H = 1.058\times10^{-10}\left[\frac{\mathrm{m}^3}{\mathrm{A\cdot s}}\right]$, $s = 1.587\times10^{-8}$ V/T.

Page 714, answer to 5.8

Change: $emf = -3.97\cos 2\pi\times1000x$

To: $emf = -3.97\cos\left(2\pi\times1000x\right)$

Change: $s = -2.806\cos 2\pi\times1000x\ \left[\mathrm{V/m}\right]$

To: $s = -2.806\ \left[\mathrm{V/m}\right]$.

Page 714, answer to 5.11

Add to the solution: (c) 11.56 MΩ.

Page 715, answer to 5.32

Change: (a) 143,290 turns. (b) 72 turns.
To: (a) 14,329 turns. (b) 7 turns.

Page 715, answer to 6.4b

Change: $\frac{dR_1}{dF} = R_{01}\left(\frac{g}{acE} + 2h\left(\frac{F}{a^2c^2E^2}\right)\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_1}{dF} = R_{01}\left(\frac{g}{acE} + \frac{2hF}{a^2c^2E^2}\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

Change: $\frac{dR_3}{dF} = R_{01}\left(\frac{g}{acE} + 2h\left(\frac{F}{a^2c^2E^2}\right)\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_3}{dF} = R_{01}\left(\frac{g}{acE} + \frac{2hF}{a^2c^2E^2}\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

Note: the answers were correct – this is just a change in format

Page 715, answer to 6.5b

Change: $\frac{dR_1}{dF_1} = R_{01}\left(\frac{g}{acE} + 2h\left(\frac{F_1}{a^2c^2E^2}\right)\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_1}{dF_1} = R_{01}\left(\frac{g}{acE} + \frac{2hF_1}{a^2c^2E^2}\right)\ \left[\frac{\Omega}{\mathrm{N}}\right]$

Change: $\frac{dR_3}{dF_1} = R_{03}\left(\frac{g}{acE} + 2h\left(\frac{F_1}{a^2c^2E^2}\right)\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_3}{dF_1} = R_{03}\left(\frac{g}{acE} + \frac{2hF_1}{a^2c^2E^2}\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

Change: $\frac{dR_2}{dF_2} = R_{02}\left(\frac{g}{bcE} + 2h\left(\frac{F_2}{b^2c^2E^2}\right)\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_2}{dF_2} = R_{02}\left(\frac{g}{bcE} + \frac{2hF_2}{b^2c^2E^2}\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

Change: $\frac{dR_4}{dF_2} = R_{04}\left(\frac{g}{bcE} + 2h\left(\frac{F_2}{b^2c^2E^2}\right)\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

To: $\frac{dR_4}{dF_2} = R_{04}\left(\frac{g}{bcE} + \frac{2hF_2}{b^2c^2E^2}\right) \quad \left[\frac{\Omega}{\mathrm{N}}\right]$

Note: the answers were correct – this is just a change in format

Page 716, answer to 6.9

Change: 79.686 – 39.843F
To: 70.832 – 35.414F
Change: – 39.843 pF/N.
To: – 35.414 pF/N.

Page 716, answer to 6.18

Change: (c) 1.3962 mV (from –0.1396 mV to 1.2566 mV)
To: (c) 1.117 mV (from –1.2566 mV to –0.1396 mV)

Page 717, answer to 6.25

Change: 11.253
To: 10.238

Page 717, answer to 6.28

Change: 273.39
To: 473.53
Change: 1.317
To: 0.76

Page 717, answer to 6.30

Change: 1075.12 (two locations)
To: 684.44 (two locations)

Page 717, answer to 7.1

Change: 795.26
To: 177.82
Change: 79.53
To: 18.08

Page 717, answer to 7.6

Change: 34.65
To: 6.93

Page 717, answer to 7.7
Change: 1.486
To: 1.5
Change: 4.95
To: 5.5

Page 717, answer to 7.8
Add the following at the end of the answer:
(c_a is the speed of sound in air)

Page 717, answer to 7.10
Change: 134
To: 134.5

Page 717, answer to 7.11
Change: 88.4
To: 88.7

Page 717, answer to 7.12
Change: 0.0133
To: 0.0344

Page 717, answer to 7.13
Change: -2.655
To: -7.06
Change: 3.52
To: 3.66

Page 717, answer to 7.14
Change: 165,325
To: 307,170
Change: 0.533
To: 0.2195
Change: 1.765
To: 1.36
Change: 104,125
To: 210.813
Change: 0.176
To: 0.136

Page 717, answer to 7.17
Change: 1.25×10^{-5}
To: 1.29×10^{-5}

Change: 8.07×10^{-3}
To: 1.61×10^{-3}

Page 717, answer to 7.21
Change: (c) Same except that the shift in frequency is negative.
To: (c) – 5187 Hz.

Page 718, answer to 7.24
Change: 2.547
To: 2.546

Page 718, answer to 7.25
Change: 44.88 μm
To: 44.88 nm

Page 718, answer to 7.28
Change: – 201.04
To: – 201.1

Page 718, answer to 7.30
Change: – 2.339
To: 0

Page 718, answer to 7.30
Change: – 2.339
To: 0
Change: 4678
To: 2339

Page 718, answer to 8.2
Change: 5.59 g
To: 5.78 g
Change: 73,923 kJ/m^3
To: 73,994 kJ/m^3

Page 718, answer to 8.10
Change: (b) 0.1% to 1.39%.
To: (b) 0.077% to 0.27%.

Page 718, answer to 8.11
Change: 4.046
To: 4.65

Page 718, answer to 8.12
Change: 4.53
To: 4.818

Page 718, answer to 8.14

Change:	0.363 V
To:	– 0.124 V
Change:	2.58%
To:	– 1.63%

Page 718, answer to 8.15

Change:	10,488
To:	10,456
Change:	2.166
To:	2.134
Change:	-1.205×10^{-2}
To:	-26.834

Page 718, answer to 8.16

Change:	1.45
To:	1.374
Change:	10.31%
To:	10.88%

Page 718, answer to 8.17

Change:	0.0355
To:	0.0344

Page 719, answer to 8.18

Change:	37.3º
To:	51.1º
Change:	53.3º
To:	64.3º
Change:	62.08º
To:	51.12º

Page 719, answer to 8.19

Change:	57.25º
To:	66.5º
Change:	39.12º
To:	52.59º
Change:	66.9º
To:	73.56º

Page 719, answer to 8.21

Change:	(237+t)	(two locations)
To:	(237.3+t)	(two locations)

Page 719, answer to 8.22

Change: 257.69
To: 257.41
Change: (237+t)
To: (237.3+t)
Change: 133.9125
To: 73.6626
Change: 124.2965
To: 214.1814

Page 719, answer to 8.34
Change: 13.4 GW.h.
To: 13.4 MW.h.

Page 720, answer to 9.3
Change: 5.4
To: 270

Page 720, answer to 9.6
Change: 26.78
To: 26.79

Page 720, answer to 9.12
Change: 29.36
To: 31
Change: 10.5
To: 11.1

Page 720, answer to 9.19 (c)
Replace the expression $s = 1508E_0 \times [.....]$
With the following:

$$s = -\frac{0.872E_0}{\left(1+\sqrt{0.218m+2.2}\right)^3} + \frac{0.436E_0}{\left(1+\sqrt{0.218m+2.2}\right)^2\sqrt{0.218m+2.2}} \qquad \left[\frac{\text{V/m}}{\%\,\text{moisture}}\right]$$

Page 721, answer to 9.22
Change: (a) $f_{mnp}(t) = \dfrac{1.8715\times10^8}{\sqrt{3.5t+0.065}}$ [Hz]
To: (a) $f_{mnp}(t) = \dfrac{5.9182\times10^7}{\sqrt{3.5t+0.65}}$ [Hz]
Change: (b) $s = -\dfrac{2.129\times10^7}{(3.5t+0.065)^{3/2}}$ [Hz/m]
To: (b) $s = -\dfrac{1.06\times10^8}{(3.5t+0.65)^{3/2}}$ [Hz/m]
Change: (c) 0.235
To: (c) 1.26
Change: (d) 0.09

To: (d) 0.1

Page 721, answer to 9.23

Change: 1.0045

To: 1.5906

Change: $s = \dfrac{h}{2\pi(b-h)^2\sqrt{\mu_0\varepsilon_0}}$ [Hz/ m]

To: $s = \dfrac{1}{2\pi(b-h)^2\sqrt{\mu_0\varepsilon_0}}$ [Hz/ m]

Change: $s = -\dfrac{2.5\mu_0\varepsilon_0}{4\pi bb\left(\mu_0\varepsilon_0\dfrac{2.5h+b}{b}\right)^{3/2}} + \dfrac{h}{4\pi b^2\left(\mu_0\varepsilon_0\dfrac{2.5h+b}{b}\right)^{1/2}}$ [Hz/ m]

To: $s = -\dfrac{2.5}{4\pi\sqrt{b\mu_0\varepsilon_0}(2.5h+b)^{3/2}}$ [Hz/ m]

Page 721, answer to 9.26

Change: 32.1 s.

To: 101 s.

Page 721, answer to 10.4

Change: $1.283\text{x}10^{-3}$

To: $2.84\text{x}10^{-3}$

Change: 0.25

To: 0.266

Page 721, answer to 10.5

Change: 0.262 (two locations)

To: 0.00785 (two locations)

Page 721, answer to 10.6

Change: 2.86 %

To: 2.22 %

Page 721, answer to 10.10

Change: $1.722\text{x}10^{-8}$

To: $1.722\text{x}10^{-10}$

Page 721, answer to 9.27

Change: (b) 11 min, 11 s.

To: (b) 11 min, 14 s.

Page 721, answer to 10.13

Change: 2.9×10^{-14}

To: 9.7×10^{-15}

Change: 1.86×10^{-12} and 9.38×10^{-14} N.

To: 1.5 and 12 V, 6.21×10^{-13} and 9.38×10^{-14} N.

Page 721, answer to 10.16

Change: (b) $F(t)=\frac{10}{\pi}\left(\frac{1}{2}+\right.$

To: (b) $F(t)=2.5+\frac{10}{\pi}($

Change:

$$\text{(c) } S(t)=12\cos\left[2\pi\times10^{8}t+0.5t-50\cos2\times10^{4}t-\frac{50}{9}\cos6\pi\times10^{4}t-2\cos6\pi\times10^{4}t-\frac{50}{49}\cos14\pi\times10^{4}t-\frac{50}{81}\cos14\pi\times10^{4}t\right]$$

To:

$$\text{(c) } S(t)=12\cos\left[2\pi\times10^{8}t+2.5t-\frac{10}{\pi}\left(\cos2\times10^{4}t+\frac{1}{3}\cos6\pi\times10^{4}t+\frac{1}{5}\cos6\pi\times10^{4}t+\frac{1}{7}\cos14\pi\times10^{4}t+\frac{1}{9}\cos14\pi\times10^{4}t\right)\right]$$

Page 721, answer to 10.25

Change: 14ED25B.
To: A7525B.

Page 722, answer to 11.12

Change: 1315 Ω.
To: $R_1=R_2=R_3=1325$ Ω□□□□□□□□□□Ω.

Page 722, answer to 11.23

Change: 9998 Hz.
To: 99,800 Hz
Change: 500 Hz to 25 kHz.
To: 5 kHz to 250 kHz.

Page 722, answer to 11.27

Change: 111110111100
To: 11111011110000
Change: 4.9169921875
To: 4.9194335937
Change: 0.049%
To: 0.0062%

Page 722, answer to 11.29

Change: 84.39 dB
To: 84.3 dB

Page 722, answer to 11.31

Change: 3.4277
To: 3.84277

Page 722, answer to 11.45
Change: 94.7
To: 115.7
Change: 0.12
To: 0.103

Page 723, answer to 12.1
Change **12.1**
To **12.2**

Page 723, answer to 12.7
Change (a) Nominal 350ºC, varies from 301.68ºC to 409.23ºC (-13.8% to 16.9%)
To (a) Nominal high 350ºC, varies from 324.57ºC to 377.16ºC (-7.26% to 7.76%), nominal low 203.63ºC, varies from 191.62ºC to 216.05ºC (-5.9% to 6.1%)

Change (b) Nominal: 217.58ºC, varies from 282.1ºC to 195.37ºC (-10.2% to 19.4%)
To (b) Nominal high 350ºC, varies from 252.64ºC to 325.62ºC (-27.8% to -6.96%), nominal low 203.63ºC, varies from 192.18ºC to 216.7ºC (-6.11% to 6.4%)

Page 723, answer to 12.8
Change 13 years 8 months
To 11 years 4 days
Change 14 years 4 months
To 14 years 6 months

Page 723, answer to 12.9
Replace the table with the following:

	16 MHz		1 MHz	
	extrap.	least sq.	interp.	least sq.
5V	4.095	4.2542	0.4853	0.4378
4V	3.187	3.311	0.377	0.338
3V	2.0	2.04	0.2326	0.21
2V	1.001	1.02	0.144	0.126

Change 5 years 7 months
To 4 years 10 months 10 days

Page 723, answer to 12.24
Change: 2.86 V
To: 2.143 V

Page 723, answer to 12.27

Change: 5.88 N
To: 294.1 N
Change: 0.106 ºC
To: 0.53 ºC

Page 723, answer to 12.34

Change: 62144
To: 262144

Page 726, Eq. A.14

Change: $a_0 = \dfrac{nD - AB}{nC - A^2}, \qquad a_1 = \dfrac{BC - AD}{nC - A^2}$

To: $a_0 = \dfrac{BC - AD}{nC - A^2}, \qquad a_1 = \dfrac{nD - AB}{nC - A^2}$

Page 726, Eq. A.15

Change: $$a_0 = \frac{n\sum_{i=1}^{n} x_i y_i - \left\{\sum_{i=1}^{n} x_i\right\}\left\{\sum_{i=1}^{n} y_i\right\}}{n\sum_{i=1}^{n} x_i^2 - \left\{\sum_{i=1}^{n} x_i\right\}^2}, \qquad a_1 = \frac{\left\{\sum_{i=1}^{n} y_i\right\}\left\{\sum_{i=1}^{n} x_i^2\right\} - \left\{\sum_{i=1}^{n} x_i\right\}\left\{\sum_{i=1}^{n} x_i y_i\right\}}{n\sum_{i=1}^{n} x_i^2 - \left\{\sum_{i=1}^{n} x_i\right\}^2}$$

To: $$a_0 = \frac{\left\{\sum_{i=1}^{n} y_i\right\}\left\{\sum_{i=1}^{n} x_i^2\right\} - \left\{\sum_{i=1}^{n} x_i\right\}\left\{\sum_{i=1}^{n} x_i y_i\right\}}{n\sum_{i=1}^{n} x_i^2 - \left\{\sum_{i=1}^{n} x_i\right\}^2}, \qquad a_1 = \frac{n\sum_{i=1}^{n} x_i y_i - \left\{\sum_{i=1}^{n} x_i\right\}\left\{\sum_{i=1}^{n} y_i\right\}}{n\sum_{i=1}^{n} x_i^2 - \left\{\sum_{i=1}^{n} x_i\right\}^2}$$