Errata of "Process Control - Theory and applications"

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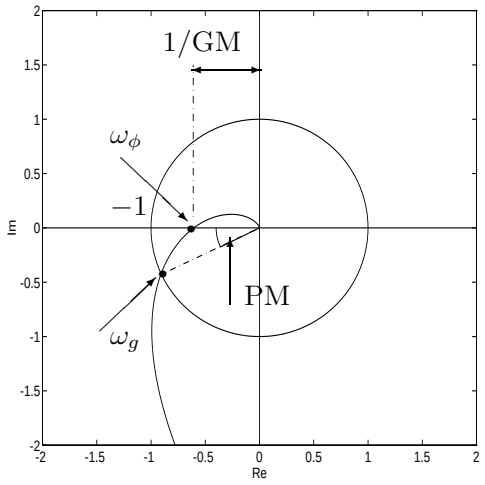
Page 43:

$$\begin{aligned}&\delta(t) = 0 \qquad \forall t \neq 0\\ &\delta(0) = +\infty\\ &\int_{-\infty}^{+\infty} \delta(t)dt = 1\end{aligned}$$

$$\int_{-\infty}^{+\infty} f(t)\delta(t-t_0)dt = f(t_0)$$

Page 215: the black circles were lightly displaced as shows the corrected figure .



Equation (8.48)

$$\lambda_{ij} = \frac{\left(\frac{\partial Y_i}{\partial U_j}\right)_{U_k=0,k\neq j}}{\left(\frac{\partial Y_i}{\partial U_j}\right)_{Y_l=0,l\neq i}}$$

Equation (13.78)

$$\begin{aligned}S(q) &= q-1\\ R(q) &= K\left[q-1+\frac{T_s}{\tau_I}\right]\\ T(q) &= R(q)\end{aligned}$$

Equation (14.158)

$$\frac{d(t_c+\sqrt{2|A|-t_c^2})}{dt_c} = 0 \Longrightarrow t_c = \sqrt{|A|}$$

Equation (14.295)

$$\boldsymbol{S} = \boldsymbol{F}^T \left[\boldsymbol{S} - \boldsymbol{S}\,\boldsymbol{G}\left(\boldsymbol{G}^T\,\boldsymbol{S}\,\boldsymbol{G} + \boldsymbol{R}\right)^{-1}\boldsymbol{G}^T\,\boldsymbol{S}\right]\boldsymbol{F} + \boldsymbol{M}\,\boldsymbol{Q}\,\boldsymbol{M}$$

Equation (15.30)

$$\begin{aligned}
\hat{y}(t+1) =& 1.97y(t) - 0.97y(t-1) + 1.2\Delta u(t) + 0.58\Delta u(t-1) \\
\hat{y}(t+2) =& 2.9109y(t) - 1.9109y(t-1) \\
&+1.2\Delta u(t+1) + 2.944\Delta u(t) + 1.1426\Delta u(t-1) \\
\hat{y}(t+3) =& 3.8236y(t) - 2.8236y(t-1) \\
&+1.2\Delta u(t+2) + 2.944\Delta u(t+1) + 4.6357\Delta u(t) + 1.6883\Delta u(t-1)
\end{aligned}$$

Equation (15.32)

$$\begin{aligned}
\hat{y}(t+1|t) &= 0.58\Delta u(t-1) + 1.97y(t) - 0.97y(t-1) \\
\hat{y}(t+2|t) &= 1.1426\Delta u(t-1) + 2.9109y(t) - 1.9109y(t-1) \\
\hat{y}(t+3|t) &= 1.6883\Delta u(t-1) + 3.8236y(t) - 2.8236y(t-1)
\end{aligned}$$

Equation (15.35)

$$\begin{aligned}
\Delta u(t) &= 0.5181[r(t+1) - \hat{y}(t+1|t)] + 0.1823[r(t+2) - \hat{y}(t+2|t)] \\
&\quad -0.0435[r(t+3) - \hat{y}(t+3|t)] \\
&= -0.4354\Delta u(t-1) - 1.385y(t) + 0.7281y(t-1) \\
&\quad +0.5181r(t+1) + 0.1823r(t+2) - 0.0435r(t+3)
\end{aligned}$$

Equation (17.147)

$$u = \frac{v - L_f^r h(x) - \beta_1 L_f^{r-1} h(x) - \ldots - \beta_{r-1} L_f h(x) - \beta_r h(x)}{L_g L_f^{r-1} h(x)}$$