

* Model Matematika

Elektrik (Hukum Ohm)

$$\begin{cases} (3) T(t) = K_m \cdot \bar{i}_a(t) \\ (4) e_b(t) = K_b \cdot \omega(t) \end{cases}$$

$$e_a(t) - e_b(t) = R_a \cdot \bar{i}_a(t) + L_a \cdot \frac{d\bar{i}_a(t)}{dt}$$

$$\nearrow \frac{d\bar{i}_a(t)}{dt} = \frac{1}{L_a} (e_a(t) - e_b(t) - R_a \cdot \bar{i}_a(t)) \quad (1)$$

Mekanik (Hukum Newton)

$$\begin{matrix} T(t) = J \frac{d\omega(t)}{dt} + B \omega(t) \\ \left[\begin{matrix} \text{Newton.m} \\ \frac{d\omega(t)}{dt} \end{matrix} \right] \nearrow \left[\frac{\text{rad}}{\text{sec}^2} \right] \nearrow \left[\frac{\text{rad}}{\text{sec}} \right] \end{matrix}$$

$$\frac{d\omega(t)}{dt} = \frac{1}{J} (T(t) - B \omega(t)) \quad (2)$$