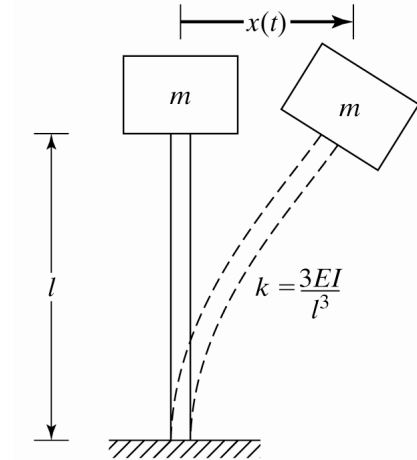
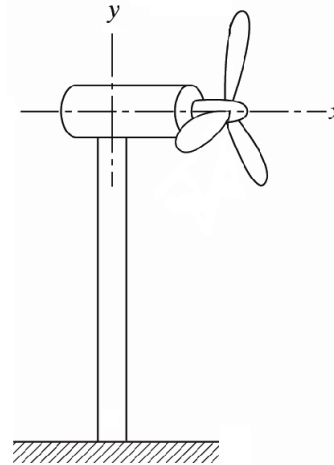
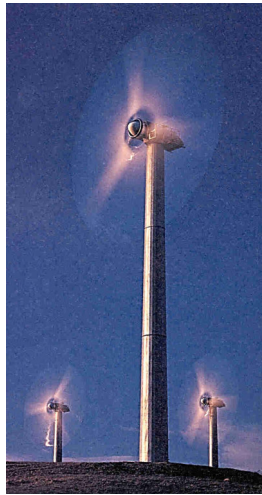
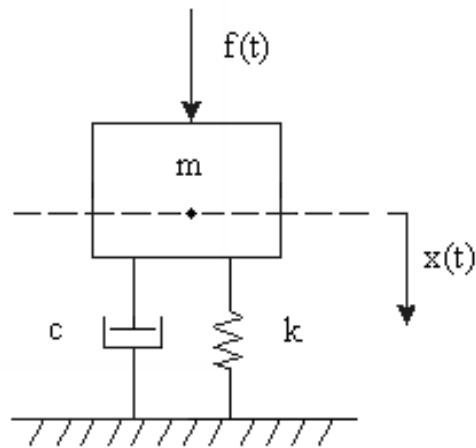


SISTEMA FÍSICO



Sistema físico: (a) inspiração; (b) representação simplificada; (c) idealização.



$$m\ddot{x}(t) + c\dot{x}(t) + kx(t) = f(t)$$

m : massa (kg);

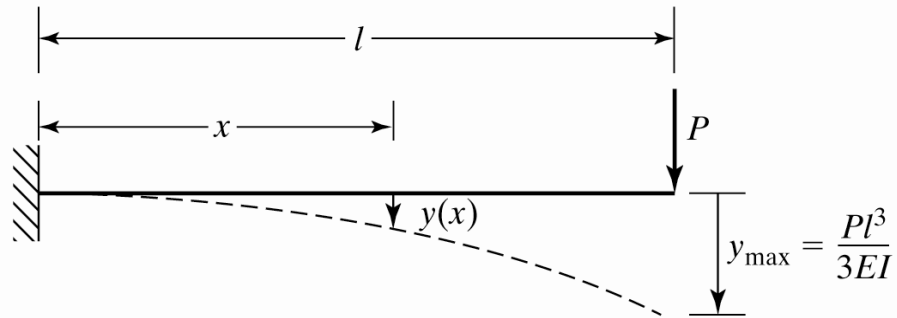
c : coef. de amortecimento (kg/s);

k : cte. de rigidez (N/m);

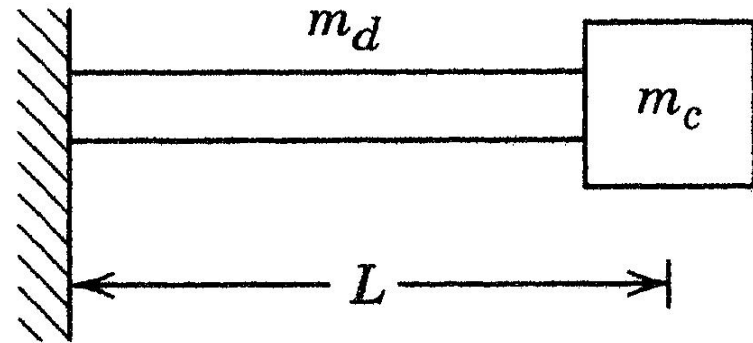
$x(t)$: vibração; $f(t)$: excitação.

Modelos: (a) analítico; (b) matemático.

HIPÓTESES SIMPLIFICADORAS

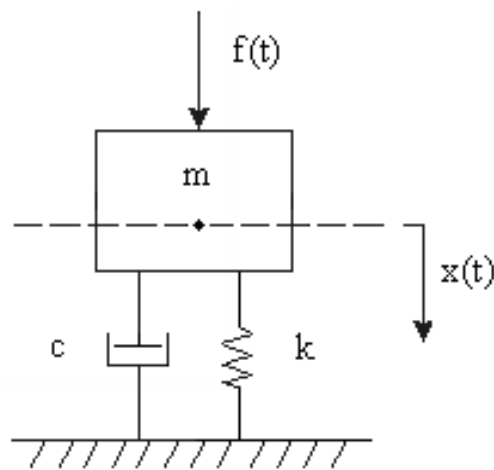


viga como mola de cte. $k = 3EI/l^3$



massa concentrada $m = m_c + 0,23m_d$

FREQUÊNCIA NATURAL E RAZÃO DE AMORTECIMENTO



frequência natural $f_n = \frac{1}{2\pi} \sqrt{\frac{k}{m}}$ (Hz)

$$\rightarrow 20 \leq f_n \leq 100$$

razão de amortecimento $\zeta = c/2\sqrt{mk}$

\rightarrow obtenção experimental