Summary of design process

AE 353
Spring 2023
Bretl
\[ \dot{m} = f(m, n) \]
\[ 0 = f(m_e, n_e) \]
\[ \dot{x} = A x + B u \]
\[ u = -K x \]
\[ \dot{x} = (A - BK) x \]
\[ x(t) = e^{(A - BK)t} x(0) \]

\[ A = \frac{\partial f}{\partial m} \bigg|_{m_e, n_e} \quad B = \frac{\partial f}{\partial n} \bigg|_{m_e, n_e} \]

asymptotically stable

\[ x(t) \rightarrow 0 \text{ as } t \rightarrow \infty \]

this is true if and only if all eigenvalues of 

\[ A - BK \]

have negative real part