ME 644 Modern Control (3-0-0-6)

Linear state variable systems: Continuous time systems, Discrete time systems, minimum phase systems, Reachability, Controllability, Observability, Realization and canonical forms, State variable feed back, stabilizability, and Dectectability, Output feedback. Optimal control of mechanical systems: Continuous time linear quadratic regulator (LQR), Steady state and sub optimal control, minimum time and constrained input design, LQR with output feed back, tracking problems. State estimators: Continuous observer, Reduced order observer, Kalman filter. Linear quadratic Gaussian (LQG) design, LQG/LTR design.

Textsbooks:

[1] K. Ogata, *Modern Control Engineering*, Third edition, Prentice Hall 1994.

[2] F.L. Lewis, *Applied Optimal control and Estimation*, Prentice Hall, 1992.

[3] B. Friedland, *Control Systems Design*, McGraw Hill, 1986