Allied Topics in Control, EE 6417.

Course Contents:

1. Linear Systems.
   1. System representations
   2. Controllability and State Feedback
   3. Observability and output feedback.
2. Switched Systems
   1. Basic concepts: State and Time dependent Switching
   2. Necessary and Sufficiant Conditions for Arbitrary switching stability
   3. Stability under Arbitrary Switching: Existence of Common and Switched Lyapunov functions
   4. Stabilizing Switched control design with pole placement for SISO and MIMO systems
3. LMIs in Control
   1. Basics of linear programming and Introduction to Yalmip and Sedumi toolboxes in MATLAB
   2. Introduction to Convex sets and Convex funtions
   3. Linear Matrix inequalities in Control

Books:

1. Linear Systems Theory: Joao Hespanha.
2. Switching in Systems and Control: Daniel Liberzon.
3. Class notes on LMIs.

Grading:

1. Mid sem quiz: 30%
2. Paper reviews: 20% (10% for writing review + 10% for quiz/presentation based on papers).
3. Assignments/ Mini Projects: 10%
4. End sem: 40%