THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Robust Multi-Variable Control with Applications

ECE 8850

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Advanced concepts for robust control of uncertain dynamic systems with applications.

Prerequisites and Co-requisites:
Prereq: 6750 or AeroEng 5620 or 5621, or permission of instructor.

Course Goals / Objectives:
- Learn advanced methods of control of uncertain dynamic systems that possess robustness to perturbations and disturbances

Course Topics:
- Introduction to Uncertainty and Robustness
- Modeling Errors and Uncertainty Characterization in Time Domain State Space framework and frequency domain transfer function framework
- Robust Stability Analysis for Linear Systems with Norm bounded (Unstructured) Uncertainty as well as Structured Uncertainty in State Space framework; Stability Robustness Bounds for Time Varying perturbations and Time Invariant perturbations
- Robust Stability Analysis for Linear Systems in transfer function framework; Kharitonov Theorem and extensions
- Robust Control Systems Design in Frequency Domain; H-infinity Control Theory; Mixed H-2/H-infinity Control
- Robust Control Design in State Space framework; Robust Quadratic Stabilization via Matching Conditions; Robust Eigenstructure Assignment; Guaranteed Cost Control No

Designation:
Elective