THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Linear Systems Theory

ECE 6750

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
In-depth treatment of linear dynamical systems. State equations solution. Controllability and observability. Canonical forms. Internal and external stability. Linear feedback and observer design. Geometric theory.

Course Goals / Objectives:
- Provide necessary system theoretic background for analysis of linear systems using state-space methods
- Provide a comprehensive treatment of stability of linear state-space systems
- Learn feedback control systems design by pole placement (state feedback) and state observers
- Learn how to design feedback control systems for disturbance decoupling, disturbance rejection, tracking and regulation

Course Topics:
- State space representation
- Vector spaces and linear operators
- State equations solution
- Controllability and observability
- Realization theory
- Internal and external stability
- Canonical forms
- Linear feedback and state observer design
- Servo-mechanism theory and regulator design
- Geometric theory

Designation:
Elective