

ECE 4368: Advanced Control Systems

Credit / Contact hours: 3 / 3

Course coordinator: Vittal Rao

Textbook(s) and/or other required material: Dorf & Bishop: Modern Control Systems, Prentice Hall, 2005

Catalog description: For majors only or departmental consent. Analysis and design of advanced control systems including optimal, nonlinear, multiple-input multiple-output, digital, fuzzy logic, and neural network control.

Pre-requisite: ECE 3353

Designation: Elective

Course learning outcomes: Upon completion of this course, students should be able to do the following:

Student outcomes addressed: a, c, e, and k.

1. Analyze complex control systems using modern techniques?
2. Design complex control systems using modern techniques?

Topics covered:

Discrete time systems - 6 hours

Computer control - 6 hours

Multiple-input multiple-output control - 3 hours

Optimal control - 5 hours

System identification - 4 hours

Adaptive control - 5 hours

Fuzzy logic based control - 5 hours

Neural network based control - 5 hours

Tests and reviews - 3 hours