Last modified: October 10, 2024

AE 6580 - Syllabus

Aerospace Nonlinear Control- 3 Credits

General Information

Description

Advanced treatment of nonlinear robust control. Lyapunov stability theory, absolute stability, dissipativity, feedback linearization, Hamilton-Jacobi-Bellman theory, nonlinear H-infinity, backstepping control, and control Lyapunov functions.

Pre- &/or Co-Requisites

ECE 6550 minimum grade of D

Course Goals and Learning Outcomes

To provide students with an advanced treatment of nonlinear dynamical systems analysis and control design.

Course Requirements & Grading

Note: Graded components of a course may vary with each offering. The example below is typical but subject to change.

Description of Graded Components

Homework	40%
Midterm	30%
Course project	30%

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Topics Covered

Note: The exact topics covered in a course may vary with each offering. The example below is typical but subject to change.

1. Nonlinear systems and nonlinear phenomena
2. Lyapunov stability
3. Input-to-state stability
4. Passivity

5. Absolute stability
6. Nonlinear control design

Course Materials

Note: Course materials may vary with each offering. The example below is typical but subject to change.

Textbook

Nonlinear Systems by H. K. Khalil, 3rd Edition

Course notes

All relevant information on the class will be disseminated electronically in CANVAS system