

AEM 668 Lecture Schedule

1. August 22: Dynamical Systems, Equilibrium, and Stability
 - a. Textbook Sections: 1.1, 1.2, & 1.3
2. August 27: Classical Control Theory and Design
 - a. Textbook Sections: 2.1-2.6
3. August 29: Aerospace Vehicles and Reference Frames
 - a. Textbook Sections: 7.1 & 7.2
4. September 3: Aerospace Vehicle Rotations and Dynamics
 - a. Textbook Sections: 7.3 & 8.1
5. September 5: Rigid Airplane Dynamics
 - a. Textbook Sections: 7.4 & 8.2
6. September 10: Linearized Airplane Dynamics and Stability
 - a. Textbook Sections: 8.3 & 8.4
7. September 12: Introduction to Aerospace Guidance and Control Systems
 - a. With Project 1 Overview
 - i. Due September 30
 - b. Textbook Sections: 11.2 & 11.3
8. September 17: Rigid Satellite Dynamics and Stability
 - a. Textbook Sections: 8.5 & 8.6
9. September 19: Advanced Airplane Trim and Relative Orbital Dynamics
 - a. Textbook Sections: 9.1 & 9.2
10. September 24: Atmospheric and Mass Effects on Dynamics
 - a. Textbook Sections: 9.5 & 9.6
11. September 26: Earth Frame Effects on Dynamics
 - a. With Project 2 Overview
 - i. Due October 21
 - b. Textbook Sections: 9.7
12. October 1: Unforced Elastic-Body Dynamics
 - a. Textbook Sections: 10.1
13. October 3: Forced Motion and Elastic Vehicle Mean-Axes
 - a. Textbook Sections: 10.1 & 10.2
14. October 8: Elastic Aerospace Vehicle Dynamics
 - a. Textbook Sections: 10.3
15. October 10: Elastic Airplane Dynamics and Structural-Mode Control
 - a. With Project 3 Overview
 - i. Due November 4
 - b. Textbook Sections: 10.4 & 12.1
16. October 15: Advanced Concepts from Linear Algebra and LTI Systems
 - a. Textbook Sections: A.2 & 3.1
17. October 17: MIMO LTI Feedback Control Systems
 - a. Textbook Sections: 3.1 & 3.2
18. October 22: Robust Servomechanism and Stability of LTI Systems
 - a. Textbook Sections: 3.3 & 3.4
19. October 24: Advanced Aerospace Vehicle Attitude Control
 - a. With Project 4 Overview
 - i. Due November 18
 - b. Textbook Sections: 11.4, 11.5, 12.2, & 12.3
20. October 29: Introduction to Optimal Control
 - a. With Planar Intercept Guidance Example
 - b. Textbook Sections: 4.1 & 12.6
21. November 5: Introduction to Energy-, Time-, and Fuel-Optimal Control
 - a. With Spacecraft Attitude-Maneuver Example
 - b. Textbook Sections: 4.2 & 12.5
22. November 7: Convex Optimization in Control
 - a. With Powered Descent Guidance Example
 - b. Textbook Sections: 4.3 & 12.7
23. November 12: Introduction to H₂ and H_∞ Optimal Control
 - a. With Project 5 Overview
 - i. Due December 9
 - b. Textbook Sections: 4.4 & 4.5
24. November 14: Time-Varying Systems Theory and Control
 - a. Textbook Sections: 6.1 & 6.2
25. November 19: Dynamic Inversion and Adaptive Control
 - a. Textbook Sections: 6.3 & 6.4
26. November 21: Rigid Projectile Dynamics and Stability
 - a. With (Take-Home) Final Exam Overview
 - i. Due December 10
 - b. Textbook Sections: 9.4
27. December 3: Steady-Flight Conditions for Helicopters
 - a. Textbook Sections: 7.6
28. December 5: Rigid Helicopter Dynamics and Stability
 - a. Textbook Sections: 9.3