AE 6520 ADVANCED FLIGHT DYNAMICS

Catalog Data: AE 6520- Advanced Flight Dynamics 3-0-3. Prerequisite: Graduate standing or consent of the school.
Reference frames and transformations, General equations of unsteady motion, Application to fixed- wing, rotary-wing and space vehicles, stability characteristics, Flight in Turbulent Atmosphere

Textbook: Bernard Etkin: Dynamics of Atmospheric Flight, John Wiley & Sons.

Coordinator: J.V.R. Prasad

Goals: The course prepares students with an understanding and analysis capability of vehicle flight dynamics aspects comprising of modeling, simulation, and stability characteristics.

Prerequisites by Topic:

1. Elementary mechanics
2. Basic aerodynamics
3. Ordinary differential equations
4. Acquaintance with matrix algebra
5. Linear system analysis

	Topics	hours
1.	Introduction	1
2.	Reference frames and transformations	3
3.	General equations of unsteady motion	7
5.	Small disturbance theory	2
6.	Stability theory	2
7.	Application to Fixed-wing vehicles	7
8.	Application to rotary-wing vehicles	5
9.	Application to space vehicles	5
10.	Flight in turbulent atmosphere	8
	Quizzes and Instructor's option	5
	Total	45

Computer Usage:

Students will be required to solve some of the homework problems using computer programs.

Laboratory Projects: None