NOC:Aircraft Dynamic Stability & Design Stability Augmentation System - Video course

COURSE DETAIL

This course is designed to understand aspects of advance dynamic stability of an airplane. This course will also help in creating a background to design an airplane from stability and control aspects.

Week	Topics
1	- Introduction to dynamic stability - Introduction to dynamic stability - First and second order system - First and second order system - Solution of second order system using Laplace transform.
2	- Physical interpretation of natural and damped frequencies damping ratio time to half and time to double - Physical interpretation of natural and damped frequencies damping ratio time to half and time to double - Physical interpretation of natural and damped frequencies damping ratio time to half and time to double 6dof equations motion of aircraft 6dof equations motion of aircraft
3	- Euler angles - Euler angles - Development of longitudinal small perturbed equations of motion - Development of longitudinal small perturbed equations of motion - Development of longitudinal small perturbed equations of motion

NP-TEL

NPTEL

http://nptel.ac.in

Aerospace Engineering

Pre-requisites:

Introduction to Aircraft Performance

Coordinators:

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4	- Dimensional derivatives - Dimensional derivatives - Roots - short period and long period mode - short period and long period mode
5	- Design of SAS for longitudinal mode - Design of SAS for longitudinal mode - Transfer function and longitudinal mode shapes - Lateral directional perturbed equations of motion - Lateral directional perturbed equations of motion
6	- Dimensional derivatives lateral - Dimensional derivatives lateral - Roots lateral - Spiral roll and dutch roll mode - Spiral roll and dutch roll mode
7	- Transfer function Lateral - Transfer function Lateral - Design of SAS For lateral - Design of SAS For lateral - Design of SAS For lateral
8	- Mode shape - Mode shape - Mode shape - Inertial Sensors - Inertial Sensors

References:

Flight Stability and Automatic Control
Author: Robert Nelson