ARDICLABS
integrated sensing solutions

AL453 – UAV Control Short Course

1. ***Kinematics and Dynamics***
    a. Kinematics
    b. Rigid Body Dynamics
    c. Coordinate Frames
    d. Air data

2. ***Aircraft Forces and Moments***
    a. Forces and Moments
    b. Aerodynamics
    c. Trim Conditions

3. ***Simplified Dynamics for Flight Control***
    a. Longitudinal Dynamics
    b. Lateral Dynamics

4. ***Linear Quadratic Regulator***
    a. Steady State LQR
    b. Properties of LQR
    c. Example

5. ***Servomechanism Design***
    a. Steady State Error
    b. Augmentation of Systems
    c. Internal Model Principle

6. ***Frequency Domain Methods***
    a. Transfer Function Matrices
    b. Singular Value Decomposition
    c. Nyquist Theorem

7. ***Stability of MIMO Systems***
    a. Transfer Function Matrices
    b. Stability Robustness
    c. Singular Value Stability Margins

8. ***Robust Servomechanism LQR***
    a. Design Tools
    b. RSLQR Approach
    c. Application

9. ***Projective Control***
    a. Output Feedback
    b. Application