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Classification Change; 2.5 Missions; Reference; Part Two The Air Vehicle; 3 Basic Aerodynamics; 3.1 Overview. 3.2 Basic Aerodynamic Equations 3.3 Aircraft Polar; 3.4 The Real Wing and Airplane; 3.5 Induced Drag; 3.6 The Boundary Layer; 3.7 Flapping Wings; 3.8 Total Air-Vehicle Drag; 3.9 Summary; References; Bibliography; 4 Performance; 4.1 Overview; 4.2 Climbing Flight; 4.3 Range; 4.3.1 Range for a Propeller-Driven Aircraft; 4.3.2 Range for a Jet-Propelled Aircraft; 4.4 Endurance; 4.4.1 Endurance for a Propeller-Driven Aircraft; 4.4.2 Endurance for a Jet-Propelled Aircraft; 4.5 Gliding Flight; 4.6 Summary; 5 Stability and Control; 5.1 Overview; 5.2 Stability; 5.2.1 Longitudinal Stability. 5.2.2 Lateral Stability 5.2.3 Dynamic Stability; 5.2.4 Summary; 5.3 Control; 5.3.1 Aerodynamic Control; 5.3.2 Pitch Control; 5.3.3 Lateral Control; 5.4 Autopilots; 5.4.1 Sensor; 5.4.2 Controller; 5.4.3 Actuator; 5.4.4 Airframe Control; 5.4.5 Inner and Outer Loops; 5.4.6 Flight-Control Classification; 5.4.7 Overall Modes of Operation; 5.4.8 Sensors Supporting the Autopilot; 6 Propulsion; 6.1 Overview; 6.2 Thrust Generation; 6.3 Powered Lift; 6.4 Sources of Power; 6.4.1 The Two-Cycle Engine; 6.4.2 The Rotary Engine; 6.4.3 The Gas Turbine; 6.4.4 Electric Motors; 6.4.5 Sources of Electrical Power. 7 Loads and Structures 7.1 Overview; 7.2 Loads; 7.3 Dynamic Loads; 7.4 Materials; 7.4.1 Sandwich Construction; 7.4.2 Skin or Reinforcing Materials; 7.4.3 Resin Materials; 7.4.4 Core Materials; 7.5 Construction Techniques; Part Three Mission Planning and Control; 8 Mission Planning and Control Station; 8.1 Overview; 8.2 MPCS Architecture; 8.2.1 Local Area Networks; 8.2.2 Elements of a LAN; 8.2.3 Levels of Communication; 8.2.4 Bridges and Gateways; 8.3 Physical Configuration; 8.4 Planning and Navigation; 8.4.1 Planning; 8.4.2 Navigation and Target Location; 8.5 MPCS Interfaces.

Sommario/riassunto

Unmanned aerial vehicles (UAVs) have been widely adopted in the military world over the last decade and the success of these military applications is increasingly driving efforts to establish unmanned aircraft in non-military roles. Introduction to UAV Systems, 4th edition provides a comprehensive introduction to all of the elements of a complete Unmanned Aircraft System (UAS). It addresses the air vehicle, mission planning and control, several types of mission payloads, data links and how they interact with mission performance, and launch and recovery concepts.
