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Nota di contenuto

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1.2.7 Modern Materials and Manufacturing Techniques
1.3 New Engine Concepts; 1.3.1 Advanced Turboprop (ATP) and Geared Turbofan (GTF); 1.3.2 Advanced Airbreathing Rocket Technology; 1.3.3 Wave Rotor Topping Cycle; 1.3.4 Pulse Detonation Engine (PDE); 1.3.5 Millimeter-Scale Gas Turbine Engines: Triumph of MEMS and Digital Fabrication; 1.3.6 Combined Cycle Propulsion: Engines from Takeoff to Space; 1.4 New Vehicles; 1.5 Summary; 1.6 Roadmap for the Second Edition; References; Problems; 2 Compressible Flow with Friction and Heat: A Review; 2.1 Introduction; 2.2 A Brief Review of Thermodynamics
2.3 Isentropic Process and Isentropic Flow
2.4 Conservation Principles for Systems and Control Volumes; 2.5 Speed of Sound & Mach Number; 2.6 Stagnation State; 2.7 Quasi-One-Dimensional Flow; 2.8 Area-Mach Number Relationship; 2.9 Sonic Throat; 2.10 Waves in Supersonic Flow; 2.11 Normal Shocks; 2.12 Oblique Shocks; 2.13 Conical Shocks; 2.14 Expansion Waves; 2.15 Frictionless, Constant-Area Duct Flow with Heat Transfer; 2.16 Adiabatic Flow of a Calorically Perfect Gas in a Constant-Area Duct with Friction; 2.17 Friction (Drag) Coefficient C_f and D'Arcy Friction Factor f_D
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Sommario/riassunto

New edition of the successful textbook updated to include new material on UAVs, design guidelines in aircraft engine component systems and additional end of chapter problems. Aircraft Propulsion, Second Edition is a comprehensive textbook covering aircraft gas turbine engine and rocket propulsion from the basic principles to more advanced treatments in engine components. Propulsion system integration with aircraft plays an important role in understanding propulsion and is addressed accordingly. Extensive review material and derivations are included to help the reader navigate.