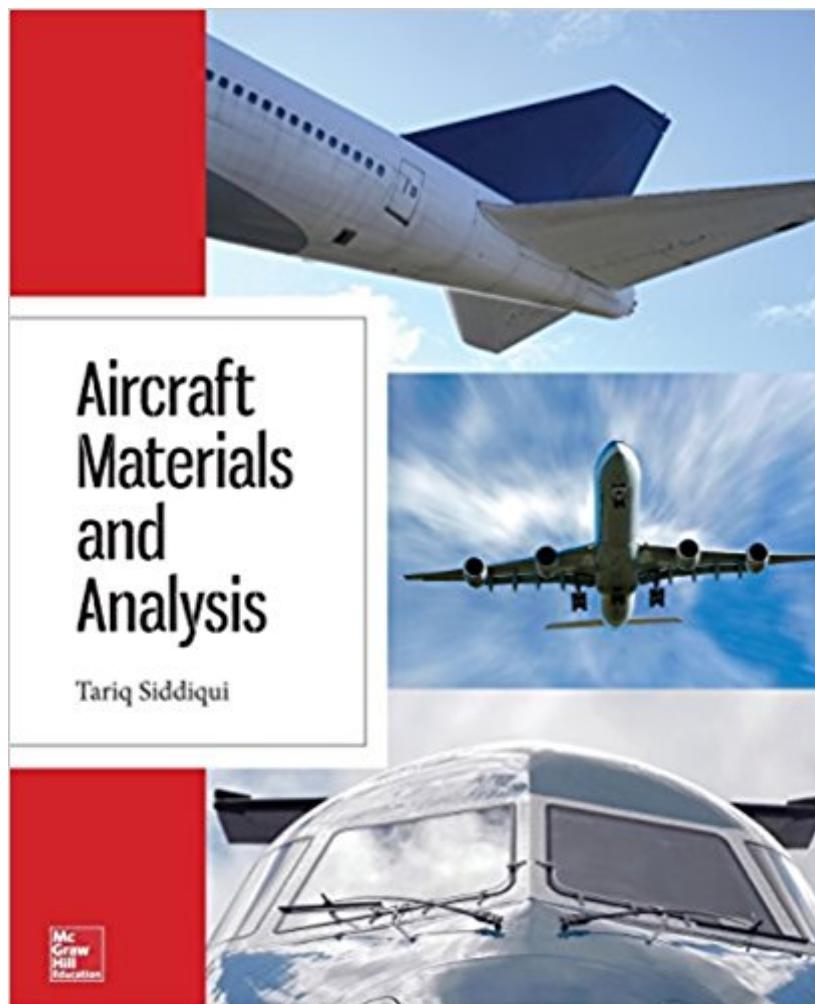


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# Aircraft Materials And Analysis (Aviation)



## Synopsis

Complete coverage of aircraft design, manufacturing, and maintenance Aircraft Materials and Analysis addresses aircraft design, mechanical and structural factors in aviation, flight loads, structural integrity, stresses, properties of materials, compression, bending, and aircraft fatigue. Detailed analysis of the failure process is provided. This authoritative guide examines materials used in aircraft construction such as aluminum, steel, glass, composite, rubber, and carbon fiber. Maintenance procedures for corrosion and aging aircraft are discussed and methods of inspection such as nondestructive testing and nondestructive inspection are described. Accident investigation case studies review aircraft design, material behavior, NTSB findings, safety, stress factors, and human factor involvement. End-of-chapter questions reinforce the topics covered in this practical resource. Aircraft Materials and Analysis covers:

- The aircraft--standards for design, structural integrity, and system safety
- Aircraft materials
- Loads on the aircraft
- Stress analysis
- Torsion, compression, and bending loads
- Aircraft riveted joints and pressure vessels
- Heat treatments of metals
- Aircraft fatigue/aircraft material fatigue
- Aircraft corrosion
- Dynamic stress, temperature stress, and experimental methods
- Composites
- Nondestructive Testing (NDT)
- Aviation maintenance management
- Case studies and human factors

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Tariq Siddiqui is a manager of aircraft maintenance at a commercial airline and a professor at Embry Riddle Aeronautical University. He has more than 20 years of experience in aviation maintenance, management, project management, environmental regulations, and incident and accident investigation.

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