



Introduction to Aerospace Materials (AIAA Education Series)

By Adrian P. Mouritz

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The structural materials used in airframe and propulsion systems influence the cost, performance, and safety of aircraft, and an understanding of the wide range of materials used and the issues surrounding them is essential for the student of aerospace engineering. Introduction to Aerospace Materials reviews the main structural and engine materials used in aircraft, helicopters, and spacecraft in terms of their production, properties, performance, and applications. The first three chapters of the book introduce the reader to the range of aerospace materials, focusing on recent developments and requirements. Following these introductory chapters the book moves on to discuss the properties and production of metals for aerospace structures, including chapters covering strengthening of metal alloys, mechanical testing, and the casting, processing, and machining of aerospace metals. The next 10 chapters look in depth at individual metals including aluminum, titanium, magnesium, steel, and superalloys, as well as the properties and processing of polymers, composites, and wood. Chapters on performance issues such as fracture, fatigue, and corrosion precede a chapter focusing on inspection and structural health monitoring of aerospace materials. Disposal/recycling and materials selection are covered in the final two chapters. With its comprehensive coverage of the main issues surrounding structural aerospace materials, Introduction to Aerospace Materials is essential reading for undergraduate students studying aerospace and aeronautical engineering. It will also be a valuable resource for postgraduate students and practicing aerospace engineers.

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Review

"This comprehensive undergraduate text is descriptive, mathematical and factual in equal measure. This is a sound, well-written text that encourages one to read on - a text no undergraduate (worth his/her place) would ever call boring."--The Aeronautical Journal, August 2013 *"This comprehensive undergraduate text is descriptive, mathematical and factual in equal measure. This is a sound, well-written text that encourages one to read on - a text no undergraduate (worth his/her place) would ever call boring. The book is good value for money." --The Aeronautical Journal*

About the Author

Adrian P. Mouritz is Professor of Aerospace Materials at the Royal Melbourne Institute of Technology, Australia.

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