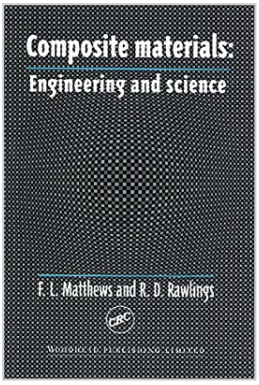

Composite Materials: Engineering and Science

By Frank L. Matthews, R D Rawlings

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As composite materials gain increasing prominence in engineering applications, it becomes essential for designers and engineers to have a thorough grounding in the various material forms, their production, their benefits, and their limitations. Composite Materials: Engineering and Science helps build the groundwork needed to begin incorporating these remarkable materials-with high strength and stiffness yet low weight-into projects, and effectively exploit their advantages. The authors, acknowledged experts in the composites community, set forth the underlying science and engineering applications of composite materials. The text discusses the different forms of reinforcement and matrix and their interaction. Although it focuses on the most widely used composites-polymer matrices and fibrous reinforcement-it also addresses metal and ceramic matrix systems. A substantial portion of the text deals with methods for calculating stiffness and strength, and the authors provide worked examples and representative data. The final chapters address the various aspects of mechanical behavior, including toughness, fatigue, impact resistance, and the properties of joints-including toughening mechanisms and repair. The book concludes with a presentation of non-destructive testing methods.
The use and development of composites for engineering purposes will undoubtedly continue to grow, in both applications and importance. Now is the time for engineering professionals to make sure they are not left behind. With its numerous examples and self-assessment questions, Composite Materials: Engineering and Science makes the ideal text for designers and engineers new to the world of composites.

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Composite Materials: Engineering and Science By Frank L. Matthews, R D Rawlings Bibliography

- Sales Rank: #4444635 in Books
- Brand: Brand: CRC Press
- Published on: 1999-09-15
- Original language: English
- Number of items: 1
- Dimensions: 1.12" h x 6.66" w x 8.88" l, 1.57 pounds
- Binding: Paperback
- 480 pages

Editorial Review

Review
An ideal text for designers and engineers new to the world of composites with its coverage by numerous examples and self-assessment questions throughout the text., SAMPE Journal

From the Publisher
Reinforcements and the reinforcement-matrix interface; Composites with metallic matrices; Ceramic matrix composites; Polymer matrix composites; Stiffness, strength and related topics; Stiffness of unidirectional composites and laminates; Micromechanics of unidirectional composites; Strength of unidirectional composites and laminates; Short fibre composites; Fracture mechanics and toughening mechanisms; Impact resistance; Fatigue and environmental effects; Joining; Non-destructive testing.

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