Rakesh / Davim

Advanced Manufacturing and Joining Technologies for Composite Materials



Advanced Manufacturing and Joining Technologies for Composite Materials delves into pivotal advancements that have enhanced performance and cost-effectiveness. The book covers topics not commonly addressed in other references, including automated composite manufacturing, out-of-autoclave curing, nanostructured composites, smart composites, recycling and sustainability, and hybrid composites. Additionally, it addresses the modeling and simulation of composite manufacturing processes and the joining of composite laminates for product development, offering an exciting exploration for readers and learners. Automation and robotics have transformed manufacturing processes, with techniques like automated fiber placement and automated tape laying ensuring precise and consistent reinforcement fiber placement. This minimizes human error, improves repeatability, and expedites production. Material science breakthroughs have given rise to smart composites capable of sensing, responding, and adapting to environmental changes. These smart composites find applications in structural health monitoring, shape-shifting structures, and adaptive aerodynamics.

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