

Joining Processes: An Introduction



Joining Processes An Introduction David Brandon and Wayne D. Kaplan Technion, Israel Institute of Technology, Israel
This is an introductory text for students of materials science and engineering interested in the scientific background to the joining and assembly of components in engineering systems. The principles of joining and the common methods employed to achieve a reliable joint are covered in chapters that all conclude with a summary of the points covered, and a set of problems for individual study, or class discussion.
In the first chapters, thorough introductory overviews are given of firstly, the mechanical, chemical and physical phenomena related to surfaces, contacts and joins. In subsequent chapters, any necessary metallurgical or chemical background is adequately covered to enable students to understand the basic principles of a variety of joining methods, microelectronic devices and vacuum assemblies.
Contents: Introduction; Surface Science; The Mechanics of Joining; Mechanical Bonding; Welding; Weld Metallurgy; Soldering and Brazing; Metal-ceramic Joints and Diffusion Bonding; Adhesives; Vacuum Seals; Micro-electronic Packaging.
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