

Preface

Manufacturing processes are the steps through which raw materials are transformed into a final product. The manufacturing process begins with the creation of the materials from which the design is made. These materials are then modified through manufacturing processes to become the required part. Manufacturing processes can include treating, machining, or reshaping the material. The manufacturing process also includes tests and checks for quality assurance during or after the manufacturing, and planning the production process prior to manufacturing.

Aerospace Manufacturing Processes intends to introduce students to the principles and practices of modern aircraft manufacturing. Manufacturing processes for aircraft components include broad activities consisting of multiple materials processing technologies. It focuses on presenting manufacturing process technologies exclusively for fabricating major aircraft components. Detailed coverage of aerospace materials and processing with examples and practical case studies are included.

Manufacturing is undergoing major transformation due to the unforeseen challenges arising from the current trend of miniaturization, the emergence of new materials and the growing interaction between biologists and engineers to learn more from nature and living objects. Traditionally, a "top-down" approach has been used in manufacturing. Recently, engineers and scientists have begun exploring "bottom-up" approaches for manufacturing today's highly complex products. Further, these emerging processes are aimed to improve process efficiency and product quality. This text exchange current and future directions of manufacturing processes research, development and implementation, with a view to

advancing state-of-the-art manufacturing processes and encouraging innovation for developing new and efficient processes.