
Preface

The interest and enthusiasm around the topic of green manufacturing, as a first step towards sustainable manufacturing, has encouraged a lot of research and investigation into this complex subject. This book tries to give perspective to the term green manufacturing—how it is defined, where it “fits in” relative to sustainable production, what are the basic guidelines and tools of the trade for analyzing and practicing green manufacturing, and some examples of applications. The content reflects the research activities of the Laboratory for Manufacturing and Sustainability at the University of California, Berkeley, and is presented in the voice of the number of student researchers in the lab over the last few years. This work was motivated by the relatively little material on this topic in publication but the increasing interest from the public and our industrial and institutional partners. We are also motivated by the importance of this aspect of manufacturing, our curiosity, and the need for educational material in graduate course offerings in Mechanical Engineering at Berkeley and elsewhere.

As this is being written, research in our lab and many other labs around the world continues on subjects related to green manufacturing. There is undoubtedly much more that could be included here but that will not be due to the continuously evolving nature of the subject and the constant advance of research and understanding. Like painting the Golden Gate Bridge across San Francisco Bay, when one finishes at one end it is time to start again from the beginning!

The perspective presented in this book is from the level of the manufacturing process, machine, and system, as well as the supply chain and packaging, since for many companies the bulk of the impact comes from items or processes outside of their immediate control. There is a lot of excellent strategic discussion about the importance of green and sustainable manufacturing. But, at the execution level, there is little engineering information—the material practicing engineers need to fulfill the higher aspirations of their organizations as they move towards sustainability. The authors hope that this view into green manufacturing from our perspective will help the reader to understand a bit more some of the practical aspects of the topic and encourage them to look more closely at the processes and systems around them in their work or research to observe the opportunities for improvement, replacement, reuse, and, overall, reduction of impact. It should also allow them to quantify the effects of these improvements and impact reductions



<http://www.springer.com/978-1-4419-6015-3>

Green Manufacturing
Fundamentals and Applications
Dornfeld, D. (Ed.)
2013, VIII, 292 p., Hardcover
ISBN: 978-1-4419-6015-3