Computer-Aided Tolerancing, Second Edition, Oyvind Bjorke, ASME Press, 1989, 12 chapters, 216 pages.

Reviewed by Warren R. DeVries[3]

Tolerance analysis and its impact on design, assembly, and manufacturing cost is the focus of Bjorke's book. It begins with a review of probability models applied to modeling tolerance chains, the main analysis tool. If you have had a course in probability and statistics, the concepts will probably be familiar to you, but if not this may be a difficult book to follow. Topics covered in early chapters are weighted heavily to linearizing and mathematically modeling simple chain links. Methods for determining and modeling process capability, assembly interchangability, and ways to synthesize tolerances based on cost models or other tolerance distribution procedures are covered. Two chapters cover interrelated tolerance chain links by way of examples. I found that these examples concentrated too much on the calculations and not enough on how to set up the equations for the tolerance chains. The procedures to analyze a tolerance chain are implemented as a CAD tool that runs on personal computers, and the last chapter is essentially a short tutorial on this system called TOLTECH.

My overall impression of this book is that it meets the author's intended objective, "a reference for manufacturing engineers in industry." It gives a statistical treatment of dimensional tolerancing using the tolerance chain concept. Being able to identify these tolerance chains is the difficult part for the novice and the examples offer no middle ground in terms of complexity. Examples go from four or five design tolerances to 17 in a few pages. For mechanical engineers doing design, assembly, or manufacturing, this book is a reference that belongs with their books on geometric dimensioning and tolerancing, internal design standards, and statistical process control.

Fundamentals of CIM Technology, David L. Goetsch, Delmar Publishers, Inc., 1988, 10 chapters, 342 pages.

Reviewed by Warren R. DeVries

CIM (Computer Integrated Manufacturing) covers a lot of territory as anyone who has taught a course that is supposed to cover that territory knows. *Fundamentals of CIM Technology* is for technology students, rather than engineers. This book is easy to read and the topics covered are typical for any text on CIM: Computers and CAD/CAM systems, computer aided design and drafting, computer numerical control systems and programming, industrial robots, group technology, definitions of CIM and flexible manufacturing systems, ending with chapters on CAD/CAM management, concepts, and future trends.

What I liked about this book was that each chapter started with a case study extracted from the literature. For an instructor, these case studies are an excellent way to introduce the concepts. What isn't so nice is that there are no problems at the end of each chapter. A CIM instructor in a technology program needs assistance in the form of problems for homework assignments. Also, an unfortunate fact of dealing in an area where the technology and manufacturers of that technology are constantly changing is that the book is dated. Photo credits for computer systems, CAD vendors, and robot manufacturers are out of date because of mergers or other changes in these markets.

Group Technology Production Methods in Manufacture, C. C. Gallagher and. W. A. Knight, Ellis Horwood Limited, Chichester, England, and Halsted Press Division of John Wiley and Sons, New York, 1986, 11 chapters, 190 pages.

Reviewed by Warren R. DeVries

Gallagher and Knights' *Group Technology Production Methods in Manufacture* is indeed aimed at group technology (GT) applications in manufacture, so after an overview in the introduction, it goes right to techniques to assess production parts for GT and uses these results for cell design. Chapters devoted to aid in justifying and implementing the group technology philosophy contain references to empirical studies that are important when trying to clearly explain the GT concept. The impact of group technology on operations such as production scheduling and shop floor control are covered, as well as how lead time activities such as estimating, process planning, and tool design are affected by GT. There is a chapter dedicated to four case studies which make the concepts and potential applications more concrete.

This is an excellent reference for someone who may be, or already is, involved in implementing group technology. It is also a good reference for a graduate course or a person doing research in GT. With a list of over 150 references, it is a good source for those trying to understand the field and chapter on classification and coding has a nice table with many of the available systems to assist in this aspect of group technology.

Marks' Standard Handbook for Mechanical Engineers, 9th Edition, Edited by E. A. Avallone and T. Baumeister, McGraw Hill Book Co., 1987.

Reviewed by Robert F. Steidel, Jr.[4]

The ninth edition of *Marks' Standard Handbook for Mechanical Engineers* follows in the tradition of the eight preceding editions. *Marks'* is a true encyclopedia of mechanical engineering, covering all areas—construction and equipment, compressors, fans, fuels and furnaces, heat, instruments, mechanics, materials, materials handling, machines and machine elements, power, transportation, shop processes, and so on. It is difficult to think of anything technical that a mechanical engineer could need that would not be in *Marks*.

Nearly one-third of the contributors are new to this edition, along with two new editors, Eugene Avallone and Theodore Baumeister III. Much of the material in the handbook has been updated to cover the ten years intervening between the eighth and ninth editions. The section on transportation has been enlarged and completely rewritten. This section covers transportation in all its forms, automobile, rail, air, and space. It is fresh, up-to-date, and commendable. The pages and pages

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