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FOR MECHANICAL ENGINEERS

Title Mechanics of Deformable Solids

Author Irving Shames

Publisher Prentice-Hall, Inc., 1964

Pages vi plus 532

Price \$11.95

Reviewer Thomas V. Sheehan

Perhaps the most telling observation I am able to make for this book is to say that, during the three-month period in which I delayed writing this review, I used the book as reference material in the solution of several problems that came before us. The work has several characteristics that should appeal to practicing engineers.

1) It contains the classic static mechanics cases as one might remember them from elementary mechanics and, therefore, looks like a familiar friend; yet one is led smoothly into more-sophisticated analytical methods beyond the scope of elementary works.

2) New chapters often contain introductions that remind one of what has gone before and how this may help in tackling the next step.

3) The diagrams and illustrations, on which the analysis are based, are excellent and, more often than not, clearly relate to the everyday situations that engineers encounter.

4) The problems are practical and recognizable as having strong foundations in reality.

The book is divided into three major sections. Part I is concerned with the fundamentals of the Theory of Elasticity. Part II deals with analysis of beams, columns, shafts, etc. with additional references to energy methods. The third subdivision of the text is a series of ten appendices, which are generally designed to enable the user to apply more-advanced analytical methods of the material covered in earlier chapters, if desired. The tenth of these appendices is a well-organized description of properties of engineering materials. It was prepared by F. A. Cozzarelli and describes in a lucid fashion the influence of the nature of the atoms and their molecular

lattice structure on the properties of material. This appendix also treats at length the mechanism of various kinds of physical deformation, including thermal expansion, creep, and static and fatigue slippage.

The reviewer believes this work would be valuable both to engineers who are practicing in fairly advanced stress analysis and to those who do not have the time or duty to carry out this kind of work, but who wish to know, in a general way, the things that need be done to be sure of good solutions.

Thomas V. Sheehan is a Senior Mechanical Engineer at Brookhaven, where for the past several years, he has been managing the Brookhaven technical group designing the new High Flux Beam Reactor. After receiving the BS degree (mechanical engineering) from the University of Illinois, he spent many years in the oil refining field, in engineering design and operation of processing equipment. With Brookhaven since 1947, he was involved in the mechanical and process design of the Brookhaven Graphite Research Reactor. Later he formed in the BNL Nuclear Engineering Department, an engineering and construction group responsible for design and construction of facilities for the research staff.

A MISDIRECTED EFFORT

Title Analytical Chemistry of the Actinide Elements

Author Alfred J. Moses

Publisher Pergamon Press, 1963

Pages vii plus 137

Price \$6.00

Reviewer L. Newman

As a person intimately involved in the analytical chemistry of the actinide elements, I would not hesitate to purchase a copy of a new book with a name such as this. Surely the same applies to many other people and most libraries. I am sorry to have to report that all who try to use the book will probably be dissatisfied.

Moses has written a very short book, less than 100 pages of text, on what is admittedly a specialized field that might, therefore, warrant a short intensive treatment. However, in this limited space the author attempted to cover all aspects of the analytical chemistry of the actinide elements, including such things as a chapter to introduce the reader to nuclear instrumentation. What results is a very sketchy book, the value of which is reduced still further by the author's frequent selection of methods that are not in general usage.