The main changes between the two books are to introduce, at the end of each chapter, a section of a page or two summarising the content of the chapter, to add a new section to chapter 3, to add a couple of new sections to chapter 8 (amounting to about five pages of text in a chapter of 54 pages), to add a couple of additional examples and four new exercises (split between chapters 4 and 5) and to add a new chapter 7 on Orthogonal Curvilinear Coordinates amounting to 27 pages (in a book of 306 pages). The new chapter does not add significantly to the academic value of the book.

All of this would be understandable if the preface of *Advanced Vector Analysis for Scientists and Engineers* noted its relationship to the earlier work and offered an explanation and rationale for the updating and change of publisher. It is after all not unusual for an author to seek a new publisher if his existing publisher decides to let a title go out of print. But the preface of *Advanced Vector Analysis for Scientists and Engineers* is nearly identical to the preface of the earlier work and makes no reference at all to the existence of the earlier work. In addition I find, on browsing the world wide web, that CRC Press are currently advertising a second edition of *Applied Vector Analysis* by Rahman and Mulolani due to be published on 27 Sept 2007!

So, to summarise, essentially the same text is available from two different publishers under two different titles with no acknowledgement made of the link. I find this an unusual and not entirely satisfactory circumstance. As far as the merits of the book per se are concerned, I have nothing to add to my review of the original work.

Professor R.R. Clements, CEng, MRAeS

Environmentally Conscious Mechanical Design

Edited by M. Kutz

John Wiley and Sons, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, UK. 2007. 394pp. Illustrated. £70. ISBN 978-0-471-72636-4.

The editor has assembled a team of authors to describe various aspects of design with the environmental impact in mind. With so much current emphasis on 'green' issues, they have produced a book that is timely and useful.

Chapter 1 describes strategies and methods for environmental design, including topics such as setting objectives, environmental reviews, and checklists. It includes four rather briefly-described case histories.

Chapter 2 is on design for sustainability, where sustainability is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. It describes national and international regulations and moves to create standards. Two case studies are also given.

Chapter 3 is on life cycle design. It provides an interesting and thorough overview of principles and methods. Inevitably, there is some overlap with the previous chapters.

Chapter 4 describes reverse engineering, with a very detailed example. I could not detect the connection with environmental engineering.

Chapters 5 and 6, on design for reliability and for maintainability, are not helpful. Both over-emphasise mathematical aspects, provide dated and incomplete references, and make no attempt to connect the topics with environmental issues.

Chapters 7, 8 and 9 describe re-use and recycling technologies, design for remanufacturing and materials selection. These are excellent.

Chapter 10 describes quality management aspects, particularly total quality management (TQM) and six-sigma approaches. It includes quality function deployment (QFD), statistical design of experiments, statistical process control (SPC). Strangely, there is no mention of ISO9000.

The book presents a thorough overview of most of the topics relevant to its title. One notable exception, however, is ISO14000, the standard for environmental management, which receives scant mention in a mere 5 lines. The title is also a little misleading, since the book is not limited to mechanical design, but covers general engineering aspects, including electronics.

Patrick O'Connor, CEng, MRAeS

Aircraft Performance

M. Saarlas

John Wiley and Sons, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK. 2007. 282pp. Illustrated. £80. ISBN 0-470-04416-0.

This book is addressed to an audience of undergraduate college students of engineering and perhaps some high school students. It is an introductory text to a wide discipline ranging from airplane aerodynamics to aircraft design. There is a breadth of coverage that may stir interest also in students beyond engineering.

From the point of view of the student who has never studied the subject before the book is well balanced. The drawings of the airplanes shown throughout the book have been poorly reproduced by the publisher. They seem to be placed here and there without a clear purpose. However, at a closer look the figures have all been badly reproduced by John Wiley. This seems a poor marketing decision, considering the availability of similar books on the market.

This is clearly a teaching resource. The book contains chapters on the equations of motion, the basic performance parameters, climbing flight, range and endurance, unsteady flight in the vertical plane, manoeuvring flight. There is an appendix for calculating aircraft engines performance. Basically, the book starts with a discussion of the energy method, which is quite powerful for first-order performance calculations.

The language can be easily understood. A number of problems with outline answers in each chapter is also quite useful. The number of problems throughout the various chapters is fair. All the problems require closed-form solutions. There is hardly any mention to numerical solution of more complex flight problems. The book is complemented with appendices (conversion factors, airplane data) and an alphabetical index. The references, though, are disappointing. This is a vast field of aircraft engineering, and potential readers may be interested in pursuing their research further. The author only mentions 19 books (including some noted below by the reviewer) and just two papers.

It is believed that the author will have difficulty in finding an audience in the aerospace profession, because the topics presented are already available in similar form in other books at the same level, some of which have the same title. Some examples are: 1.) Hale, F.J. *Introduction to Aircraft Performance, Selection and Design* (Addison-Wesley); 2.) Vinh, N.X. *Flight Mechanics of High-Performance Aircraft* (Cambridge University); 3.) Asselin, M. *Introduction to Aircraft Performance* (AIAA); 4.) Mair, W. and Birdsall, D. *Aircraft Performance* (Cambridge University Press); 5.) Eshelby, M. *Aircraft Performance: Theory and Practice* (Arnold Publications/AIAA).

In summary, the book does not contribute much to the knowledge of aircraft performmance. This is a field with dozens of very good books, each perhaps with a different focal point. However, it is a good resource for the students or as an introductory subject.

Dr. A. Filippone

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