

ERRATUM

Feedback Control

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In the print and online versions of this book the Series Editors' Foreword was not included but now it is given below.

Series Editors' Foreword

The *Advanced Textbooks in Control and Signal Processing* series is designed as a vehicle for the systematic textbook presentation of both fundamental and innovative topics in the control and signal processing disciplines. It is hoped that prospective authors will welcome the opportunity to publish a more rounded and structured presentation of some of the newer emerging control and signal processing technologies in this textbook series. However, it is useful to note that there will always be a place in the series for contemporary presentations of foundational material in these important engineering areas.

The Editors of the series *Advanced Textbooks in Control and Signal Processing*, whilst seeking new and advanced topics where a “critical mass” of material indicates a consolidation worthy of textbook presentation, are also striving to create a balanced series. Advanced textbooks come in a variety of guises. These include pure theory textbooks and theory textbooks with illustrative academic examples. A little rarer are the theory textbooks with practical applications as might be found in a textbook with laboratory-based experiments or some industrial applications of the theory. Then the emphasis of a textbook can be switched round so that it is predominately applications orientated and the objective is to present the use of theory in the sole context of an industrial or applications field. It can be quite difficult for Series Editors to achieve these balanced aims for a series. Looking at the *Advanced Textbooks in Control and Signal Processing* series, there is a good representation from the category “advanced theory with academic

examples”. However, for this textbook *Automatic Control: Techniques, Design and Applications*, we can take a slightly different viewpoint, namely, that in university engineering education, a really good grasp of the fundamentals must be imparted to students as the foundations on which to build the advanced studies.

For the subject of control engineering, it seems essential that all electrical, electronic, mechanical and chemical engineers have a “fundamentals” course on control and appreciate the importance of feedback in applications. As a consequence, the Series Editors have been seeking the elusive textbook that has a very strong component of control “fundamentals” to add to the series list. The ideal course textbook would subsume the wealth of classical control knowledge into a seamless whole with state-space and nonlinear systems, a text that would continually reinforce that the mathematical model of a process is simply that a “model” representation and not the system per se. If the author can make recourse to their own experience with a range of real-world applications to illustrate the theory in a non-trivial way, then the “fundamentals” course textbook will be valued by graduates in the years after within their own professional practice as an engineer.

Professor Stephen Dodds (University of East London, UK) has had an interesting career in control engineering with in-depth experience of and international research in three control applications areas: satellite attitude control (with the European Space Agency whilst employed with Marconi Space Systems), AC electrical drives and loudspeaker active control. Added to this direct practical experience and research leading to innovative control techniques are the many years of lecturing and the teaching of control that Professor Dodds gave at undergraduate and masters level.

Professor Dodds has distilled this practical work with real-world applications and used his academic lecturing and teaching experience to produce this comprehensive course textbook that is noteworthy for its distinctive presentation of the “fundamentals” of control engineering. The text gives a careful explanation of concepts and always points up the practical relevance of the ideas under discussion. Where mathematical proof or justification is needed, much care is devoted to the clarity of the exposition. The exhaustive coverage given in the textbook will also ensure that the student has a control textbook that will serve as a substantial reference book for future years, whether following a career in applications or in a research field. Finally, Professor Dodds makes recourse to his industrial and commercial work to provide illustrative examples that seriously reflect the control applications of the real world. Downloadable web-based materials are available to supplement the material of this course textbook.

In conclusion the Editors of the *Advanced Textbooks in Control and Signal Processing* series are pleased to welcome Professor Dodds’ textbook into the series, contributing as it does to the Editors’ aim of having a good “control fundamentals” textbook in the series.

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July 2012

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Feedback Control

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