**DESCRIPTION**

The use of control systems is necessary for safe and optimal operation of industrial processes in the presence of inevitable disturbances and uncertainties. Plant-wide control (PWC) involves the systems and strategies required to control an entire chemical plant consisting of many interacting unit operations. Over the past 30 years, many tools and methodologies have been developed to accommodate increasingly larger and more complex plants.

This book provides a state-of-the-art of techniques for the design and evaluation of PWC systems. Various applications taken from chemical, petrochemical, biofuels and mineral processing industries are used to illustrate the use of these approaches. This book contains 20 chapters organized in the following sections:

- Overview and Industrial Perspective
- Tools and Heuristics
- Methodologies
- Applications
- Emerging Topics

With contributions from the leading researchers and industrial practitioners on PWC design, this book is key reading for researchers, postgraduate students, and process control engineers interested in PWC.
About the Author

Prof. Gade Pandu Rangaiah is currently Professor and Deputy Head in the Department of Chemical & Biomolecular Engineering at the National University of Singapore. His research interests are in control, modeling and optimization of chemical, petrochemical and related processes. Prof. Rangaiah published nearly 120 papers in international journals and presented around 90 papers in conferences. He received several awards for his teaching including Annual Teaching Excellence Awards from the National University of Singapore for four consecutive years. Prof. Rangaiah edited two books (one on multi-objective optimization and another on global optimization) published by World Scientific.

Dr Vinay Kariwala is an Assistant Professor in the School of Chemical and Biomedical Engineering at the Nanyang Technological University, Singapore. He got his Ph.D. degree in Chemical Engineering (Computer Process Control) from the University of Alberta, Canada, in 2004. During 2004-2005, he worked as a postdoctoral fellow at the Norwegian University of Science and Technology, Trondheim, Norway. He has published more than 25 papers in international journals and refereed conference proceedings in the broad areas of plant-wide control and control structure design. Recently, his contributions were recognized with the best reviewer award by Journal of Process Control for the year 2009.

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