



# ADVANCED PROCESS DYNAMICS AND CONTROL

By PRABIR KUMAR SARKAR

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This book is a sequel to the text Process Dynamics and Control (published by PHI Learning). The objective of this text is to introduce frontier areas of control technology with an ample number of application examples. It also introduces the simulation platform PCSA (Process Control System Analyzer) to include senior level worked out examples like multi-loop control of exothermic reactor and distillation column.

The textbook includes discussions on state variable techniques and analysis MIMO systems, and techniques of non-linear systems treatment with extensive number of examples. A chapter has been included to discuss the industrial practice of instrumentation systems for important unit operation and processes, which ends up with the treatment on Plant-wide-control. The two state-of-the-art tools of computer based control, Micro-controllers and Programmable Logic Controllers (PLC), are discussed with practical application examples. A number of demonstration programs have been offered for basic conception development in the accompanying CD. It familiarizes students with the real task of simulation by means of simple computer programming procedure with sufficient graphic support, and helps to develop capability of handling complex dynamic systems. This book is primarily intended for the postgraduate students of chemical engineering and instrumentation and control engineering. Also it will be of considerable interest to professionals engaged in handling process plant automation systems.

### KEY FEATURES

- Majority of worked out examples and exercise problems are chosen from practical process applications.
- A complete coverage of controller synthesis in frequency domain provides a better grasp of controller tuning.
- Advanced control strategies and adaptive control are covered with ample number of worked out examples.

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### Bibliography

- Rank: #2258507 in eBooks
- Published on: 2014-10-21
- Released on: 2014-10-21
- Format: Kindle eBook

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### About the Author

Prabir Kumar Sarkar has been Reader, Chemical Engineering Department, Jadavpur University, Kolkata, India. He has more than three decades of teaching experience, and has also conducted training programmes for teachers and technical personnel in several institutes and industries. He has served as a technical consultant in a number of process industries. An Associate Life Member of Institution of Engineers (India), Mr. Sarkar has published several research papers in the areas of process analysis and control, and high polymer technology.

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