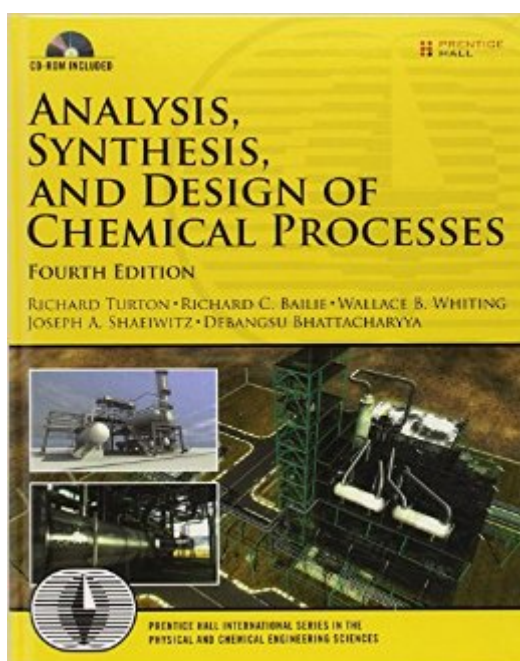


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# Analysis, Synthesis And Design Of Chemical Processes (4th Edition) (Prentice Hall International Series In The Physical And Chemical Engineering Sciences)



## Synopsis

The leading integrated chemical process design guide: Now with extensive new coverage and more process designs

More than ever, effective design is the focal point of sound chemical engineering. *Analysis, Synthesis, and Design of Chemical Processes, Fourth Edition*, presents design as a creative process that integrates both the big picture and the small details and knows which to stress when, and why. Realistic from start to finish, this updated edition moves readers beyond classroom exercises into open-ended, real-world process problem solving. The authors introduce integrated techniques for every facet of the discipline, from finance to operations, new plant design to existing process optimization.

This fourth edition adds new chapters introducing dynamic process simulation; advanced concepts in steady-state simulation; extensive coverage of thermodynamics packages for modeling processes containing electrolyte solutions and solids; and a concise introduction to logic control.

“What You Have Learned” summaries have been added to each chapter, and the text’s organization has been refined for greater clarity.

Coverage Includes

- Conceptualization and analysis: flow diagrams, batch processing, tracing, process conditions, and product design strategies
- Economic analysis: capital and manufacturing costs, financial calculations, and profitability analysis
- Synthesis and optimization: principles, PFD synthesis, simulation techniques, top-down and bottom-up optimization, pinch technology, and software-based control
- Advanced steady-state simulation: goals, models, solution strategies, and sensitivity and optimization studies
- Dynamic simulation: goals, development, solution methods, algorithms, and solvers
- Performance analysis: I/O models, tools, performance curves, reactor performance, troubleshooting, and “debottlenecking”
- Societal impact: ethics, professionalism, health, safety, environmental issues, and green engineering
- Interpersonal and communication skills: improving teamwork and group effectiveness

This title draws on more than fifty years of innovative chemical engineering instruction at West Virginia University and the University of Nevada, Reno. It includes suggested curricula for single-semester and year-long design courses, case studies and practical design projects, current equipment cost data, and extensive preliminary design information that can be used as the starting point for more detailed analyses.

About the CD-Rom and Web Site

The CD contains the newest version of CAPCOST, a powerful tool for evaluating fixed capital investment, full process economics, and profitability. The heat exchanger network software, HENSAD, is also included. The CD also contains an additional appendix presenting preliminary design information for fifteen key chemical processes, including four new to this edition: shift reaction; acid-gas removal via physical solvent; H<sub>2</sub>S removal from a gas stream using the Claus

process; and coal gasification. The CD also includes six additional projects, plus chapters on outcomes assessment, written and oral communications, and a written report case study. Sixty additional projects and twenty-four more problems are available at [www.che.cemr.wvu.edu/publications/projects](http://www.che.cemr.wvu.edu/publications/projects).

## Book Information

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## Customer Reviews

Richard Turton is professor of chemical engineering and professor in the Statler College of Engineering and Mineral Resources at West Virginia University. He has taught WVU's senior design course for more than twenty-five years. Richard C. Bailie, professor emeritus at WVU, taught chemical engineering design for more than twenty years. He has extensive experience in process evaluation, pilot plant operation, and plant startup. Wallace B. Whiting, professor emeritus at the University of Nevada, Reno, has practiced and taught chemical process design for more than twenty-four years. Joseph A. Shaeiwitz has been involved in WVU's senior design sequence and sophomore- and junior-level integrated design projects for twenty years. Debansu Bhattacharyya, associate professor in the department of chemical engineering at WVU, has worked in computer-aided simulation, design, construction, and in the operation of a large petroleum refinery for more than ten years.

The "BOOK" is an excellent compendium of useful information. Most of the pedagogical information you will actually use as a career chemical engineer can be found in this book. Very practical. That

being said. pay the extra money and get the hardback. Do not get the kindle it is worthless. As with any textbook, kindle is difficult to navigate.

Great book for Chemical design. Easy to read and understand and tons of supplemental material to utilize. Definitely one of the better chemE design books.

A lovely book. Use it for reference in industry all the time.

This 'yellow series' as my class called it is a good set of chem e texts. This text book is just as good as any I've seen, and better than some newer texts. Will be keeping around for quite a while, I've brought it to my office now that I've finished school and started actually working. Works decently as a reference material.

Just what I needed for school!!

Turton's book provides a good overview of process design and includes both CAPCOST, Turton's estimation program, and more than a dozen chemical unit examples. The book covers flowsheet layout, simulation, estimation of operating and capital costs and profitability analysis (ROI or NPV). It then delves into advanced topics like process optimization, dynamic simulation, process trouble shooting and debottlenecking. A great book for CAPCOST alone.

Completely satisfied

wow, It looks like a new book. Thank you so much

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