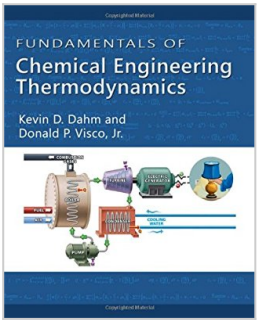

Fundamentals of Chemical Engineering Thermodynamics

By Kevin D. Dahm, Donald P. Visco

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A brand new book, FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS makes the abstract subject of chemical engineering thermodynamics more accessible to undergraduate students. The subject is presented through a problem-solving inductive (from specific to general) learning approach, written in a conversational and approachable manner. Suitable for either a one-semester course or two-semester sequence in the subject, this book covers thermodynamics in a complete and mathematically rigorous manner, with an emphasis on solving practical engineering problems. The approach taken stresses problem-solving, and draws from "best practice" engineering teaching strategies. FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS uses examples to frame the importance of the material. Each topic begins with a motivational example that is investigated in context to that topic. This framing of the material is helpful to all readers, particularly to global learners who require "big picture" insights, and hands-on learners who struggle with abstractions. Each worked example is fully annotated with sketches and comments on the thought process behind the solved problems. Common errors are presented and explained. Extensive margin notes add to the book accessibility as well as presenting opportunities for investigation.

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Editorial Review

Review
"I appreciate the contemporary content, especially examples that illustrate the importance of energy loss, energy utilization. Although not related to energy in particular, I like example 9.1. It draws on intuition, uses some thermodynamics to prove that volume additivity may not be what is expected. This allows students to have a complete understanding of the topic through mathematical proof and illustration."

"I believe the text does a good job of helping the student learn to apply thermodynamics. When working through an example they do not just show the quick solution but walk the reader through the thought process needed to solve the problem. They at times, pause to introduce (remind) the reader of some mathematical principle that will aid in the solution instead of just assuming the reader already knows it. The also use marginal notes to ask conceptual questions and thoughts of the consequences of using some other route."

About the Author
Kevin D. Dahm joined the Rowan University Chemical Engineering department in 1999, and was promoted from Associate Professor to Professor in 2013. He received his B.S. in Chemical Engineering from Worcester Polytechnic Institute in 1992 and his Ph.D. in Chemical Engineering from Massachusetts Institute of Technology in 1998. He has published over 30 journal articles, many of which are in the area of engineering pedagogy, on topics such as instilling metacognition in engineering students, pedagogically sound uses for process simulation, and assessment of student learning. He has received four national awards from the American Society for Engineering Education: the 2002 ASEE PIC-III Award, the 2003 Joseph J. Martin Award, the 2004 Raymond Fahien Award, and the 2005 Corcoran Award. In addition, he and his father Donald Dahm authored the book Interpreting Diffuse Reflectance and Transmittance: A Theoretical Introduction to Absorption Spectroscopy of Scattering Materials. Prior to joining Rowan University, he was a postdoctoral researcher at UC Berkeley and an adjunct professor at North Carolina A&T State University.

Donald P. Visco, Jr. is the Associate Dean for Undergraduate Studies and a Professor of Chemical & Biomolecular Engineering in the College of Engineering at the University of Akron. Previously he taught at Tennessee Technological University. Professor Visco's research work focuses on molecular design and thermodynamic modeling. He has won several awards for his research and educational activities, including both the Department of Energy PECASE and the ASEE National Outstanding Teaching Award. He has served as Chair of both the ASEE Chemical Engineering Division as well as the Education Division of AIChE. Professor Visco received both his B.S. and Ph. D. degrees in Chemical Engineering from the University at Buffalo, State University of New York.

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