This is one of three books in a collection covering all aspects of distillation. Distillation is the oldest technology available for the separation and purification of liquid mixtures and is a key unit operation within the petroleum refining, chemical, petrochemical, pharmaceutical, food, and alcohol industries.

Distillation: Fundamentals and Principles provides up-to-date coverage of the fundamental principles of distillation with particular emphasis on practical understanding of design and operation of this essential industrial process. This book outlines the history of distillation and the underlying principles of vapor-liquid equilibrium and mass transfer on which the process is based.

The key aspects of binary and batch distillation are explained, as well as recent developments within the design of both zeotropic and azeotropic processes. Fundamentals and Principles highlights key issues of importance with respect to energy consumption and potential energy reduction, and demonstrates how hybrid processes, in which distillation is combined with another fundamental separation methodology, can provide further improvements and/or cost savings. Overviews of current state-of-the-art within modelling and within optimization of distillation processes for a range of operating scales and process complexities conclude the book.

Fundamentals and Principles offers both students and engineers a complete overview of the methods and techniques available for both process understanding and for computation and design of any distillation problem.