Preface

Automation via feedback is not new. Early application of automatic control principles appeared in antiquity, and widespread use of automation began in the nineteenth century when machinery was becoming the dominant method for manufacturing goods. Great advances have been made in theory and practice so that automation is now used in systems as commonplace as room heating and as exciting as the navigation of interplanetary exploration and telecommunications. The great change over the recent years is the integral—at times essential—role of automation in our daily lives and industrial systems.

Process control is a sub-discipline of automatic control that involves tailoring methods for the efficient operation of chemical processes. Proper application of process control can improve the safety and profitability of a process, while maintaining consistently high product quality. The automation of selected functions has relieved plant personal of tedious, routine tasks, providing them with time and data to monitor and supervise operations. Essentially every chemical engineer designing or operating plants is involved with and requires a background in process control. This book provides an introduction to process control with emphasis on topics that are of use to the general chemical engineer as well as the specialist.

GOALS OF THE BOOK

The intent of this book is to present fundamental principles with clear ties to applications and with guidelines on their reduction to practice. The presentation is based on four basic tenets.