

# Control Objectives and Benefits

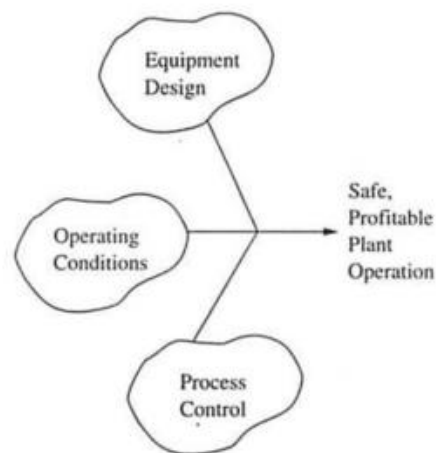
## CHAPTER

# 2

### 2.1 ■ INTRODUCTION

The first chapter provided an overview of process control in which the close association between process control and plant operation was noted. As a consequence, control objectives are closely tied to process goals, and control benefits are closely tied to attaining these goals. In this chapter the control objectives and benefits are discussed thoroughly, and several process examples are presented. The control objectives provide the basis for all technology and design methods presented in subsequent chapters of the book.

While this book emphasizes the contribution made by automatic control, control is only one of many factors that must be considered in improving process performance. Three of the most important factors are shown in Figure 2.1, which indicates that proper equipment design, operating conditions, and process control should all be achieved simultaneously to attain safe and profitable plant operation. Clearly, equipment should be designed to provide good dynamic responses in addition to high steady-state profit and efficiency, as covered in process design courses and books. Also, the plant operating conditions, as well as achieving steady-state plant objectives, should provide flexibility for dynamic operation. Thus, achieving excellence in plant operation requires consideration of all factors. This book addresses all three factors; it gives guidance on how to design processes and select operating conditions favoring good dynamic performance, and it presents automation methods to adjust the manipulated variables.



**FIGURE 2.1**

Schematic representation of three critical elements for achieving excellent plant performance.