

Process Control Design: Managing the Design Procedure

CHAPTER

25

25.1 ■ INTRODUCTION

To this point, the control design problem has been defined, and the range of decisions has been presented. It becomes clear that tens to hundreds of decisions are made during the control design of an industrial process. One would expect, as is shown later in this chapter, that the sequence in which these decisions are made can influence the time required to complete the design and, perhaps, the quality of the control performance provided by the final design. Thus, the engineer is faced with the challenge of managing a large quantity of information and a large set of possible design decisions during the design procedure.

There is no single, correct way to manage this procedure. Different skilled engineers perform tasks in different sequences to reach equally good solutions, and different problems can be solved more easily by different sequences. However, the procedure presented here provides a structured problem-solving approach that is tailored to the control design task. The procedure represents, to the ability of the author to document such a fuzzy entity, the approach used by many practitioners.

There are several advantages to the novice engineer for using this procedure. Since the most difficult aspect of the design is often starting this ill-defined task, the first advantage is that a prescribed procedure provides a way to begin the design task. Second, the procedure provides a step-by-step approach that ensures that many important issues are addressed. Third, the procedure decomposes the problem in a manner that determines whether control is possible before continuing to detailed decisions on control strategies. Finally, the procedure provides some guidance on managing the interactions among the numerous design decisions.