

## **7 Tuning of Feedback Controllers**

In this chapter we will study the tuning of feedback controllers-that is, the adjustment of the controller parameters to match the characteristics (or personality) of the rest of the components of the loop. We will look at two methods for characterizing the process dynamic characteristics: the on-line or closed-loop tuning method, and the step-testing or open-loop method. We will also look at three different specifications of control loop performance: quarter decay ratio response, minimum error integral, and controller synthesis. This latter method, in addition to providing some simple controller-tuning relationships, will give us some insight into the selection of the proportional, integral, and derivative modes for various process transfer functions.