

# Brief Contents

<b>PART I ■ INTRODUCTION</b>	<b>1</b>
1 ■ INTRODUCTION TO PROCESS CONTROL	3
2 ■ CONTROL OBJECTIVES AND BENEFITS	19
<b>PART II ■ PROCESS DYNAMICS</b>	<b>45</b>
3 ■ MATHEMATICAL MODELLING PRINCIPLES	49
4 ■ MODELLING AND ANALYSIS FOR PROCESS CONTROL	97
5 ■ DYNAMIC BEHAVIOR OF TYPICAL PROCESS SYSTEMS	135
6 ■ EMPIRICAL MODEL IDENTIFICATION	175
<b>PART III ■ FEEDBACK CONTROL</b>	<b>207</b>
7 ■ THE FEEDBACK LOOP	211
8 ■ THE PID ALGORITHM	239
9 ■ PID CONTROLLER TUNING FOR DYNAMIC PERFORMANCE	267
10 ■ STABILITY ANALYSIS AND CONTROLLER TUNING	303
11 ■ DIGITAL IMPLEMENTATION OF PROCESS CONTROL	357
12 ■ PRACTICAL APPLICATION OF FEEDBACK CONTROL	381
13 ■ PERFORMANCE OF FEEDBACK CONTROL SYSTEMS	409
<b>PART IV ■ ENHANCEMENTS TO SINGLE-LOOP PID FEEDBACK CONTROL</b>	<b>453</b>