

CHAPTER 1

MATLAB BASICS

- 1.1. The MATLAB Overview
- 1.2. About the MATLAB M-Files
- 1.3. Matrices and Arrays
- 1.4. Functions of One Variable
- 1.5. Random Numbers in MATLAB
- 1.6. Polynomial Interpolation
- 1.7. Data Input/Output

CHAPTER 2

PROGRAMMING

- 2.1. Conditional Control
- 2.2. Loop Control
- 2.3. Error Control and Return
- 2.4. Functions

CHAPTER 3

GRAPHICS

- 3.1. Interactive Plotting
- 3.2. Basic Plotting Commands
- 3.3. Plotting with Two Y-Axes
- 3.4. 3-D Graphics

CHAPTER 4

MATLAB FOR ENGINEERS

- 4.1. Solving ODEs
- 4.2. The Laplace Transform
- 4.3. The Transfer Function
- 4.4. The State-Space Model

CHAPTER 5

SIMULINK MODELING

- 5.1. Simulink Modeling
- 5.2. Modeling Mathematical Equations
- 5.3. Modeling the Dynamic Systems
- 5.4. Extracting the Simulink Model into MATLAB
- 5.5. The Three-Term Controls
- 5.6. MATLAB Presentation
- 5.7. DC Motor Speed Modeling
- 5.8. Modeling an Inverted Pendulum