CONTENTS

- 1 ► INTRODUCTION AND OVERVIEW OF ELECTRODE PROCESSES 1
- 2 ► POTENTIALS AND THERMODYNAMICS OF CELLS 7
- 3 ► KINETICS OF ELECTRODE REACTIONS 15
- 4 ► MASS TRANSFER BY MIGRATION AND DIFFUSION 21
- 5 ► BASIC POTENTIAL STEP METHODS 25
- 6 ► POTENTIAL SWEEP METHODS 47
- 7 ▶ POLAROGRAPHY AND PULSE VOLTAMMETRY 55
- 8 ► CONTROLLED-CURRENT TECHNIQUES 61
- 9 METHODS INVOLVING FORCED CONVECTION-HYDRODYNAMIC METHODS 65
- 10 ► TECHNIQUES BASED ON CONCEPTS OF IMPEDANCE 71
- 11 ▶ BULK ELECTROLYSIS METHODS 83
- 12 ► ELECTRODE REACTIONS WITH COUPLED HOMOGENEOUS CHEMICAL REACTIONS 95
- 13 ► DOUBLE-LAYER STRUCTURE AND ADSORPTION 103
- 14 ► ELECTROACTIVE LAYERS AND MODIFIED ELECTRODES 111
- 15 ► ELECTROCHEMICAL INSTRUMENTATION 115
- 16 ► SCANNING PROBE TECHNIQUES 121
- 17 ► SPECTROELECTROCHEMISTRY AND OTHER COUPLED CHARACTERIZATION METHODS 123
- 18 ► PHOTOELECTROCHEMISTRY AND ELECTROGENERATED CHEMILUMINESCENCE 131

APPENDICES

- A ► MATHEMATICAL METHODS 135
- B ▶ DIGITAL SIMULATIONS OF ELECTROCHEMICAL PROBLEMS 143