CHAPTER 1: INTRODUCTION TO MICROPROCESSORS AND MICROCONTROLLERS

1.1 History of Microprocessors 2
1.2 Development of Microcontrollers 4
   1.2.1 ATMEL Microcontrollers 9
   1.2.2 INTEL 8051 Microcontrollers 10
   1.2.3 Pin description of 8051 15
1.3 Concept of Embedded System and use of Microcontrollers in Embedded Systems 18
1.4 Applications of Embedded Microcontrollers 19
References 21

CHAPTER 2: INTRODUCTION TO SENSORS 22

2.1 Introduction 23
2.2 Temperature Sensors – Types 23
   2.2.1 Thermistors 23
   2.2.2 Thermocouples 24
   2.2.3 Solid state sensors 25
   2.2.4 Semi-conductor/IC sensors 25
   2.2.5 Resistance Thermometers 26
References 33

CHAPTER 3: HARDWARE AND SOFTWARE DETAILS OF TEMPERATURE MONITORING SYSTEM 34

3.1 Introduction 35
3.2 Hardware details of Temperature Controller 35
   3.2.1 Data Acquisition System 38
3.3 Measurement of temperature by interfacing RTD to 8051 µc using ADC-0804 42
3.4 Software details 43
3.5 Results and Conclusion 50
References 59