AMMT20 MICRO CONTROLLER AND PLC

UNIT-1 INTRODUCTION TO MICROCONTROLLER

1.1 8051 Architecture: Memory map
1.2 Addressing modes, I/O Ports- Counters and Timers
1.3 Serial data- I/O- Interrupts- Instruction set, Data transfer instructions,
1.4 Arithmetic and Logical Instructions, Jump and Call Instructions,
1.5 Assembly Language Programming tools.

UNIT-2 MICROCONTROLLER PROGRAMMING

2.1 8051 Assembly Language Programming- Block transfer, arithmetic operations,
2.2 Code conversion, Time delay generation, Interrupt programming, Lookup table techniques

UNIT-3 MICROCONTROLLER APPLICATIONS

3.1 Interfacing of Keyboards- Interfacing of Display Devices- Pulse measurement
3.2 Analog to Digital and Digital to Analog Converter
3.3 Interfacing Hardware Circuit- Serial Data Communication- Network Configuration.

UNIT-4 PROGRAMMABLE LOGIC CONTROLLERS

4.1 Introduction- Principles of operation- PLC Architecture and specifications-
4.2 PLC hardware components Analog & digital I/O modules , CPU & memory module
4.3 Programming devices- PLC ladder diagram,
4.4 Converting simple relay ladder diagram in to PLC relay ladder diagram.
4.5 PLC programming Simple instructions- Manually operated switches
4.6 Mechanically operated a Proximity switches- Latching relays,

UNIT-5 APPLICATIONS OF PROGRAMMABLE LOGIC CONTROLLERS

5.1 Timer instructions- On delay, Off delay,
5.2 Cyclic and Retentive timers, Up /Down Counters, control instructions
5.3 Data manipulating instructions, math instructions;
5.4 Applications of PLC- Simple materials handling applications,
5.5 Automatic control of warehouse door,
5.6 Automatic lubrication of supplier Conveyor belt, motor control,
5.7 Automatic car washing machine,
5.8 Bottle label detection and process control application.

References Books:

1. Singh. B.P., "Microprocessors and Microcontrollers", Galcotia Publications (P) Ltd, First edition, New Delhi, 1997.
2. Parr, "Programmable Controllers: An Engineers Guide", 3rd Edition, Elsevier, Indian Reprint, 2013