Introduction to Industrial Controls Using PLCs – Complete Outline

1. Introduction to control systems – Definition and Types

2. Numbering system

    a. Decimal
    b. Binary
    c. Octal
    d. Hexadecimal

3. Logic and truth tables

    a. AND
    b. OR
    c. NOT

4. Control System Components

    a. Hardware components
        i. Input devices (Switches, sensors, barcode readers, scanners…)
        ii. Output devices (Pilot lights, Motors, etc.)
        iii. PLCs – Types and Capabilities
        iv. Communication (Ethernet, RS – 232)

    b. Software components
        i. Communication Software – RSLinx
        ii. Programming Languages – Types and Applications
        iii. HMI software – RSView32, Visual Basic

5. Allen Bradley PLCs
    a. PLC Types and capabilities
    b. SLC-500 Hardware Components
        1. Chassis
        2. Power supply
        3. Processor
        4. Input/Output cards
        5. Communication cable

6. Process of writing and executing ladder logic programs:

7. Introduction to ladder logic programming

8. Introduction to RSLogix500 software components

9. Addressing schemes for SLC 500

10. Ladder logic instruction set
    a. Basic ladder logic instructions – XIO, XIC, OTE, OTL, OTU, etc
    b. Internal relays
    c. Timers and counters
    d. Compare
    e. Data handling
    f. Subroutine

11. Editing, downloading and running ladder logic programs
    a. Inserting, deleting, and changing instructions in a rung
    b. Instruction mnemonics
    c. Downloading programs

12. Ladder logic program debugging
    a. Forcing Inputs/Outputs
    b. Stepping through ladder logic program
    c. Identifying compile time errors
    d. Using RSLogix500 Help

13. Ladder logic program documentation
    a. Symbols
    b. Instruction comments
    c. Rung comments