

ELECTRICAL

AC/DC Electrical (990-ACDC1)

AC/DC Voltage and Current Principles; Resistance, Inductance, and Capacitance; Circuit Protection, Breakers and Testers

Relay Control (990-EC1) and Relay Control Troubleshooting (990-EC1F)

Control Logic and Logic Elements, Control Circuit Design, Relay Operation and Applications, Time-Delay Relay Applications, Machine Modes of Operation

Motor Control (990-MC1) and Motor Control Troubleshooting (990-MC1F)

Control Ladder Logic and Relays; Troubleshooting, Reversing Motor Control and Automatic Input Devices; Interpreting Schematics and System Design

AC Motor Drives (990-DRV1) and AC Motor Drives Troubleshooting (990-DRV1F)

Introduction to AC Drives, 2 and 3 Wire Motor Control, DC Injection Braking and AC Drive Versus Line Starting, S-Curve Acceleration

ELECTRONICS

Electronic Sensors (990-SN1)

Electronic Sensor Advantages and Components; Inductive, Capacitive, Magnetic Reed Sensors; Sensor Measurement and Applications

Power and Control Electronics (990-ELE1)

Power Supply Filtration and Regulation, Discrete and Thermal Sensing Devices, Analog Sensing and Solid State Switching, Solid State Speed and Power Control

PLC - Allen-Bradley: (990-PAB53A), (990-PAB53AF), and (990-PABCL1F)

Panelview Plus Terminal Operation and Application Editing; PLC Program Operations and Programming; Program Control, Math and Data Instructions; Analog Inputs and Outputs

PLC - Siemens: (990-PS712) and (990-PS712F)

PLC Operation and Programming and HMI Panel Operation, Event Sequencing and HMI Application Editing, Reversing Constant-Speed Motor Control, Variable Speed Motor Control and Stepper Motor Control

FLUID POWER

Basic Hydraulics (990-BH1)

Hydraulic Power Systems and Circuits, Principles of Hydraulic - Pressure and Flow, Hydraulic Speed Control and Pressure Control Circuits, Pressure Reducing Valves and Troubleshooting

Pneumatics (990-PN1)

Pneumatic Power Systems and Circuits, Pressure and Flow and Directional Control Valves, Air Logic and Pneumatic Maintenance, Flow Control and Cam Valve Application

Pneumatics Troubleshooting (990-PTB1)

Pneumatic Troubleshooting Concepts, Air Preparation and Regulator Troubleshooting, Troubleshooting Vacuum and Pneumatic Systems, Machine Sequence Faults

MECHANICAL

Mechanical Drives (990-ME1M)

Shaft Speed, Torque and Power Measurement; Power Transmission Systems and Shaft Alignment; Introduction to V-Belt Drives and Chain Drives; Spur Gear Drives, Installation and Analysis

PROCESS CONTROL

Process Control – Level & Flow (990-PC1) and Process Control Troubleshooting – Level & Flow (990-PC1F)

Process Control Concepts, Instrument Tags, Piping and Instrumentation Diagrams, Loop Controllers, Final Control Elements, Level Measurement, Liquid Level Control, Methods of Automatic Control, Basic Flow Measurement and Control, Control Loop Performance

QUALITY ASSURANCE

Measurement Tools (990-MES1)

Tape Measurement, Measurement Conversion, Dial and Digital Caliper Application, Dimensional Gauging and Data Collection

Precision Gauging (990-PG1)

Basic Measurement and Conversion; Dial and Digital Caliper Application; Introduction to Gauging & Tolerance and Go, No-Go Gauging