COMPREHENSIVE MECHATRONICS CURRICULUM

Tabletop mechatronics covers basic PLC programming, motor control, pick and place feeding, indexing, sorting, and parts storage, as well as robot material handling.

PLC PROGRAMMING CURRICULUM FOR ALLEN-BRADLEY

Learn PLC programming and ladder logic using Allen-Bradley PLCs

Automation Operation
- Control System Concepts
- Mechatronics Safety
- Machine Operator Functions

PLC Operation
- PLC Programming Software
- PLC Program Execution

PLC Event Sequencing
- Continuous Cycle Logic
- Stop Functions
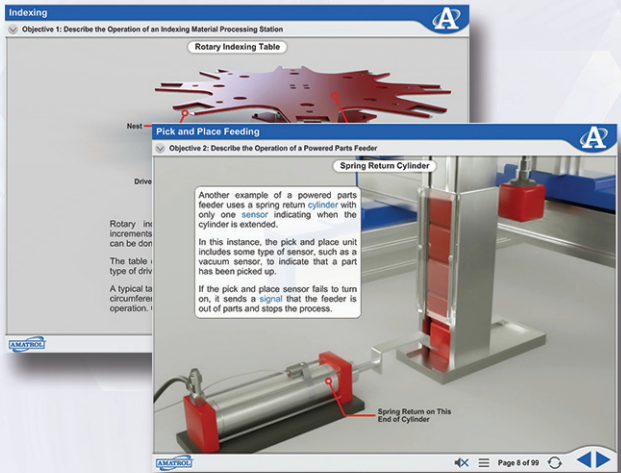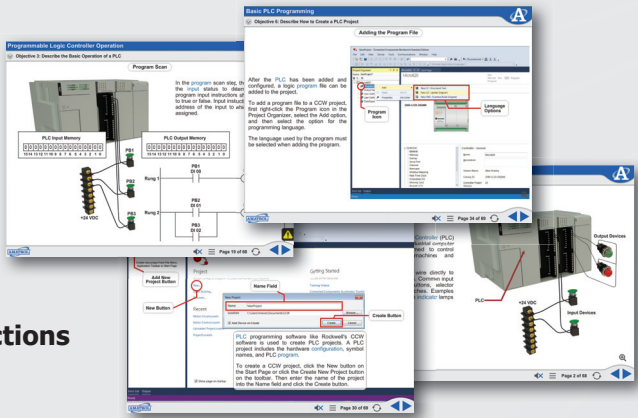- Time-Driven Sequencing

PLC Programming
- PLC Addressing
- Editing and Documentation

PLC Motor Control
- Controlling Discrete Inputs
- Seal-In Program Logic
- Safety Interlocks

PLC Timer and Counter Instructions
- On-Delay Timers
- Off-Delay and Retentive Timers
- Counter Instructions

MECHATRONIC STATION CURRICULUM

Each station includes push button start/stop, on/off switch, quick connect terminal with test points, and PLC.

INVENTORY FEEDING
Station 1 (87-TMS1)

Pick and Place Feeding
- Material Feeding Systems
- Powered Parts Feeder Operation
- Pick and Place Pneumatic Manipulation
- Electro-Pneumatic Valve Adjustment
- Actuator Speed Adjustment
- Vacuum Adjustment

SORTING AND DISTRIBUTION
Station 3 (87-TMS3)

Sorting and Parts Storage
- Sorting Module Operation
- Parts Storage Operation
- Flat Belt Conveyor Adjustment
- Thru-Beam Photoelectric Adjustment
- Sorting Module Sequencing
- Multiple Station Operation

INSPECTION AND INDEXING
Station 2 (87-TMS2)

Indexing
- Index Station Operation
- Adjustment of Fork, Homing, and Proximity Sensors
- Stepper Motor Programming
- Homing Sensor Adjustment
- Stepper Motor Index Table Sequencing
- Index Station Sequencing

SERVO ROBOTICS
Station 4 (87-TMS4)

Servo Robot Material Handling
- Robot Station Operation
- Robot Traverse Axis
- Robot Work Envelope
- Conditional Commands
- Robot Sequencing

TABLETOP MECHATRONICS

POWERFUL AUTOMATION TRAINING FOR PLC, ELECTRICAL, MECHANICAL AND PNEUMATIC APPLICATIONS!

EACH STATION IS A COMPLETE LEARNING SYSTEM WITH DIFFERENT TECHNOLOGIES!

World-Class Interactive Multimedia Curriculum

Amatrol's multimedia curriculum utilizes text with voiceovers, pictures, videos, stunning 3D animations, and interactive quizzes. For specifics on Mechatronics multimedia, see the back page of this brochure.

INVENTORY FEEDING
Station 1 (87-TMS1)

- Pick and place feeding
- Electro-pneumatic actuators
- Magnetic, reed, vacuum sensors
- 3-Axis pneumatic actuator system
- Vacuum pick-up
- Vacuum sensor
- Vacinator

INSPECTION AND INDEXING
Station 2 (87-TMS2)

- Multi-color stack light
- Retro-reflective, inductive, and fork sensors
- Stepper motor, index table, actuator

SERVO ROBOT STATION
Station 4 (87-TMS4)

Requires Amatrol's Pegasus Robot, Linear Traverse, and Flexible Workstation

Components integrate Tabletop Mechatronics and Pegasus Robot.

Components include:

- Feeder assembly with limit switch
- Parts storage chute
- Foot spacers

SORTING AND DISTRIBUTION
Station 3 (87-TMS3)

- Inductive, thru-beam, and retro-reflective sensors
- Electric solenoid actuators
- Flat belt conveyor with DC motor

Allen-Bradley PLCs

Heavy Duty Industrial Components for Long Life

Plug and Play Interchangeable Controllers with Single Quick Connect

Safe 24 VDC Power

Dual Function: Operator Station and I/O Simulator for PLC Training

WARNING Moving parts can crush and cut. Keep hands clear while operating machine.

CAUTION DO NOT MOVE AXIS 1 or AXIS 2 MANUALLY. Must Be Powered by Controller to Move.

87-TMS1   AMATROL

87-TMS2   AMATROL

87-TMS3   AMATROL

Modular - start with one station and add others as budget allows

Use stations individually or combine stations for a complete automation process!