PROFESSIONAL DEVELOPMENT

Pennsylvania College of Technology
A Penn State Affiliate

MECHATRONICS

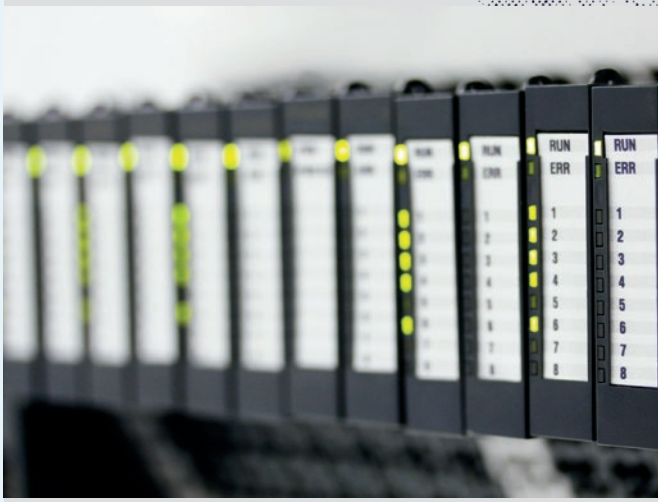
Mechatronics is the heart of modern manufacturing maintenance technology.

Technicians are increasingly required to not only understand, but have a mastery of diverse skills to troubleshoot, repair, install, and maintain production machinery.

Mechatronics combines the core manufacturing competencies in Mechanical Components, Industrial Electricity, Hydraulics/ Pneumatics, and Programmable Logic Controllers (PLCs). The mechatronics apprenticeship at Penn College is a complete yet customizable training curriculum.

The Mechatronics program is aligned to PMMI certification standards and trains workers to:

- Perform in an advanced manufacturing setting as a multi-skilled technician
- Employ preventative maintenance strategies to reduce repair cost and downtime
- Maintain advanced manufacturing machinery
- Understand and implement safe troubleshooting techniques
- Install, modify, and repair advanced manufacturing equipment



Program Features

- Attain up to four industry-recognized PMMI credentials
- Earn credits toward a Penn College mechatronics degree
- Train in any location via the iris platform
- Take advantage of a fully customizable training curriculum
- **4** Benefit from the comprehensive four-year registered apprenticeship program

MECHATRONICS

MECHANICAL COMPONENTS

- Industrial Safety
- Maintenance Principles and Record Keeping
- Maintenance Tools
- Piping Tools Connections and Fittings
- Fasteners
- Print Reading
- Power Transmission Principals
- Bearings, Seals, and Lubrication
- Shafts, Couplings, and Alignment
- Belts and Pulleys, Chains and Sprockets, Gears and Gearboxes
- Basic Troubleshooting Principles
- Mechanical Systems Troubleshooting
- Conveyor Systems

INDUSTRIAL ELECTRICITY

- Fundamentals of Electrical Safety
- Series and Parallel Circuits
- Combination Circuits
- Electrical Test and Measurement Equipment
- Alternating Current
- Electrical Components and Circuit Materials
- Transformers
- Motors, Generators, and Alternators
- Motor Controls
- Industrial Wiring Diagrams and Practices
- Electrical Troubleshooting
- Industrial Process Control

FLUID POWER

- Safety and Health - Proper Practices
- Fluid Power Field
- Fluid Power Systems
- Physical Principles
- Fluid Power Standards and Symbols
- Hydraulic Fluid - Energy Transmitting Medium
- Source of Hydraulic Power - Power Units and Pumps
- Fluid Storage and Distribution
- Actuators
- Controlling the System
- Accumulators - Pressure, Flow and Shock Control
- Conditioning System Fluid - Filtration and Temperature
- Applying Hydraulic Power
- Compressed Air - Energy Transmitting Medium
- Source of Pneumatic Power
- Conditioning and Distribution of Compressed Air
- Work Performers of Pneumatic System
- Controlling a Pneumatic System
- Applying Pneumatic Power
- Vacuums - Functions and Variations

PLC

- Operation of a PLC
- Memory Organization and Addressing
- Discrete I/O Interfacing
- Function and Use of Monitoring Devices
- Basic PLC Logic Instructions
- PLC Timer and Counter Instructions
- PLC Motor Control Applications
- PLC Sequencing Applications
- PLC Machine Application
- Troubleshooting PLC Based Systems
- Troubleshooting PLC Hardware and Software

MIDAS

Mechanical Components | Industrial Electricity | Fluid Power | Programmable Logic Controllers (PLCs) | MECHATRONICS APPRENTICESHIP MODULES

PC 1985.8 2/20

Penn College is approved by the US Department of Labor and the PA Department of Labor & Industry as a sponsor of apprenticeship programs.

pct.edu/workforce

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Penn College operates on a nondiscriminatory basis.