Virtual Skills Academy from Sandhills Community College offers a quick-start road map that allows individuals to build knowledge in preparation for a career in manufacturing. This online academy is intended to provide basic industrial maintenance understanding and bring awareness to opportunities available within the manufacturing industry. Courses are stacked to follow a job progression plan. Unlike many other training programs, the Virtual Skills Academy requires minimal preparation. It is efficient, effective training that has been developed with input from manufacturing experts.

**FLEXIBLE AND CONVENIENT**

Online classes are self-paced, and easy to access through smart phones, tablets, and computers. Each course provides pre- and post-assessments and the ability to review and learn through a variety of engaging activities.

**Virtual Skills Academy Provides:**

- Preset curriculum
- Engaging online classes
- Supplemental videos
- Pre- and post-training knowledge assessments
- Guidance from Sandhills Community College Staff
- Readiness for On-the-Job Training
- Preparation for entry-level jobs in manufacturing
- Demonstrated proof of aptitude
- Opportunity to showcase personal initiative

**CAREER PATHWAY FOR INDUSTRIAL MAINTENANCE TECHNICIAN**

- **MAINTENANCE FUNDAMENTALS**
- **ELECTRICAL PRODUCTION**
- **AUTOMATION TECHNICIAN**
## MAINTENANCE FUNDAMENTALS
- Math Fundamentals
- Math: Fractions and Decimals
- Units of Measurement
- Basics of Tolerance
- Blueprint Reading
- Basic Measurement
- Calibration Fundamentals
- Hole Standards and Inspection
- Thread Standards and Inspection
- Intro to OSHA
- Personal Protective Equipment
- Noise Reduction and Hearing Conservation
- Respiratory Safety
- Lockout/Tagout Procedures
- SDS and Hazard Communication
- Bloodborne Pathogens
- Walking and Working Surfaces
- Fire Safety and Prevention
- Flammable/Combustible Liquids
- Hand and Power Tool Safety
- Safety for Lifting Devices
- Powered Industrial Truck Safety
- Confined Spaces
- Introduction to Physical Properties
- Introduction to Mechanical Properties
- Introduction to Metals
- Ferrous Metals
- Lean Manufacturing Overview
- ISO 9001:2015 Review
- Approaches to Maintenance
- Total Productive Maintenance
- 5S Overview
- Electrical Units
- Safety for Electrical Work
- Introduction to Mechanical Systems
- Safety for Mechanical Work
- Forces of Machines

## ELECTRICAL PRODUCTION
- Control Panel Functions for the CNC Lathe
- Control Panel Functions for the CNC Mill
- Introduction to CNC Machines
- AC Fundamentals
- Conductor Selection
- DC Circuit Components
- Electrical Instruments
- Electrical Print Reading
- Introduction to Circuits
- Introduction to Magnetism
- NEC(R) Overview
- Parallel Circuit Calculations
- Series Circuit Calculations
- Troubleshooting
- Essentials of Heat Treatment of Steel
- Lubricant Fundamentals
- Control Devices
- Distribution Systems
- Introduction to Electric Motors
- Limit Switches and Proximity Sensors
- Logic and Line Diagrams
- Relays, Contactors, and Motor Starters
- Algebra Fundamentals
- Geometry: Circles and Polygons
- Geometry: Lines and Angles
- Geometry: Triangles
- Trigonometry: Sine, Cosine, Tangent
- Trigonometry: The Pythagorean Theorem
- Essentials of Communication
- Essentials of Leadership
- Overview of Soldering

## AUTOMATION TECHNICIAN
- Introduction to Fastener Threads
- Overview of Non-Threaded Fasteners
- Overview of Threaded Fasteners
- Threaded Fastener Selection
- Tools for Threaded Fasteners
- Understanding Torque
- Fittings for Fluid Systems
- Introduction to Fluid Conductors
- Introduction to Hydraulic Components
- Introduction to Pneumatic Components
- Safety for Hydraulics and Pneumatics
- The Forces of Fluid Power
- Bearing Applications
- Belt Drive Applications
- Clutch and Brake Applications
- Gear Applications
- Mechanical Power Variables
- Spring Applications
- Basic Programming for PLCS
- Basics of Ladder Logic
- Data Manipulation
- Hand-Held Programmers of PLCS
- Hardware for PLCS
- Introduction to PLCS
- Networking for PLCS
- Numbering Systems and Codes
- Overview of PLC Registers
- PID for PLCS
- PLC Counters and Timers
- PLC Inputs and Outputs
- PLC Installation Practices
- PLC Program Control Instructions
- Sequencer Instructions for PLCS
- Intro to Machine Rigging
- Rigging Equipment
- Rigging Inspection and Safety
- Rigging Mechanics
- Concepts of Robot Programming
- End Effectors
- Robot Axes
- Robot Components
- Robot Installations
- Robot Maintenance
- Robot Safety
- Robot Sensors
- Robot Troubleshooting
- Vision Systems