Mobile Mechatronics
Customized Training

Mechatronics is used in the development, maintenance, and design of high tech, efficient machines and products, and also used in automated processes for manufacturing and industrial tasks.

Defined as the combination of:

- Mechanics
- Electronics
- Computer technologies
- Sensors
- Robots
- Controls
- Hydraulics
- Pneumatics

CUSTOMIZED TRAINING:

Bringing Northwood Tech education and training to our communities.

Access to state-of-the-art equipment and hands-on training will enable you to gain valuable troubleshooting skills in theory, logic, and process. This experience will make you highly competitive in the job market upon completion.

Potential Careers

- Entry Level Electro-Mechanical Assembler
- Maintenance Technician
- Service Technician

Scan the QR-code for grant and contact information

Northwood Technical College

To learn more and schedule training, email
CustomizedTraining@NorthwoodTech.edu

NorthwoodTech.edu

Course and Description	Trainer and Competencies	Hours
Introduction to AC/DC	**DC/AC Electrical Training System**	24
Introduction to AC/DC - Introduces the concepts of AC and DC power and basic circuits. Using a multimeter, students learn about voltage, current, and resistance in both AC and DC circuits.	1. Investigate electrical properties 2. Demonstrate use of digital multimeter and oscilloscope 3. Construct electrical circuits using schematic drawings 4. Identify electrical and physical characteristics of transformers 5. Analyze electrical properties of transducers 6. Analyze electrical properties of parallel and series circuits 7. Analyze electrical properties of reactance	
Automation 1 - Control Logic	**Automation Training System**	24
Learn about electric motor control components such as switches, relays, starters, transformers; and safely mount and install motor and motor control components and perform related wiring and troubleshooting of motor control circuits.	1. Apply basic manual motor control principles 2. Apply manual motor control principles with overload protection 3. Apply control transformers to circuits 4. Apply basic control logic to circuits 5. Apply control relays and motor starters to circuits 6. Troubleshoot basic motor control circuits	
Automation 2 - Motor Control	**Automation Training System**	24
Learn more about electric motor control components such as sensors, timers and counters. Pre-requisite: Automation 1	1. Troubleshoot industrial control system circuits 2. Apply reversing motor control 3. Apply automatic input devices 4. Apply basic timer control 5. Apply electrical sensors	
PLC 1 - Introduction and Discrete I/O	**PLC Training System**	24
Basic programmable logic controller programming and troubleshooting. The PLC courses use Allen-Bradley PLC components and Rockwell Software.	1. Identify the components of a Programmable Logic Control (PLC) system 2. Create a project and download it to a PLC 3. Apply discrete I/O interfacing to a PLC	
PLC 2 - Timers, Counters, and Analog I/O	**PLC Training System**	24
Troubleshooting a PLC system, applying Event Sequencing, developing PLC applications, applying timer instructions and counter instructions. Pre-requisite: PLC 1	1. Apply PLC timers 2. Apply PLC counters 3. Apply analog I/O interfacing to a PLC	
PLC 3 - Math Instructions and Troubleshooting	**PLC Training System**	24
Application, troubleshooting, and implementation of program control, math and data move instructions, analog I/O modules, and producing a PLC program from specification. Pre-requisite: PLC 2	1. Apply PLC math instructions 2. Apply PLC compare instructions 3. Modify existing PLC logic to implement additional functionality 4. Demonstrate scan control and troubleshooting techniques	
AC Drives	**VFD Training System**	24
This course provides the opportunity for the student to develop the knowledge, skills, process, and understanding of the power and control circuitry of AC drives and application and troubleshooting of these industrial AC drives (VFDs) to AC induction motors. This course concentrates on the AB PowerFlex 525 Variable Speed Drive. Pre-requisite: Automation 2	1. Demonstrate the application of timing circuits 2. Examine device characteristics of Power Transistors 3. Examine device characteristics of Thyristors 4. Investigate device characteristic of triggering devices 5. Demonstrate triggering circuits for power control circuitry	
Basic Pneumatics	**Pneumatics Training System**	24
Learn what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.	1. Implement basic pneumatic cylinder circuits and connections 2. Implement basic pneumatic actuator circuits 3. Apply Pascal's Law and Boyles Law to pneumatic systems 4. Implement air flow control and measurement to control speed	