



BERKSHIRE LOCAL SCHOOL DISTRICT

**Mechanical Technician Pathway –
Program Introduction Sophomore,
Year 1 Junior, and Year 2 Senior**



Curriculum & Instructional Program Model Overview

Program Location

The Berkshire Local School District Mechanical Technician Program is located at the Berkshire Workforce Development Campus, in partnership with Preston Auto Superstore, at the former Geauga ODOT facility at 13595 W Center St, Burton, OH 44021.

This partnership represents an exemplary model of industry–school district collaboration, designed to strengthen the local workforce, increase regional employment, and help students secure high-quality jobs within their own community.

Transportation

Partner Districts are responsible for transportation of students to and from the Berkshire Workforce Development Campus.

Introduction

The Mechanical Technician Pathway begins with a **Sophomore introductory course, Introduction to Applied Tools & Measurement Systems (Snap-on Certification Course)**, where students build foundational safety, tool identification, precision measurement, and diagnostic skills while earning three nationally recognized Snap-on certifications and 7 IRC points. This course serves as the entry point into the pathway and equips students with the essential mechanical and technical fluency needed for advanced coursework.

In **Year 1 (Juniors)**, students deepen their foundational knowledge through the **Ford Automotive Career Exploration (ACE)** curriculum and the required **Industry 4.0 SACA Basic and Advanced elective completing the SACA Basic Operations & SACA Advanced Operations Credentials**. They engage in hands-on training in engine systems, brakes, steering, suspension, electrical circuits, sensors, diagnostics, and automation concepts—establishing a strong base in both automotive systems and Industry 4.0 technologies.

In **Year 2 (Seniors)**, students advance into high-level technical application through **Ford ACE Advanced Modules**, targeted **SACA Electrical Systems 1, Mechanical Power Systems 1 –Hydraulics, and Pneumatic Systems 1** coursework, and extensive **work-based learning** with certified technicians at Preston Auto Group. Seniors apply mechanical, electrical, pneumatic, and hydraulic principles in live service environments while also completing a **12-point IT Pre-Apprenticeship** through the Greater Cleveland Partnership and the Ohio Department of Labor. Graduates complete the program with industry certifications, verified work-based learning hours, and a strong technical portfolio that supports pre-apprenticeship placement, postsecondary training, or direct entry into advanced manufacturing and automotive careers.

High-Wage Careers Start Here

The **Mechanical Technician pathway** leads to in-demand careers with strong earning potential:

- **Automotive Technicians & Mechanics:**
Start around \$28K → earn \$45K+ → top earners reach \$79K
- **Automotive Engineering Technicians:**
Average \$65K → top earners near \$90K
- **Maintenance & Repair Workers:**
Average \$50K → advance to \$75K+

With hands-on training, industry credentials, and real-world experience, students graduate ready for **high-paying jobs, advancement, or continued education** in engineering and skilled trades.



Berkshire Industry Recognized Credentials

Berkshire Local School District's Industry Recognized Credentials (IRCs)

Berkshire Local School District offers a comprehensive set of **Industry-Recognized Credentials (IRCs)** that prepare students for high-demand careers in advanced manufacturing, mechanical technology, agribusiness, information technology, and related technical fields. These credentials allow students to earn points toward Ohio's graduation requirements while building real-world skills valued by employers and postsecondary partners.

Akron University Articulation (in development)

Berkshire is actively collaborating with The University of Akron to establish an articulation agreement that will provide students with the opportunity to earn postsecondary credit for completing approved coursework and certifications within our Mechanical Technology and Industry 4.0 pathways. This partnership will create a seamless transition from high school to college-level study and strengthen career and technical education opportunities for Berkshire students.

BELL SCHEDULE

Berkshire High School Mechanical Technician Program 2026-2027

- Periods range in length from 50 - 51 minutes. There is a three minute transition in between each class.
- The Mechanical Technician Pathway begins with a sophomore introductory course where students build foundational mechanical and diagnostic skills while earning Snap-on certifications and 7 IRC points. In Year 1, students advance through the Ford ACE curriculum and Industry 4.0 SACA Basic and Advanced 6 IRC points to develop strong technical and automotive systems knowledge. Year 2 provides advanced Ford ACE modules, SACA Electrical Systems 1, Pneumatic Systems 1, and Mechanical Power Systems 1–Hydraulics, and extensive work-based learning with Preston Auto Group, culminating in industry credentials and a 12-point IT Pre-Apprenticeship with Customer Service Experience.

Bell Schedule (Monday–Friday)

1st Period — 8:00 - 8:50 a.m. (50 minutes)

Industry 4.0: SACA Basic and Advanced–Automation Skills for Juniors

2nd Period — 8:53 - 9:43 a.m. (50 minutes)

3rd Period — 9:46 - 10:36 a.m. (50 minutes)

4th Period — 10:39 - 11:29 a.m. (50 minutes)

Announcements & Advisory — 11:32 - 11:55 a.m. (23 minutes)

5th Period — 11:58 a.m. - 12:49 p.m. (51 minutes)

Introduction to Applied Tools & Measurement Systems (Snap-on Certification Course) for Sophomores

Lunch — 12:52 - 1:22 p.m.

6th Period — 1:25 - 2:16 p.m. (51 minutes)

7th Period — 2:19 - 3:10 p.m. (51 minutes)



Year 1 (Juniors) <i>Foundational Training</i>	Year 2 (Seniors) <i>Advanced Application and Work Based Learning</i>
1st Period — 8:00 - 8:50 a.m. (50 minutes) Industry 4.0 SACA @Main Campus (Berkshire ONLY)	4 Periods @BWDC — 8:00 a.m. - 8:30 a.m. Classroom Instruction w/ SACA Electrical Systems 1, Pneumatic Systems 1, and Mechanical Power Systems 1–Hydraulics
2nd and 3rd Period — 8:53-9:43 — Classroom Instruction w/Ford ACE Curriculum 9:46-10:36 — Hands On Experience	8:30 a.m. -11:29 a.m. 3 Hours Work-Based Learning WBL partnered with a 1:1 Technician
Model: 50% ACE Classroom Instruction / 50% Hands On Experience	Model: 15% SACA Credentials / 85% Work Based Learning
<i>* Berkshire Juniors who entered the pathway as Sophomores will engage in team-based service simulations (e.g., full brake repair in two-week cycles).</i>	

Berkshire Local School District – Mechanical Technician Pathway Year 1

Curriculum & Instructional Program Model Overview

Foundational Training and Ford ACE Curriculum and Required Elective for First Year Mechanical Technician Program

Program Purpose

The Mechanical Technology Pathway introduces students to the core concepts of automotive systems, mechanical technology, and emerging Industry 4.0 applications.

Through the **Ford Automotive Career Exploration (ACE) curriculum**—developed in collaboration with Ford Motor Company and its nationwide dealer network—students gain access to professional training modules used by working technicians in Ford and Lincoln service centers.

This program builds technical literacy, problem-solving ability, and workplace readiness, emphasizing the foundational competencies that underlie the automotive and advanced manufacturing industries. Students are introduced to critical systems such as engines, brakes, steering, suspension, and electrical circuits while developing essential skills in precision measurement, tool use, and digital diagnostics.

By the end of Year 1, students emerge prepared to enter the advanced **Advanced Application and Work-Based Learning Year 2 program**, equipped with both the mindset and skill set necessary to succeed in a high-demand technical field.

Year 1 Curriculum Focus – Ford ACE Foundation

Objective:

Establish core technical and professional competencies through the Ford ACE curriculum, hands-on mechanical exploration, and exposure to real-world dealership standards. Students will gain a clear understanding of modern vehicle systems, maintenance procedures, and service communication—all aligned with ASE Education Foundation standards and Ohio’s Industry-Recognized Credentials framework.



Core Components

Ford ACE Curriculum

Students complete the Ford Automotive Career Exploration (ACE) modules, which provide a structured introduction to Ford's online learning platform and service documentation systems.

Each ACE course combines video instruction, technical reading, and interactive simulations that mirror the professional technician experience.

Major Areas of Study:

- **Automotive Fundamentals & Safety:**
Students begin with Ford's Service Technician Basics series, learning the foundational principles of vehicle operation, shop organization, and proper use of personal protective equipment (PPE).
- **Tools and Equipment:**
Introduction to standard and specialized automotive tools, torque application, fastener identification, precision measurement, and diagnostic instruments such as digital multimeters and scan tools.
- **Service Publications & Digital Documentation:**
Students learn to navigate Ford's Service Information System (OASIS), Workshop Manuals, and Technical Service Bulletins (TSBs)—the same digital platforms used by Ford-certified technicians worldwide.
- **Engine Fundamentals:**
Lessons cover internal combustion principles, lubrication systems, engine cooling, and performance diagnostics. Hands-on projects include engine teardown and component identification.
- **Electrical Systems & Battery Diagnostics:**
Students explore the basics of electricity, circuit protection, battery maintenance, and voltage drop testing. They perform practical exercises using Ford's digital diagnostic procedures.
- **Brake Systems & Hydraulics:**
Coursework introduces brake component identification, hydraulic theory, and common service procedures, emphasizing safety and precision.
- **Suspension, Steering & Alignment Concepts:**
Students examine system functions and alignment geometry, preparing for real-world service situations.
- **Professionalism & Dealership Operations:**
Through ACE's Service Advisor Communication modules, students learn the importance of customer relations, accurate documentation, and ethical standards within dealership operations.

By integrating these modules with shop-based applications, Berkshire ensures that students build both hands-on ability and digital fluency, mirroring industry expectations.



Required Elective for First Year Mechanical Technician Program

Industry 4.0: SACA Basic and Advanced—Automation Skills for Industry Course Description

Students are introduced to **Smart Automation Certification Alliance (SACA)** concepts through demonstrations, discussions, and cross-disciplinary activities.

They examine how sensors, automation, and data collection are transforming automotive manufacturing and maintenance.

Students experiment with simulations that connect mechanical principles to digital control systems—preparing them for the Industry 4.0 SACA Basic and Advanced certifications.

Topics include:

- The role of automation in vehicle assembly and diagnostics
- Data acquisition and analysis from automotive sensors
- Introduction to programmable logic controls (PLCs) and electrical troubleshooting concepts

This early exposure builds a conceptual bridge between mechanical and mechatronic systems, helping students understand the **Industry 4.0 ecosystem** shaping the modern automotive workforce.

Industry Readiness Modules

In addition to ACE coursework, students participate in structured lab and project experiences aligned to professional readiness standards:

- **Precision Measurement & Torque Control** – Using micrometers, calipers, and torque wrenches to meet specification tolerances.
- **Shop Procedures & Organization** – Managing parts, maintaining cleanliness, and implementing 5S shop organization systems.
- **Customer Communication & Documentation** – Practicing written and verbal communication used in service orders and reports.
- **Diagnostic Thinking** – Applying systematic approaches to problem-solving and interpreting service codes.

These modules are interwoven with ACE digital lessons, ensuring each student develops the professionalism, accountability, and technical confidence required for Year 2 advancement.

Foundational Work-Based Learning

Students gain early exposure to authentic work environments through both simulation and community engagement.

Learning Experiences Include:

- **Industry Visits & Guest Speakers:**
Visits from Ohio Machinery Company and Ohio Technical College provide first-hand exposure to power systems and related technician career pathways.



- Job Shadowing & Demonstration Days:**
 Students observe professional technicians performing diagnostics and learn about workplace safety, teamwork, and workflow efficiency.
- Simulated Service Projects:**
 Classroom projects replicate dealership operations, such as performing multi-point inspections, oil change simulations, and tire rotations while completing digital service tickets.

These activities provide a bridge between classroom learning and the expectations of a real automotive workplace.

Instructional Model

YEARS	STUDENT LEVEL	CLASSROOM INSTRUCTION	HANDS-ON EXPERIENCE	PROGRAM FOCUS
Introduction to Pathway (Sophomore) Introduction to Applied Tools & Measurement Systems (Snap-on Certification Course)	Introductory	50%	50%	Snap-on Hand Tools: Tool Identification & Safety, Snap-on Precision Measuring Instruments: Torque, and Snap-on Diagnostic Tools: Digital Multimeter (DMM) Certifications–7 Industry Recognized Credentials IRCs Points.
YEAR 1 (JUNIORS) Industry 4.0: SACA Basic and Advanced–Automation Skills	Required Elective	50%	50%	Foundational Automation Skills for Industry–SACA Basic and Advanced
YEAR 1 (JUNIORS)	Foundational	50%	50%	Ford ACE curriculum, safety, tool use, and core systems
YEAR 2 (SENIORS)	Advanced	15%	85% (1:1 Technician Mentorship)	SACA Integration and Work-Based Learning



Work-Based Learning Model

On-Site Learning:

Students participate in guided tours and shadowing experiences at partner facilities such as Ohio Machinery Company, Preston Auto Group, and other regional dealerships and trucking companies. These experiences align directly with ACE topics, reinforcing how theory applies to live systems and technician workflow.

Team-Based Projects:

In the school's lab, students complete progressive repair simulations, from inspection checklists and fluid service to wheel and brake system repairs. Team roles mimic real dealership responsibilities, emphasizing safety, accountability, and communication.

Industry Engagement:

Local industry professionals collaborate with Berkshire instructors to mentor students, share emerging technology trends, and provide insights into technician career ladders.

Transition and Recruitment Plan

- The **Ford ACE Year 1** program serves as the entry point for Berkshire's Mechanical Technology Pathway, beginning in the junior year.
- Successful students transition into **Year 2 [SACA Electrical Systems 1](#) , [Pneumatic Systems I](#) , [Mechanical Power Systems 1 –Hydraulics](#)** where they deepen technical specialization.
- Partner districts are invited to enroll students in the Year 1 sequence or utilize a **Summer Bridge Module with a hands on Problem Based Learning Paid Work-Based Learning experience** to accelerate completion of the ACE foundational curriculum.
- Each student maintains a cumulative digital portfolio tracking ACE module completion, lab assessments, and technical reflections.

Outcome

Upon completion of Year 1, Berkshire students will have:

- Completed Ford ACE foundational modules in safety, maintenance, and electrical systems
- Developed mechanical literacy and foundational diagnostic reasoning
- Gained proficiency with tools, measurement, and digital service documentation
- Built professional habits—teamwork, communication, and accountability
- Demonstrated awareness of Industry 4.0 and SACA principles that connect mechanical systems to smart technologies for all Students *SACA Basic and Advanced credentials from Industry 4.0 SACA course—required elective for Berkshire students
- Prepared for Year 2 advancement into formal Work-Based Learning placement with [SACA Electrical Systems 1](#) , [Pneumatic Systems I](#) , and [Mechanical Power Systems 1 –Hydraulics](#)
- Students complete a Pre-Apprenticeship in Information Technology (IT) through a partnership with the Greater Cleveland Partnership and the Ohio Department of Labor, earning a 12-point Industry-Recognized Credential toward graduation. As part of this experience, students



apply IT competencies directly within the automotive environment—working in customer service, digital communications, and service operations at Ford dealerships, where they use video tools, electronic service systems, and tablet-based diagnostic platforms to support real customers and technicians. This integrated IT-and-automotive experience strengthens students’ technical, communication, and workplace readiness skills essential for modern mechanical and service careers.

Berkshire Local Schools – Mechanical Technician Pathway Year 2

Advanced Application and Work-Based Learning

Curriculum & Instructional Program Model Overview

Program Purpose

The Mechanical Technician Pathway prepares students for careers in automotive technology, advanced manufacturing, industrial maintenance, and related mechanical trades through an industry-aligned curriculum, stackable certifications, and extensive hands-on experience. By the end of the two-year sequence, students complete Ford ACE modules, build SACA (Smart Automation Certification Alliance) competencies, and participate in substantial work-based learning with industry partner Preston Auto Superstore

Year 2 Curriculum Focus – Ford STARS & SACA Integration

Objective: Deepen technical, mechanical, electrical, and professional skills through advanced coursework paired with authentic workplace learning.

Core Components

Ford ACE Advanced Curriculum

In Year 2, students continue progressing through Ford ACE Advanced Modules, expanding their understanding of automotive systems, diagnostics, emerging technologies, and real-world vehicle service procedures aligned with industry standards. These modules prepare students for dealership-level expectations and advanced technical training.

SACA Modules (Smart Automation Certification Alliance)

Year 2 emphasizes advanced Industry 4.0 skill development through targeted SACA modules:

- **SACA Electrical Systems 1 (4 IRC points)**
Wiring, circuits, sensors, signal flow, troubleshooting, and electrical safety principles.
- **SACA Pneumatic Systems 1 (4 IRC points)**
Compressed air systems, pneumatic logic, actuators, valves, and hands-on troubleshooting.
- **SACA Mechanical Power Systems 1–Hydraulics (4 points)**
Fluid power systems, hydraulic schematics, pumps, cylinders, control valves, and diagnostics.



These modules bridge mechanical, electrical, and fluid power skills—essential for both automotive and advanced manufacturing careers—and deepen students’ integration of **Industry 4.0 technologies**.

Students demonstrating advanced readiness may complete additional SACA modules or Ford STARS badges independently to accelerate their skill development and credential attainment.

Pre-Apprenticeship IRC (12-Point Credential)

Students complete a Pre-Apprenticeship in Information Technology (IT) through a partnership with the Greater Cleveland Partnership and the Ohio Department of Labor, earning a 12-point Industry-Recognized Credential toward graduation. As part of this experience, students apply IT

Instructional Model

YEARS	STUDENT LEVEL	CLASSROOM INSTRUCTION	HANDS-ON EXPERIENCE	PROGRAM FOCUS
Introduction to Pathway (Sophomore) <u>Introduction to Applied Tools & Measurement Systems (Snap-on Certification Course)</u>	Introductory	50%	50%	Snap-on Hand Tools: Tool Identification & Safety, Snap-on Precision Measuring Instruments: Torque, and Snap-on Diagnostic Tools: Digital Multimeter (DMM) Certifications–7 Industry Recognized Credentials IRCs Points.
YEAR 1 (JUNIORS) <u>Industry 4.0: SACA Basic and Advanced–Automation Skills</u>	Required Elective	50%	50%	Foundational Automation Skills for Industry–SACA Basic and Advanced
YEAR 1 (JUNIORS)	Foundational	50%	50%	Ford ACE curriculum, safety, tool use, and core systems
YEAR 2 (SENIORS)	Advanced	15%	85% (1:1 Technician Mentorship)	SACA Integration and Work-Based Learning



competencies directly within the automotive environment—working in customer service, digital communications, and service operations at Ford dealerships, where they use video tools, electronic service systems, and tablet-based diagnostic platforms to support real customers and technicians. This integrated IT-and-automotive experience strengthens students' technical, communication, and workplace readiness skills essential for modern mechanical and service careers.

Work-Based Learning Model

- On-Site Training: Students rotate through dealership departments (Service, Parts, Customer Service).
- Mentorship: 1:1 pairing with certified technicians for real-world skill application.
- Performance-Based Projects: Students complete team-based service simulations (e.g., full brake repair in two-week cycles).
- IT and Customer Service Integration: Students apply digital tools (video, iPad, communication systems) to build customer engagement and workplace technology skills earning them a 12 point Industry Recognized Credential (IRC) pre-apprenticeship with Greater Cleveland Partnership
- Optional Finance Component: Students interested in business operations may explore dealership finance and loan processing fundamentals.

Transition and Recruitment Plan

- Beginning in 2026–27, the program will operate as a two-year sequence:
 - **Year 1: Juniors**
 - **Year 2: Seniors**
- **Sophomores** will no longer enroll directly in the Mechanical Technician Pathway; however, Sophomores will continue to take the [Introduction to Applied Tools & Measurement Systems \(Snap-on Certification Course\)](#) as their entry point and an introduction into the pathway.
- Current Sophomores interested in continuing will participate in simulated project teams during the transition year to bridge learning and experience. Example: Students complete team-based service simulations (e.g., full brake repair in two-week cycles).
- New Entrants (Incoming Seniors Only): Must complete [Year 1 Ford ACE curriculum](#) before advancing to Year 2 (will be scheduled with Year 1 cohort for foundational training) or Seniors can participate in the [Summer Intensive Used Car Production Challenge](#) where they will complete all [Year 1 Ford ACE Curriculum](#).

Outcome

Upon completion, students will graduate with:

- Ford ACE Certifications
- Foundational SACA credentials—SACA Basic and Advanced (Berkshire Students Main Campus)
- [SACA Electrical Systems 1](#), [Mechanical Power Systems 1 –Hydraulics](#) and [Pneumatic Systems I](#) (All students)



- Pre-apprenticeship in Information Technology (IT) in collaboration with Greater Cleveland Partnership and Ohio Department of Labor and a 12 point Industry Recognized Credential
- Verified work-based learning hours
- A strong portfolio of mechanical, electrical, and customer service skills to support pre-apprenticeship placement and industry employment.

Program Summary

The Berkshire Mechanical Technician Pathway provides students with a rigorous, progressive, and hands-on learning experience that spans foundational mechanical skills, Industry 4.0 automation principles, advanced automotive diagnostics, and real-world technician training. Beginning with a sophomore Snap-on certification course and advancing through Ford ACE, [SACA Electrical Systems 1](#), [Pneumatic Systems I](#), and [Mechanical Power Systems 1 – Hydraulics](#), as well as work-based learning with certified industry partners, students graduate with the technical expertise, professional skills, and stackable credentials needed for high-demand careers in automotive technology, advanced manufacturing, and related industrial fields. With the addition of a 12-point IT Pre-Apprenticeship and verified work-based learning hours, Berkshire students are exceptionally well prepared for pre-apprenticeships, postsecondary training, and immediate entry into the regional workforce.

For questions, please contact:

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