

# Horizon Center for Transportation Technology



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Gateway Technical College is an equal opportunity/access/employer and educator.  
Ofrece igualdad en oportunidades/acceso/empleo y educación.



Gateway Technical College **Horizon Center**

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## WELCOME

*“The Horizon Center is a world-class facility with unique conferencing capabilities, a technology infrastructure that is completely wireless and interactive with the World Wide Web, and an educational environment that is truly a model for the future. Students experiencing the programs are issued a laptop computer by which all curriculum, team projects, and instructor interaction are managed. Many have called this the college's first paperless educational program.”*

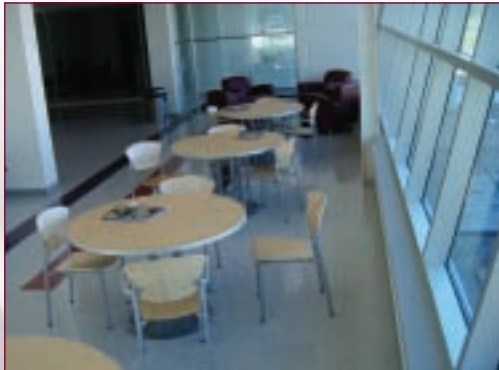


**Bryan D. Albrecht**  
President  
Gateway Technical College



## Lobby

The lobby area provides a space for students and guests to relax, chat, or work on their homework. Each student leases a laptop so they can tap into the network system and work from any part of the building.



Technology is everywhere in this building, even if it can't be readily seen. Instructors use it in many ways to deliver a highly qualified, diversified education at the Horizon Center.

Students can use wireless laptop computers in any part of the building to work their way through lessons, answer questions on simulator modules, or do their homework. Instructors can propose questions during a multimedia presentation – and have students answer within seconds on hand-held remotes.

## Conference Room

Local businesses can use the conference room in the Horizon Center for such things as professional development seminars, conferences and meetings.

The rates for the room are:

- **Executive Training Room**  
\$300 for up to 3 hours - \$50 each additional hour
- **Classrooms**  
\$150 for up to 3 hours - \$25 for each additional hour
- **Custodial fees** - for setup, cleaning, and special requests
- **Supplies** (including coffee, flip charts) Actual Cost
- **Videoconference Service**  
\$100 per hour (site-to-site connections) plus room rental rates and technical support  
For multiple site connections, please call for current rates.

### The room offers:

- videoconferencing
- seating capacity of 36
- the capability to bring a car into the room for demonstrations

**Call to reserve rooms**  
**262.564.3900**

# The Green Wall



Gateway Technical College is committed to “green” practices. This “green wall” celebrates Gateway’s commitment to preserving our environment, which includes environmental awareness, conservation, and air quality.

A touch screen leads visitors through information about Gateway’s efforts to reduce negative impact on the environment through energy conservation and the materials and equipment it uses. Another segment highlights environmental advancements in the transportation industry.

The Siemens unit shows carbon monoxide, carbon dioxide, and lighting levels throughout the building. High-performance buildings such as the Horizon Center are efficient, cost-effective, durable, and healthy for students, staff, and guests.

Video and audio hookups in each car bay allow the action going on there to be videotaped and broadcast live to a classroom, where an instructor can communicate with the student working on a car in the bay while talking to students in the classroom. The action can also be broadcast on a two-story screen in the bay area – or the screen can be used to rebroadcast a training video so students can watch it and learn while they are doing the actual work on the car.

Computers and a card swipe system monitor the use of high-end Snap-on tools, ensuring the tools remain in the building where they can benefit students.

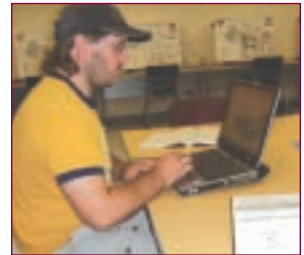
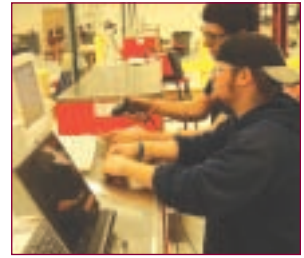
The Center also houses Gateway Technical College’s aeronautics program, featuring new, top-of-the-line pilot-training equipment, excellent instruction, and a simulator with the latest instrumentation technology. The program at the Horizon Center offers something few others do – 75 to 95 twin-engine flight hours. The standard is 15 to 25 hours, which means that Gateway students will be that much closer to the experience level sought by employers.

Technology enables Horizon Center students to receive top-notch instruction. It also allows instructors to set up a three-tier framework for student learning:

- Lecture – learn through the lecture
- Simulation – learn through the trainer
- Hands-on – apply what they’ve learned

Students progress from the theoretical to the actual, from lecture and taking notes to doing the actual work.

Most importantly, instructors teach the critical thinking processes. Teaching a mix of equipment know-how and critical thinking gives students the foundation to learn – and excel – with any vehicle or equipment type no matter where they go.



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## Fundamentals Room

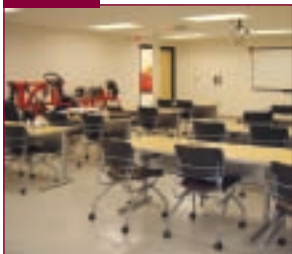


This classroom is the portal classroom for the program. It is in this room where first-year students learn the hard skills and basics it will take for them to succeed in the remainder of the program. Like all other areas, students use their laptops to learn, along with books and tools, the basics of a mechanic or service technician.

Basic machines – drill press, grinder – are located in this classroom.

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## Smart Classrooms

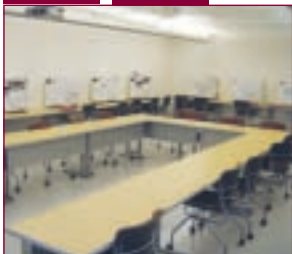


Three classrooms in the Horizon Center combine new technology with old-fashioned hands-on learning.

Two first-floor classrooms offer a hands-on opportunity to learn from vehicle parts and systems put onto stands and rolled into the classroom. The second-floor classroom combines the smart classroom with the DiGiAC lab. All could be considered smart classrooms, where all the technology in the building merges into one focused mode of educational delivery – the laptop computers which instructors use in the lectures, students use on the machines, and the video cameras.

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The smart classroom opens doors for instructors to use innovative ways to reach their students. They can use a camera in the auto bay area, where the work a student is performing can be transmitted back into the classroom. They use computers to work their way through multimedia lesson plans, or bring in more traditional videos and instructional media. They can also use the tried-and-true method of passing around parts and meters to students.

Instructors can propose questions during a multimedia presentation as part of their lecture – and have students answer within seconds on hand-held remotes called a Qwizdom. The handheld device gives the instructor a good indication nearly immediately whether the class is following the instructions – and whether they need to return to that topic for more work. For instance, the instructor could pose a question about a specific metering system or diagnostic device and ask students to answer it. They type in the answer on the device and the computer tallies the numbers in real time. “They can also use the tried-and-true method of passing around parts and meters to students”, or use a projector to show a car part on a screen – sometimes magnifying it many times over.

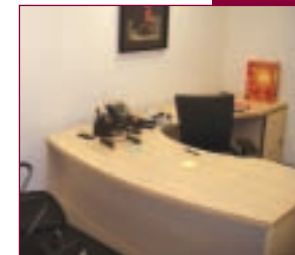
Other parts of a car can be wheeled in on stands from the nearby bays into first floor classrooms for students to get a greater understanding of how they work.

## Workforce and Economic Development Office

This space focuses on the industry, and provides a professional setting for students and the many business partners at the Horizon Center.

- Job interviews with students can be conducted.
- National certification tests can be taken.
- Industry can use this office to conduct its business on site, whether assisting with the Horizon Center programs, certification process, research, or any other related business.

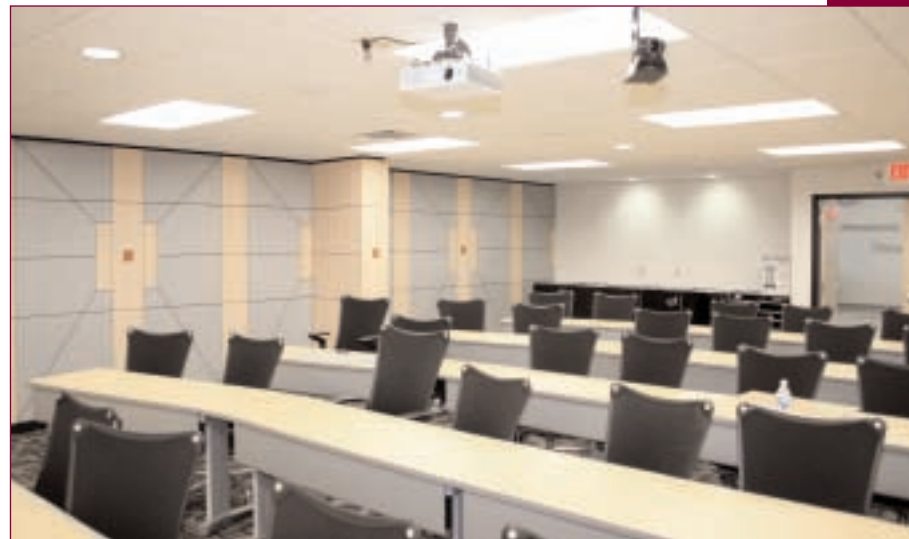
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## Community Idea Center

This room exemplifies the private-public mix of the center. It is a state-of-the-art video and conferencing room private business will be able to use for professional development events and speakers. In addition to benefiting community businesses, it will also benefit Horizon students who will be allowed to sit in and hear speakers talk about what's going on in the auto industry today.

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## Airplane Simulator

This is a new, cutting edge simulation system that will train students in the newest planes and simulations possible.

The simulation unit prepare students to enter a plane and begin to fly. The simulators will help cut down on flight time – a big expense – and provide students with even more training prior to getting into the air.

The simulation unit allows instructors to teach ground reference and other VFR maneuvers in a flight training device. The unit's database offers airport, landmarks, weather, and other factors to help teach real flight simulation.

The following pilot certifications can use the simulator program:

- Private pilots
- Instrument pilots
- Multiengine pilots
- Commercial pilots
- Flight instructor pilots



## Brake System

A functioning automotive brake system, specifically a Ford Focus, gives students a close-up how all brakes of a vehicle work, including parking, front disc, and rear drum brakes. Instructors can use this station for a number of different learning opportunities.



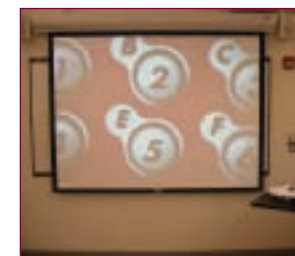
## Front Vehicle Suspension

The front vehicle suspension, specifically a 2007 Ford Focus, plus a fully functional power steering system, gives students an up-close look at what happens when wheels go up and down, simulating their action on a road.



## Digital Presenter

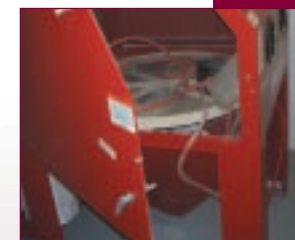
Instructors can put a vehicle part or a tool on this digital presenter and then display it on the screen in front of the classroom.



## Parts Washing

This is where students can wash or sandblast a number of vehicle parts.

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## DiGiAC LABS

There are two DiGiAC labs in the building, one each on the first and second floor. Lab modules represent part two of the teaching process. Students use the equipment after they have worked their way through the lectures and have done some initial work on hand-held equipment and gauges.

The lab benefits students and teachers in a number of ways including the ability to immediately take what is learned in class and apply it to a simulated shop environment.

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Students use their laptop computers by setting up next to the modules and working their way through a number of instructions about the indicated vehicle system. After the initial series of instructions - which include prompting students through the lesson - the modules then question students on that specific part of the system. Instructors can customize the lesson by determining which questions they would like students to answer to ensure that it enhances what is learned in their lectures.

If students incorrectly answer any question, they can then return to an earlier part of the module lesson to firm up their knowledge. Once they master those concepts, the computer program allows the student to move on.

Instructors or the computer program then may set up a series of "bugs" in the system to see if students can troubleshoot or diagnose the system.

## Lifts

There are 13 lifts in the bay area, including two for alignment. Capacity exists for a video camera to be plugged in and the work broadcast back into a classroom or on a large screen within the bay area. This heavy duty 4-post closed front lift and can lift up to 12,000 pounds. The unit also has built-in air connections for air tools and roller jacks. These alignment lifts are paired with low-friction stainless steel front turnplates for the ultimate in shop durability and productivity.



## Tool Box

Snap-on Level 5 (TM) Tool Control System. Every tool has a system for control designed within and can be modified to fit Gateway's needs. This badge-activated system utilizes a range of alarms and audio prompts to control access to tools, and registers when boxes are being used and by whom. The system provides a digital "paper trail" for the highest levels of accountability and trackability.



## Diagnostic

The Modis diagnostic tool represents another high-quality feature of the Horizon Center. The Modis, a diagnostics analyzer used in the vehicle industry, is used at different stages of the learning process. Using Snap-on tools and working through Snap-on approved curriculum, students become Certified Snap-on Diagnostics technicians. Gateway Technical College is the first to offer this certification training in the nation. Snap-



The bay area of the Horizon Center is where technology and hands-on training meet. Students take what they've learned in the classroom, in their homework, on the simulators and working with various other tools to apply their knowledge to actual vehicles.

And the learning doesn't stop just because there are cars in the room - instructors continue to use technology, as well as hands-on teaching, to employ different methods to ensure students learn.

So, don't let the parts, hand tools, and smell of oil fool you - technology helps deliver instruction and learning in this area of the building.

The alignment rack uses state-of-the-art three-dimensional technology to help students diagnose and then work on vehicles in that bay. Bays are equipped with video and audio outlets that allow work being done to be filmed and then played back in real time or on a two-story screen on the west wall of the bay area. Rolling tool boxes with high-end tools are safeguarded by computer technology to ensure that they are there for all students to use.

## Alignment

The alignment rack employs state-of-the-art three-dimensional Imaging alignment technology by John Bean, a Snap-on brand, to help students diagnose and the work on the vehicles in the bay.

The John Bean Imaging Alignment units are the most accurate technology available for performing vehicle alignments. These John Bean units actually construct a three dimensional model of the vehicle based upon identifying the axle spindles. Full readings can be achieved from the start of the procedure in under two minutes, dramatically increasing the productivity of the alignment shop.



## Tire Changers

The automatic tilt tower changer can handle every wheel the shop will see for years to come – up to 30-inch rims. Special features are designed into the unit to eliminate the damage to costly wheel and tire assemblies, as well as to handle racing and run flat tires.



## Wheel Balancer

The BFH 1000 employs patented technology enabling a full "touch-less" balance. This means that no measurements are required by the operator – everything is automatically measured and computed by the balancer, thus minimizing the chance of errors, respins, and costly comebacks to the shop. The unit features charge coupled device (CCD) optics and lasers to measure all of the key tire parameters, as well as to perform diagnostics to identify troublesome rim and tire concerns to be addressed by the shop. The BFH 1000 is the ultimate ride performance balancer available today.



## Series 9 Base Unit

This unit allows students to perform a number of experiments using a standard range of experiment cards. The cards provide a series of inputs, outputs and voltages for students to conduct their experiments in electronic circuitry.



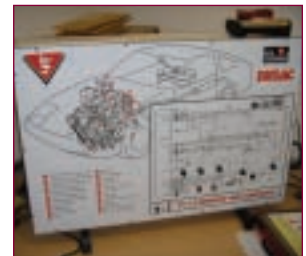
## Distributorless Ignition System

This unit shows students how a 4-cylinder engine fires. It explains how the ignition system works and how to diagnose problems. It is the system for a 2006 Ford Focus.



## Sensors and Controls

Students will learn how several vehicle sensors operate, such as those for the fuel tank, fuel injectors, alternator, battery, coil, and spark plugs.





### Automotive Air Conditioning

This unit teaches students all parts of an air conditioning unit of a car, such as proper temperature and refrigerant flow through a system.



### Electrical Wiring

Students gain an understanding through this module of all aspects of electrical wiring, such as turn lights, ignition, starter, battery, lights, and the solenoid.



### Electrical Accessories

This unit teaches students all aspects of electrical wiring, including the speedometer, airbag warning light, radio, windshield wiper system and warning lights. The unit helps students understand what makes the accessories work and the process initiating the warning lights.

### Antilock Braking System

This instructional unit provides a 15-assignment study program that will train students to learn the principles of antilock braking systems.



### Hydraulics Trainer

Students learn the basics of hydraulics including the compressibility of fluids, cylinders, and control valves. Such things as brakes, power steering, and engine oiling are taught on this unit.



### Mechanisms Trainer

The trainer will help students to understand the relationship between such things as gears and levers. Topics include gears, cams, pulleys, belt drives, inclined planes, and problem solving.

