

● SC Johnson  
**MET CENTER**  
Gateway Technical College



2320 Renaissance Blvd. | Sturtevant, WI 53177-1763



[www.gtc.edu](http://www.gtc.edu)

## WELCOME

I am so proud to welcome you to our SC Johnson iMET Center. iMET stands for integrated Manufacturing and Engineering Technology and serves as our region's most advanced manufacturing training center. As our economy changes so should our knowledge and skills in order to succeed. With advanced manufacturing training in computer numerical control, robotics, programmable logic control, welding and much more, iMET is a catalyst for students and employers to create a vibrant future in southeast Wisconsin. Adding to this excitement is the region's first industrial design Fab Lab. One, out of a network of more than 200 in the world, Gateway's Fab Lab allows engineers to design and create through rapid prototyping of industrial models to solve real world problems. I want to extend a special thank you to our business partners for their support and commitment to education and economic prosperity.



On behalf of everyone at Gateway, we hope you enjoy your time at iMET and discover many opportunities to return.

Respectfully,

Bryan

Bryan Albrecht, Ed.D.  
President & CEO,  
Gateway Technical College

## Partners: Manufacturing Our Future

### SC Johnson Otto and Beverly Tarnowski

A&E Tools	QuestTech, Inc.	Trane
CREE	Partners in Design	AT & T
Eckmann Custom Products	Poclain Hydraulics	Krones
First Technologies	Riley Construction	Badger Meter
Lang Family Foundation	Snap-on, Incorporated	ABB
Modine Manufacturing Co.	Trane	SC Johnson
Pamela Zenner-Richards	Starrett	

Gateway Technical College  
Gateway Technical College Foundation  
Gateway Technical College Board of Trustees  
Racine County Economic Development Corporation  
Racine County Workforce Development Center

## Tarnowski Hall

The inspiration for the creation of Tarnowski Hall came from a very kind and generous man, the late Otto Tarnowski. Otto was a skilled and talented sheet metal craftsman in the Racine community. A World War II veteran, journeyman and inspired professional, Otto and his wife Beverly have been longtime friends of Gateway. Together, they provided substantial financial support to build our communities' new manufacturing training center. Otto believed that only through education and training could young people find success, and that work was a cornerstone to a strong family. Otto passed away on December 24, 2012. Tarnowski Hall stands as a tribute to Otto and Beverly for their generous support of our college and community.



## Tarnowski Hall 300 level (lower)

Gateway Technical College  
Business and Workforce Solutions

**300-303**

Business and Workforce Solutions

### Tarnowski Hall Flexible Manufacturing Lab

Gateway's SC Johnson integrated Manufacturing and Engineering Technology Center (iMET) hosts the region's first flexible manufacturing training center dedicated to training the manufacturing workforce through short-term customized training. The lab also serves as the home of the highly successful boot camp training programs in CNC machining, welding and fabrication and machine repair.

#### Equipment



**LEVEL5VTC**  
Tool Control System

**Snap-on tool boxes** – Snap-on is located in Kenosha, WI and provides tools and tool storage for the manufacturing market. The programmable boxes, donated to the SC Johnson iMET Center, visually manage tools at the “Point of Use”. Visual Tool Control, (VTC) places the most-often used tools in clear view and within the “Strike Zone”, (above the knees and below the shoulders). Reducing the need to bend and stretch for tools, reducing the chance for sprains and strains.



**Miller welders** - GMAW (mig) and GTAW (tig) are welding processes that are widely used in industry. Other equipment for the welding program includes power brake, shear, saws and support equipment. Miller Manufacturing is located in Appleton, Wisconsin and is a proud partner for welding programs across the state.

## Robotics

**ABB and Fanuc robots** are used to provide customized industry-focused robot training at iMET.

This includes:

- ANSI/RIA Safety standard
- Robot programming
- Safeguarding of robots cells
- End effectors
- Vision systems



**Rockwell Automation ControlLogix trainers, Milwaukee, WI** are used to deliver customized training on:

- Programming
- Ladder logic fundamentals
- Maintenance and troubleshooting
- Motion control
- Automation and integrated architecture

**Automated Manufacturing Technical Education Collaborative (AMTEC) Industrial troubleshooting trainer** is one of three in the nation, that will be used to deliver basic through advanced troubleshooting training and system building including:

- Fluid power/pneumatics
- Controls and instrumentation
- Basic electricity and electronics
- Mechanical drives
- Power transmissions





### Lathes

Transform round parts and form the metal to shape and profile a piece to certain specifications and create threading and holes.



### Programmable lathes

- Viper VT20- Fanuc series with O-T controls
- Haas GT20
- Haas –ST10

### Manual lathes

- Clausing 600 group



### Mills

Computerized mills can be programed to create flats, holes, keyways and circular interpretations.

### Vertical milling centers (VMC) in the following models:

- Haas
- Bridgeport VMC2216, Fanuc Series 21i-M, control specific



**Clausing Knee Mill, 2VS08** - A manually-operated mill which allows the operator to mount a part and then make adjustments by hand rather than through a computer.

## 306 Starrett® Precision and Measurement Lab

Sponsored by Starrett®, this quality control lab houses instruction in precision measurement.



**Starrett Tool box** - featuring an array of precision measuring equipment.



**Brown & Sharp coordinate measurement machine (CMM)** - is a 3D device for measuring the physical geometrical characteristics of an object. The machine takes readings in three degrees of freedom and displays these readings in mathematical form.



**Dorsey Optical Comparator** – uses the principles of optics for the inspection of manufactured parts. The magnified silhouette of a part is projected upon the screen, and the dimensions and geometry of the part are measured against prescribed limits.

## Tarnowski Hall 400 level (upper)



**400 A & E Tools Classroom**- Overlooking Tarnowski Hall's flexible manufacturing lab, this classroom will be used to teach students participating in boot camp and workforce training and professional development programs. A & E is an 80 year old company located in Racine, WI. A & E manufactures high quality hand tools for the automotive industry.



**401 Conference Room** seats 16 and overlooks Tarnowski Hall's Flexible Manufacturing Lab and is dedicated to Gateway's partners contributing to the opening of the SC Johnson iMET Center.



**402 & 403 Poclain Hydraulics Classroom**- This classroom overlooking Tarnowski Hall's Flexible Manufacturing Lab will be used to teach students participating in boot camp and workforce training programs. This classroom also has the capability of being divided into two separate classrooms to accommodate different size groups. Poclain Hydraulics is located in Racine, WI and produces hydrostatic transmissions.



**404 State of Wisconsin Bureau of Apprenticeship Standards** – The Bureau of Apprenticeship Standards and Gateway Technical College's apprenticeship programs collaborate to match apprentices to local businesses in the construction, industrial/ manufacturing, and service trades.



## 100 Level

**Lobby** – The lobby serves as a gathering space for students and staff. Vending and computers are available for students and the public.



**Auditorium** - The auditorium is available for use by community groups, and business industry and seats up to 85 people.



**High Bay Area** – The entry way to the engineering classrooms, the Industrial Design Fab Lab and Tarnowski Hall is a multi-purpose area that is used for meetings, robotics competitions and career fairs.





### 129 Mechanical Design classroom

Mechanical Design program classes are offered in this classroom. The computers in the room are used to teach AutoCAD and Solidworks software. These software programs are used in Engineering Graphics (formerly called Drafting) and can create a prototype similar to those shown in the photo. Engineering Graphics is used in classes such as Mechanism, Elements of Machine Design, Design Problems, Geometric Dimensioning & Tolerancing.



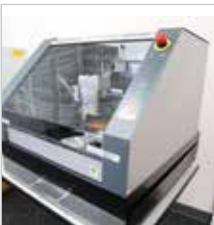
### 130 Industrial Design Fab Lab

The Industrial Design Fab Lab is a work space containing a variety of computer controlled tools that allow for the manufacture of nearly anything an individual can conceive. The concept was developed at MIT as a way to spur innovation. Students and industry professionals have the opportunity to conceptualize and design a product using 3D design software, print a prototype in the Fab Lab and have access to the flexible manufacturing lab where it can be created to scale using machine tools, welding, and fabrication.

The following equipment is located there:



**Roland GX-24 vinyl cutter** – This is a plotter that uses a knife instead of a pen. It is capable of either cutting or scoring a variety of materials with precise accuracy to create designs, signage, packaging, and assist in model building.



**Roland MDX-40A milling machine** – This 4-axis milling machine allows users to quickly build high quality product prototypes. This machine supports G code and NC programming.

**Roland 3D Scanner** – Using a laser, an object is scanned to exact tolerances, the data is converted into a file that uses SolidWorks CAD software, allowing for reverse engineering or adding unique shapes to a design.



**Epilog Helix laser/engraver** – Cutting and engraving to an accuracy of 5/1000's of an inch, the laser can be used to create complex engravings or cut highly detailed pieces for models or other projects.



**Objet 3D Printer** – Using a process called additive manufacturing, layers of resin are added layer by layer to create a full three dimensional prototype directly from 3D CAD software like SolidWorks.



A full complement of Snap-on hand tools are also available in the lab.

**Cube Pro Duo:** This 3D printer can print a prototype of two different materials. The CubePro features the largest-in-class build platform with ultra high-resolution.



**Afinia 3D printer.** The Afinia H-Series 3D Printer can prototype a part or model that is up to 5 inches cubed in dimensions. The output is accurate to within .15 mm.



**3DP 3D printer.** The 3DP1000 is truly large format 3D printer, boasting a gigantic build volume with a useable area of 1 m x 1 m x 0.5 m. (not pictured)

*Equipment in the Industrial Design Fab Lab was made possible in part under award 06-79-05547 from the Economic Development Administration EDA, U.S. Department of Commerce. The Fab Lab concept was developed in partnership with First Technologies, Mukwonago, WI*



### 126 Civil Engineering Technology Classroom

Construction Sciences Room - The classroom is used for Gateway's Civil Engineering Technology-Highway (Public Works), Architectural-Structural Engineering Technology, Fresh Water Resources and Geospatial Surveying Technology programs. This classroom has equipment for teaching the following courses:



- Geographical Information Systems (GIS)
- Structural Mechanics
- Material Testing
- Fresh Water Testing
- Building Materials & Construction Methods



**126 Architecture/Geospatial Survey classroom** - Modern survey equipment including total stations and GPS units allow students to develop digital terrain models. Building Information Modeling (BIM) using Revit/AutoCAD and building inspections including the use of thermal cameras are also part of the architectural classes.



### 134 Mechatronics Lab

**134 – Krones Machine** A bottling machine donated by Krones allows students to train on it to become proficient in the highly technical equipment used in the industry today.



**Labview Signal Express software** provides the students 12 of the most commonly used laboratory instruments including an oscilloscope (scope), digital multimeter (DMM), function generator, variable power supply, dynamic signal analyzer (DSA), bode analyzer, 2- and 3-wire current-voltage analyzer, arbitrary waveform generator, digital reader/writer, and impedance analyzer in a single software platform. These virtual pieces of test equipment gather real data through the NI Elvis platform and display it on the computer screen and view data in an Excel spreadsheet.



**The four-channel, color digital oscilloscopes** allow the students to capture and analyze signal wave forms. The USB connection on the scopes enables students to save the wave forms to a USB drive for later use.

**200 level**

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### **Office Suite and Conference Room 216**

The 200 level office suite is home to Gateway Technical College staff as well as local business partners including:

**The Racine County Economic Development Corporation (RCEDC)** and our partners provide businesses with services needed to complete an expansion, relocation, financing, or workforce development project. Their dedicated staff is committed to meeting the needs of Racine County, Wisconsin businesses and companies interested in expanding or locating in the Chicago-Milwaukee Corridor.



**Business Lending Partners**, a division of RCEDC, provides low interest, second mortgage financing to businesses that are being recruited, or considering expansion in Racine County. It also provides long-term, fixed rate financing to businesses statewide through the US Small Business Administration (SBA) 504 program.





**225 – Executive Conference Room** - This SMART conference room, sponsored by We Energies, seats 15 people.



**226 – Business Resource Center**

The center features video conference availability, Growth Wheel Certified advisors for students, entrepreneurs, and business owners to help facilitate solutions for business development and progression.

*Growth Wheel Training was sponsored in part under award 06-79-05547 from the EDA, U.S. Department of Commerce.*

**SCORE Southeast Wisconsin** is a primary resource available to small businesses to help them address today's challenges and opportunities. Representatives from SCORE provide assistance with business concept development, business counseling, and mentoring to help small businesses succeed.



SE Wisconsin



**229 - 230 Gateway Engineering faculty and staff offices.**



**231 BICS I Telecommunications, Belden Lab**

In this lab, students learn how to install, terminate, splice, test, and repair copper and fiber optic cable using Belden, Corning, Fluke, Fujikura, 3M and other company's equipment. Our state of the art, BICS I approved training room is used to teach entry level telecommunications skills to high-end, high-level certification classes using certification testers, OTDRs, and fusion splicers.



- Fujikura FSM-30R12 Fusion Splicer
- Belden FiberExpress Brilliance Precision Kit
- Corning OptiVisor 400 SM MM Fiber Optical Time Domain Reflectometer VFL
- Corning TKT-Unicam-PFC Fiber Termination Kit
- Fluke DTX-1800 Certification Tester w/Cat6A test set
- Ideal Lantek 6a bas Cat 6a Copper Certification Tester
- 3M Copper Splice Rig and Accessory 3M™ 710 25PR SPLICING RIG 3M710-UTK25A

### **232 Computer Lab**

The computer lab supports Gateway's programs.



### **233 & 234 Electrical Engineering Technology Lab and Electronics Open Lab**

Gateway Electronics and Electrical Engineering Technology students learn the skills necessary for careers in electrical engineering technology, biomedical engineering technology, electrical engineering technology-sustainable energy systems, and electronics, using:

- Multi-meter
- Digi Trainers
- Oscilloscope
- Mind Sight computer programs

The multimeters, oscilloscopes and other test equipment are used in conjunction with digitrainers to allow the students to build and test low voltage electronic circuits in the classroom. The digitrainer includes a solderless breadboard, power supply, push-buttons and switches to aid in the design and development of AC and DC circuits.

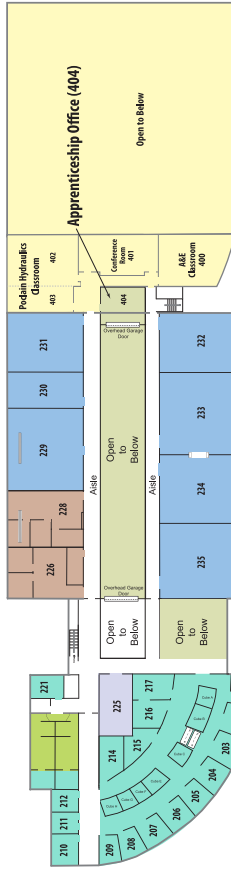
- CERT TEC performance-based certifications.



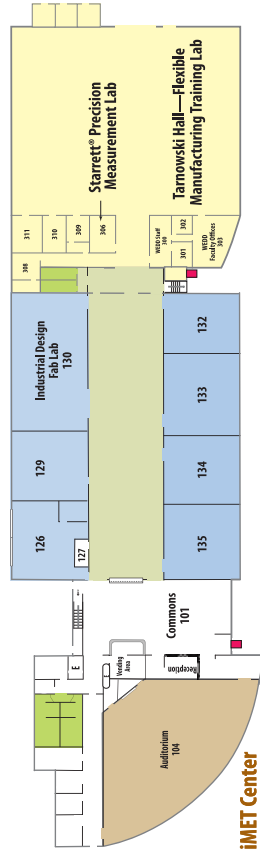
SC Johnson  
**IMET CENTER**  
 Gateway Technical College



- Open Area
- Auditorium
- Administrative Offices
- Executive Conference Room
- Business Incubators
- Engineering Tech Wing
- Restrooms
- Entrances



**SC Johnson iMET Center  
 Second Floor**



**SC Johnson iMET Center  
 First Floor**



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