

NACAT
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NACAT NEWS

VOL 37

JUNE 2023

NO.3





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In This Issue:

[NACAT President's Update](#)

Tom Millard, Warren Tech

[Getting to Know...Nolan Miyahara, Leeward Community College](#)

[In Memory of Lisse Duvic / Lisse Duvic Scholarship](#)

[Central Oregon Community College Receives Nearly \\$3 Million](#)

[NACAT Fireside Chat](#)

[Ford Announces \\$1 Million Scholarship Program](#)

[NACAT Conference Information: Agenda & Courses](#)

[Hybrid & Electric Vehicle Corner: The Constant Change of EV Technology](#)

Curt Ward, Professor at Joliet Junior College

[NACAT Mentor Program](#)

[EVPro+ Congratulates Southern Maine Community College](#)

[NACAT Conference Sponsors](#)

[Mount Wachusett Community College Awarded NSF Grant](#)

[NACAT Election Results](#)

[Hyundai Partners with Savannah Technical College](#)

[NACAT Allied Member Supplement](#)

NACAT News is Published SIX Times per Year!

DEADLINE DATES

August 2023 issue - July 10, 2023

October 2023 issue - September 10, 2023

December 2023 issue - November 10, 2023

February 2024 issue - January 10, 2024

April 2024 issue - March 10, 2024

June 2024 issue - May 10, 2024

The latest advertising size and rate information can be found at www.nacat.org.

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President

2021 - 2023

Tom Millard

Warren Tech

13300 W 2nd PL, Auto Tech BLDG C

Lakewood, CO 80228

Vice President / President Elect

2021 - 2023

Drew Barnes

Vale School District

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Vale, OR 97918

Secretary / Treasurer

2022 - 2023

Steve Tucker

SUNY Delhi

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Summerville, SC 29485

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Conference LOCATION

Deadline: June 17, 2023



South Shore Harbour Resort and Conference Center

2500 South Shore Blvd
League City, TX 77573

Check In:
3:00 pm
Check Out:
11:00 am

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NACAT PRESIDENT'S UPDATE

TOM MILLARD

WARREN TECH

I hope you had a great Memorial Day Weekend 2023!

This is the beginning of summer break for most of us. It is the time we all get to renew and refresh our attitudes and spend time with our friends and families. It is also a great time to spend getting training with our other friends and families of NACAT. Education with NACAT is "For Automotive Teachers, By Automotive Teachers." The board and crew have been very busy planning and arranging the [upcoming NACAT Conference](#), July 10th thru the 13th, at San Jacinto Community College in Houston Texas.

Our new Mentor Training is going well and the next opportunity to participate will be on [June 8th at 1:00 PM EST](#). The training will be available to any and all NACAT members, whether new to teaching, only having a few years of experience, or a seasoned veteran.

Our membership numbers have risen over the past year, and we feel the future of NACAT is strong. I look forward to meeting you at the July Conference. This event, in my opinion, is the best form of team building and making new acquaintances. We still have rooms and classes available. If you are still waiting on funding from your school, you can [register with a PO to save your spot](#).

We have recently organized a Families of NACAT Committee, and there is a Facebook [group](#) for Families as well. Your Families of NACAT Chair is Tamber Nellinger, and the Vice Chair is Bonnie Millard. The Families of NACAT Committee generated a schedule of fun family activities for the 2023 conference. [Guest Registration](#) for the activities is now open. They are also looking for family activities for future conferences. Please wish them luck in helping expand our family activities.

We held our 2023 elections for the NACAT Board of Directors and Officers. I want to thank the NACAT members who are allowing me to continue in NACAT leadership as a part of your next Board. Your new Board will be a strong one. Drew Barnes will serve as your new NACAT President on September 1, and Ed Martin was elected to be Vice-President / President-elect.

The members who won Board seats in the election are:

- Steve Gibson
- Tom Millard
- Sara Heller
- Wade Johnson

I am looking forward to all the new changes and the upcoming events of this year, and I look forward to seeing you at the NACAT conference next month.



Board of Directors

Chairman of the Board 2022 - 2023

Steve Gibson
18486 Newman Avenue
Riverside, CA 92508

Board Member 2021 - 2024

Louie Longhi
Mechanics Local 701 Training
450 Gunderson Drive
Carol Stream, IL

Board Member 2022 - 2025

Martin Duvic
Louisiana DOTD
7686 Tom Drive
Baton Rouge, LA 70805

Ed Martin
Pickens Technical College
500 Airport Blvd
Aurora, CO 80011

Ron Morris
Guilford Technical
Community College
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Todd Richardson
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The background of the lower half of the advertisement is a classroom with rows of empty wooden desks and chairs. A large chalkboard is at the front, with the words "E - LEARNING" written on it in white chalk. Several presentation slides are overlapping each other in front of the chalkboard. The slides include:

- A slide on the left showing a hydraulic circuit diagram with a red arrow and a yellow star, labeled "No Resistance" and "5 lbs (2.3 kg)".
- A slide titled "Introduction to Hydraulics" with a grey background.
- A central slide featuring a yellow and black skid steer loader.
- A slide titled "Pressure-Compensated and Load-Sensing Systems & Schematics" with a grey background.
- A slide on the right showing a hydraulic schematic diagram and a small image of a skid steer loader.
- A slide titled "Closed-Loop Systems and Schematics" with a grey background, including the text "VERSION 0.3.12" at the bottom.

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Getting To Know...

...Nolan Miyahara, Leeward Community College

Aloha from Hawaii! My name is Nolan Miyahara. I am an Assistant Professor and Co-coordinator for the Automotive Technology program at Leeward Community College (Leeward CC) in Pearl City on the island of Oahu, Hawaii.

I'd like to thank Heather Sebben for her support and friendship. I am grateful for the opportunity to share my story in the *NACAT News* because it allows me to connect with other colleagues even though we are oceans apart.

My interest in the automotive industry started when I was in middle school. My father was a welder by trade but used to change the engine oil and filter in our family car religiously in our home garage. My older brother, who is 13 years older than me, soon followed my dad and started to service his car in our garage too. I was curious to see what they were doing under the car and what was under the hood. When I entered high school, I signed up for automotive classes, which were also combined with auto body work. These classes weren't really structured. There was some instruction and the rest was kind of "do whatever we like with the time left in class." I took these classes until I was a senior but wanted more structure and clear instructions on various automotive components and how they functioned.

When I graduated from high school, there was no such thing as Google, Yelp, Facebook, etc. The closest thing at that time was a modem with a monitor which had that funny sounding connection like an alien was trying to communicate with you or something. After searching in the local phone book, I signed up for Leeward Community College's Automotive Technology program.

While attending Leeward CC, I was working part-time in my home town of Wahiawa at a gas station which also did transmission and general repair work. After I graduated, thanks to Professor Eric Pang, our senior automotive faculty member (not senior citizen yet), I was hired at a Chrysler Jeep Dealership as an apprentice automotive technician. While there, I worked my way up to an intermediate technician. After that I moved on to be a journeyman technician at a Chevrolet dealership, then ended my career as one of three lead technicians at a Toyota/Scion/Chevrolet/Suzuki dealership before being hired at Leeward CC.

My teaching career started in 2010 when a night automotive program restarted at Leeward Community College after being in hiatus for a few decades. I was hired as a part-time lecturer while working full time as a master technician at Toyota. So on a daily work week I would start my regular job at 7:30 am, end at 4:30 pm, start teaching at 6 pm, end at 9 pm, and get home about 10 pm. After 2 years of teaching part-time, my regular work schedule changed to a 4 day 10 hour shift so I could no longer fit in the teaching schedule.

Two years later I was offered a full time teaching position at Leeward CC, and at first was unsure if I would want to teach full time as a career. I didn't attend college to be an educator but I do like helping people. After much consideration, I accepted the offer and have now been a full time instructor for the past 7 years. I felt that I have made a full circle of coming back to teach at the program that I once learned from.

What I enjoy most about teaching is that I can learn from my students. I've never had a perfect class with perfect students. Every semester there is something that I can always improve to make it a better learning

CONTINUED ON PAGE 8

experience or environment for the students. I hope to inspire my students to make a full circle like how I did and consider being an educator themselves one day.

Being introduced to NACAT, it was a great first time experience. Through NACAT I've met many friendly and educated people. It's nice to be in the same place as people that have either gone through or are going through the same things you're experiencing in the classroom and in the shop. I'm glad there are conferences such as NACAT where I can gather and create my own ideas to make my classroom and shop an innovative and effective place for any student to learn this trade that I grew up to love.

Mahalo for taking the time to read!



Thank you to those who have either joined or renewed
their membership since April 1, 2023.

For Automotive Teachers...

...By Automotive Teachers

Paul Blair
Clovis, NM

Joshua Glenn
Waco, TX

Joseph Moore
Waco, TX

Mark Sherry
Belleville, ON

Rudy Cervantez
Waco, TX

Morris Hafford
Spring, TX

Ryan Munden
Kamloops, BC

Tracey Tamura
Pearl City, HI

Michael Chicconi
Fresno, CA

Michael Hedger
League City, TX

Todd Muni
Sweetwater, TX

Daren Thompson
Elizabethtown, KY

John Chism
Elizabethtown, KY

Ryan Heller
Watertown, SD

Dennis O'Reilly
Sandy, UT

Matthew Turner
Rincon, GA

Jerry Clemons
Elizabethtown, KY

Brent Holzer
Sanger, TX

William Parker
Sweetwater, TX

Joe Valora
Elizabethtown, KY

James Daniels
Houston, TX

Chris Homentosky
West Caldwell, NJ

Ruben Parra
Clinton Township, MI

Ryan Washington
Baltimore, MD

Cody Dawson
Cedar City, UT

Cameron Jepsen
Kamloops, BC

Eddie Perry
Utica, MS

Keegan Wentz
Fort Wayne, IN

Jeffrey Desper
Waco, TX

Delyle Kruger
Watertown, SD

Richard Pickens
Waco, TX

George Williams
Waco, TX

Jeff Eligio
Pearl City, HI

Pete Lestinsky
Elkhart, IN

Todd Richardson
Price, UT

Lewis Williams
Lake Charles, LA

Shad Esplin
Cedar City, UT

Robert Lyle
Houston, TX

Floyd Robbins
Bulls Gap, TN

Miguel Zoleta
Harlingen, TX

Shaun Fuller
Columbia, MD

Matthew Mills
Waco, TX

Al Santini
Elgin, IL

Steve Gabehart
Elizabethtown, KY

David Milos
Okotoks, AB

Jeffrey Sharp
Knoxville, TN

IN LOVING MEMORY



Lisse Duvic

deadline: June 1, 2023

Lisse Duvic *Scholarship*

In memory of Lisse Duvic, the Duvic family is providing a scholarship to one first-time spouse at the 2023 NACAT Conference.

This \$500 scholarship includes one guest package, 2 Awards Dinner tickets, and the remaining balance towards the hotel stay. The recipient will be honored at the 2023 NACAT Conference Awards Dinner on July 13, 2023.

[Click here to apply](#)

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CENTRAL OREGON COMMUNITY COLLEGE RECEIVES NEARLY \$3 MILLION TO TRAIN AND EXPAND EV WORKFORCE

The National Science Foundation (NSF) has awarded nearly \$3 million to Central Oregon Community College (COCC) to help expand the region's electric vehicle (EV) technician workforce. The funding supports COCC's participation in the federal Northwest Engineering and Vehicle Technology Exchange (NEVTEX) program.

COCC is one of 15 two-year colleges who will develop EV technician programs under the NEVTEX Next consortium. The consortium will create and test a model for addressing the need to educate the EV skilled technician workforce through four objectives:

- Supporting the creation and certification of 15 new two-year college EV technician programs by providing professional development for instructors and supplying necessary testing equipment.
- An advisory group will promote and sustain a national, industry-recognized EV certification for educators and technicians to advance standards-based EV certifications at two-year colleges and in the EV workforce.
- Five college automotive instructors will gain the EV technology knowledge and skills required to be certified in the national EVPro+ training and testing standards, and equipment will be provided at their colleges to establish five authorized EVPro+ certification testing sites.
- Consortium-wide training based on proven and successful strategies will enable automotive faculty to develop effective student recruitment and retention strategies to increase diversity in their programs by attracting and retaining women and underserved minorities.

The NEVTEX program is funding through the NSF's [Advanced Technological Education \(ATE\) program](#).

ConsuLab offers Intuitive Solutions for teaching EVs.



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Keynote Speaker

Monday, July 10, 2023

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50 Years of Teaching:
A Comical Look at Situations
that Shaped How I Work in
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presented by
Al Santini

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FORD ANNOUNCES \$1 MILLION SCHOLARSHIP PROGRAM TO SUPPORT STUDENTS PURSUING CAREERS AS AUTOMOTIVE TECHNICIANS



- *Investment backed by Ford Fund and Ford Dealers will help meet the high demand for highly skilled automotive technicians across the industry.*
- *Scholarship program aims to foster diversity and reduce barriers for students pursuing careers in automotive service and technology by helping cover tuition and costs of attendance.*
- *New focus on STEM skills fuels upward professional and economic mobility as the industry moves toward electrification.*

Ford Motor Company Fund, the company's philanthropic arm, is joining Ford dealers across four U.S. regions – Atlanta, Chicago, Dallas, and Phoenix – to provide \$1 million in scholarship funding to help students pursue careers as automotive technicians.

The auto industry has long faced a shortage of technicians due to fewer students entering and graduating from post-secondary programs, according to TechForce Foundation. Despite annual demand for 258,000 new technicians, there are only 48,000 graduates from technician programs each year nationwide. The gap is likely to widen over the next decade without new graduates as there are projected growth rates of 14% in Arizona, 10% in Texas, 7% in Georgia and 3% in Illinois for this career field respectively.

"As we move toward an electrified future, these career opportunities are exciting and require skilled technicians who are proficient in STEM-related study," said Elena Ford, Chief Customer Experience Officer. "Working together with the Ford Fund and our dealers to offer this scholarship program means we will welcome a new generation of diverse students to the industry, and hopefully into our Ford family, to help us better serve our customers."

The Ford Auto Tech Scholarship is open to current and future students who are enrolled in post-secondary auto or auto and diesel technician training programs in the Greater Atlanta, Chicago, Dallas and Phoenix areas. This need-based scholarship is applied to a student's school tuition account and may be used for all cost of attendance, including tuition, tools, living expenses, and transportation.

"These scholarships will go a long way in engaging students, particularly those from under-resourced communities, to consider careers in automotive technology and service," said Jennifer Maher, CEO, TechForce Foundation. "We're excited about working with the Ford Fund and Ford Dealer partners to help create a path to careers students may not have considered before."

Scholarships will be administered by TechForce Foundation, a national nonprofit supporting students to and through their education and into careers as professional technicians. Ford is proud to partner with TechForce given their deep understanding and expertise of the essential skills required to build a diverse pipeline of auto technicians.

This program supports Ford's greater mission to prepare, empower and grow the future workforce needed to service vehicles and customers to prepare for an electrified future including:

- A focus on STEM-based curriculum in combination with hands-on learning.
- Reaching students early and reinforcing the opportunities available for upward professional and economic advancement.
- Collaboration with dealers through their involvement in participating schools, career fairs, shadowing days, mentoring, and internships.

For more information and to apply for the Ford Auto Tech Scholarship opportunity students can visit www.TechForce.org/FordFund.

Applications are due by June 30, 2023, and applicants will be notified of the results on a rolling basis throughout the spring and summer.



WHAT MAKES THE CONFERENCE

Unique?

JOIN US JULY 10-13, 2023

How to Teach and Resources to Support You

Most instructors know the automotive concepts and can get technical training virtually anywhere, but what about learning strategies to teach the material? This is where the NACAT Conference stands out from all other conferences and associations. The 2023 NACAT Conference has several sessions on how to teach certain material, resources for evaluating students, roundtable sessions to share ideas and experiences from other educators, and much, much more!

Valve Cover Races

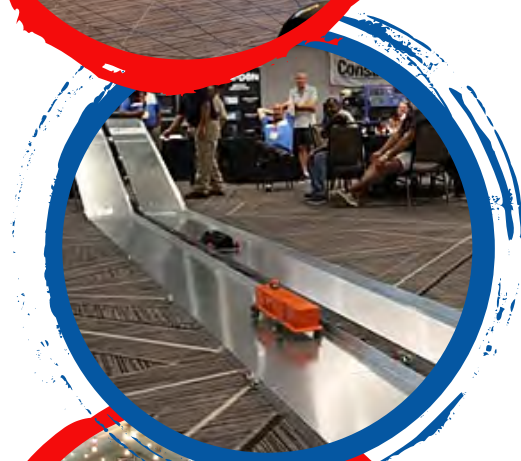
Who doesn't love some friendly competition? One of NACAT's annual traditions is to hold a valve cover race. You can bring your own valve cover car or just watch! Don't miss out - it will be a fun event!

Family Friendly

During July, most instructors are off for the summer and wanting to spend time with their family. This is exactly why we make sure to include your family during our conference!

Supporting the Industry

Our Silent Auction Fundraiser takes place during the conference and all proceeds support future automotive scholarships.



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2023 NACAT Conference



Agenda

Monday, July 10, 2023

All events at the hotel
 9:00 am - 12:00 pm: Registration
 10:30 am - 11:30 am: First-Time Attendee Meeting
 12:00 pm - 2:00 pm: Opening General Session, Keynote, & Lunch
 2:00 pm - 2:30 pm: Break
 2:30 pm - 4:00 pm Training
 4:00 pm - 4:30 pm: Break
 4:30 pm - 6:00 pm: Training
 6:00 pm - 7:00 pm: Welcome Reception

Tuesday, July 11, 2023

All events at Pasadena Convention Center
 (transportation provided)
 7:30 am - 8:00 am: Breakfast
 8:00 am - 9:30 am: Training
 9:30 am - 10:00 am: Break
 10:00 am - 11:30 am: Training
 11:30 am - 12:30 pm: Lunch and Exhibits
 12:30 pm - 4:30 pm: Exhibits
 4:30 pm - 6:00 pm: Valve Cover Races
 6:00 pm - 7:30 pm: BBQ and Networking

Wednesday, July 12, 2023

All events at San Jacinto College (transportation provided)
 7:30 am - 8:00 am: Breakfast
 8:00 am - 9:30 am: Training
 9:30 am - 10:00 am: Break
 10:00 am - 11:30 am: Training
 11:30 am - 12:30 pm: Lunch
 12:30 pm - 2:00 pm: Training
 2:00 pm - 2:30 pm: Break
 2:30 pm - 4:00 pm: Training
 7:00 pm: Outing to BJ's Restaurant & Brewhouse (click here to RSVP)

Thursday, July 13, 2023

All events at San Jacinto College (transportation provided)
 7:30 am - 8:00 am: Breakfast
 8:00 am - 9:30 am: Training
 9:30 am - 10:00 am: Break
 10:00 am - 11:30 am: Training
 11:30 am - 12:30 pm: Lunch
 12:30 pm - 2:00 pm: Training
 2:00 pm - 2:30 pm: Break
 2:30 pm - 4:00 pm: Training
 6:30 pm - 7:00 pm: Cocktail Reception
 7:00 pm - 8:00 pm: Awards Dinner (additional charge)

Monday, July 10, 2023

Code	Training	Begins	Ends	Instructor
S1-1	Advanced Automotive Module Programming Sponsored by OE Alternatives	2:30pm	4:00pm	Mike Christopherson
S1-2	Competency Based Evaluations - GOING FAST	2:30pm	4:00pm	Jason Bronsther
S1-3	Ford Battery Electric Technology Sponsored by Ford Motor Company - GOING FAST	2:30pm	4:00pm	Alan Ritter
S1-4	Next Generation Automotive Programs with Augmented and Virtual Reality Sponsored by zSpace	2:30pm	4:00pm	Nikki Lester
S1-5	Strategies for Teaching Hybrid and Electric Vehicle Technology Sponsored by Electude	2:30pm	4:00pm	Darcy Wedel
S1-6	Teaching Gas Direct Fuel Injection Control Sponsored by Consulab	2:30pm	4:00pm	Al Santini
S2-1	ASE Registered Apprenticeship for Students Sponsored by ASE Educational Foundation - GOING FAST	4:30pm	6:00pm	George Arrants
S2-2	Competency Based Evaluations - GOING FAST	4:30pm	6:00pm	Jason Bronsther
S2-3	EVPro+ Training with National Certification Sponsored by Future Tech Auto	4:30pm	6:00pm	Ken Mays
S2-4	Preparing Students for Successful MLR Technician Jobs Sponsored by G-W Publisher	4:30pm	6:00pm	Luke Thompson
S2-5	Strategies for Teaching Hybrid and Electric Vehicle Technology Sponsored by Electude - GOING FAST	4:30pm	6:00pm	Darcy Wedel
S2-6	The Brake Issue That Requires More Than Just Replacing Parts Sponsored by ProCut - GOING FAST	4:30pm	6:00pm	Steve Smith

2023 NACAT Conference



Tuesday, July 11, 2023

Code	Training	Begins	Ends	Instructor
S3-1	Behind the Grill: ADAS (Hands-On) - GOING FAST	8:00am	11:30am	Pam Oakes
S3-2	Iron Sharpens Iron Sponsored by Consulab	8:00am	9:30am	Tim Dwyer & Jeff Curtis
S3-3	Teaching High Voltage Batteries Sponsored by Joliet Junior College & Pearson Education	8:00am	9:30am	Curt Ward
S4-1	Hybrid and Electric Vehicle Air Conditioning Systems Sponsored by Joliet Junior College & Pearson Education	10:00am	11:30am	Curt Ward
S4-2	Iron Sharpens Iron Sponsored by Consulab	10:00am	11:30am	Tim Dwyer & Jeff Curtis

Wednesday, July 12, 2023

Code	Training	Begins	Ends	Instructor
S5-1	ADAS and Autonomous Automobiles (Hands-On) Sponsored by Consulab	8:00am	9:30am	Tim Dwyer
S5-2	Brake Systems Diagnosis and Repair Sponsored by ACDelco	8:00am	11:30am	Jerry Mungle
S5-4	Diagnosing by the Numbers Sponsored by ATech Training	8:00am	11:30am	Jim Wilson
S5-5	Electric Vehicles - Teaching High Voltage Batteries and Motors SAFELY (Hands-On) Sponsored by Megatech Corporation - GOING FAST	8:00am	9:30am	Mark Bone
S5-6	The Four Horsemen of Drivability Sponsored by Dorman Products - GOING FAST	8:00am	11:30am	Pete Meier
S5-7	You Teach, Why Do Students Not Learn? Sponsored by ATech Training	8:00am	11:30am	Sam Houston
S6-1	ADAS and Autonomous Automobiles (Hands-On) Sponsored by Consulab	10:00am	11:30am	Tim Dwyer
S6-2	Electric Vehicles - Teaching High Voltage Batteries and Motors SAFELY (Hands-On) Sponsored by Megatech Corporation - GOING FAST	10:00am	11:30am	Mark Bone
S7-1	Advanced Driver Assistance Systems Sponsored by ACDelco - GOING FAST	12:30pm	4:00pm	Jerry Mungle
S7-2	ADAS and Autonomous Automobiles (Hands-On) Sponsored by Consulab	12:30pm	2:00pm	Tim Dwyer
S7-4	Electude and You (Hands-On) Sponsored by Electude	12:30pm	4:00pm	Dr. Alex Richards
S7-5	Emerging Technologies, Evolving Repair Strategies Sponsored by Industry Attends - GOING FAST	12:30pm	2:00pm	Justin Kidd
S7-6	Working with the VW Group CAN Bus Sponsored by WORLD PAC	12:30pm	4:00pm	Cameron Conover
S7-7	You Teach, Why Do Students Not Learn? Sponsored by ATech Training - GOING FAST	12:30pm	4:00pm	Sam Houston
S8-1	Breaking Bolts: And Why We Should Teach Students How to Break Them (Hands-On) Sponsored by Consulab - GOING FAST	2:30pm	4:00pm	Jeff Curtis
S8-2	Emerging Technologies, Evolving Repair Strategies Sponsored by Industry Attends	2:30pm	4:00pm	Justin Kidd

2023 NACAT Conference



Thursday, July 13, 2023

Code	Training	Begins	Ends	Instructor
S9-1	HVAC 2023 - Keeping It Cool Sponsored by Standard Motor Products - GOING FAST	8:00am	11:30am	Ryan Kooiman
S9-2	HVAC: HV Batteries (Hands-On)	8:00am	11:30am	Pam Oakes
S9-3	Hybrid and Electric Vehicle Maintenance and Repair Sponsored by ACDelco - GOING FAST	8:00am	11:30am	Jerry Mungle
S9-4	Teaching Low Speed, High Speed and K Line CAN Bus Sponsored by Consulab - SOLD OUT!	8:00am	11:30am	Al Santini
S9-5	TPMS - Technology, Diagnosing, and the Future (Hands-On) Sponsored by Continental	8:00am	11:30am	Sean Lannoo
S9-6	Understanding and Analyzing a Parallel Circuit (Hands-On) Sponsored by ATech Training	8:00am	11:30am	Jim Wilson
S9-7	VW/Audi 4cyl, Evolution of EA888 Sponsored by WORLDPAAC	8:00am	11:30am	Cameron Conover
S10-1	Audi Hot V (HSI) Engines Sponsored by WORLDPAAC	12:30pm	4:00pm	Cameron Conover
S10-2	HVAC: HV Batteries (Hands-On)	12:30pm	4:00pm	Pam Oakes
S10-3	Labscope Power User Sponsored by Standard Motor Products - SOLD OUT!	12:30pm	4:00pm	Ryan Kooiman
S10-4	Mastering The Art of Electrical Troubleshooting Sponsored by Dorman Products - SOLD OUT!	12:30pm	4:00pm	Pete Meier
S10-5	Teaching Low Speed, High Speed and K Line CAN Bus (Hands-On) Sponsored by Consulab - GOING FAST	12:30pm	4:00pm	Al Santini
S10-6	TPMS - Technology, Diagnosing, and the Future (Hands-On) Sponsored by Continental	12:30pm	4:00pm	Sean Lannoo
S10-7	Understanding and Analyzing a Parallel Circuit (Hands-On) Sponsored by ATech Training	12:30pm	4:00pm	Jim Wilson

Pricing Details

	Before April 30, 2023	After April 30, 2023
NACAT Members	\$520	\$595
Non-Members	\$620	\$695



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TRAINING COURSE SELECTION: Selections must be made in advance and are available on a first-come, first-served basis.

MEALS: Continental breakfast is served on Tuesday, Wednesday, and Thursday. Lunch is served Monday, Tuesday, Wednesday, and Thursday. Refreshment breaks are each day.

NACAT Member Discounts: NACAT Members receive a \$100 discount on registration packages. Visit nacat.org to become a member.

AWARDS DINNER: Attendees may purchase tickets for \$60 each. Tickets are limited so early registration is encouraged.

REGISTRATION & PAYMENT: To register, please complete the online registration form at www.nacat.org. Registrations must be received no later than July 3, 2023. Registrations accepted ON-SITE ONLY after July 3, 2023. We cannot guarantee availability for late or on-site registrants. A confirmation letter and detailed conference information will be e-mailed in late-June.

CANCELLATION AND REFUND POLICY: Full refunds will be granted, less a \$30 processing fee, if cancellation is received in writing by June 1, 2023. No refunds will be granted after June 1, 2023. Name substitutions will be accepted.



HYBRID & ELECTRIC VEHICLE CORNER

CURT WARD

PROFESSOR AT JOLIET JUNIOR COLLEGE

The Constant Change of Electric Vehicle Technology

As I write this article, we are in the last week of the spring semester. Next week we will graduate our sophomores and send them into the ever-changing world of automotive technology. The fast pace of change is particularly true in electric vehicle technology. This is one of the main reasons I enjoy researching and teaching this subject. In this article I will highlight two areas of change that I have explored during the past semester.



Figure 1: Lithium-Ion Battery

I recently had the opportunity to explore the features of 2022 Tesla Model "Y". One of the most interesting changes I found was in the base electrical system. The 12-volt battery that had been used in earlier models has been replaced with a 16 Volt Lithium-Ion battery (**See figure 1 – Lithium-Ion battery**). The battery was labeled as 12-volt, however, a quick voltage test between the jump-start terminal and ground showed 15.5 volts when the vehicle was in the "Ready" mode. I later learned that many of the early batteries were mislabeled.

The battery is very small; about the size you would expect to find on a motorcycle. According to the label, the battery has a 6.9-amp hour rating. This seems small, however, after the contactors are closed, the high-voltage battery provides power to the system through the DC-DC converter. The Tesla service information provided some interesting insight into the battery. The first, and most obvious, the vehicle cannot be used to jump-start another vehicle. The second, related to starting the vehicle if the 16-volt lithium-Ion battery is dead. There is a very specific process, using a 12-volt jump-box, to get the vehicle into the "ready" mode. Lastly, after replacing the Lithium-Ion battery, the firmware must be reinstalled. These processes are very different than the same model before it that used a 12-volt lead-acid battery. It is also very clear that the average individual on the street is no longer going to be able to change their own battery.

The second vehicle I recently had the opportunity to explore is the Hyundai Ionic 5. While under the hood, I noticed the two cooling reservoirs had different types of coolant (**See figure 2 – Coolant reservoirs**). The following is what I discovered. The cooling reservoir that contains the blue coolant is for the battery. Hyundai refers to this reservoir as the low continuity water coolant reservoir. When researching this coolant, I found it to be premixed and uses deionized water. The Hyundai owner information says that the use of this coolant is to prevent a loss of isolation if there is a coolant leak internally in the battery. The second reservoir, that Hyundai calls the coolant reservoir, is for the rest of the systems and contains a pink colored coolant. When researching this coolant, I also found it to be premixed and it also used deionized water. Both coolants are different in color from the Hyundai coolant that has been used for the last couple of years. The price difference between the two coolants was eye catching. The blue coolant retails at twice the price of the pink coolant.



Figure 2: Coolant Reservoirs

CONTINUED ON PAGE 21

My research into low continuity water coolant was the most interesting part of the exploration. I learned that the level of dissolved solutes in the coolant mixture is what affects the level of continuity in the water. Dissolved solutes include salts and minerals that are measured in units of parts per million. I purchased a TDS (total dissolved solutes) meter and tested a variety of premixed coolants (**See figure 3 – Coolant testing**). I was very surprised to learn that the premixed coolants we have on the shelf varied widely in the level of dissolved solids. I believe that the lesson learned from this research is very simple; it is important to use the proper coolant in the correct system to prevent unintended failures.

I will finish this article with the same offer I make after each of my presentations. If you are interested in getting started in the process of adding hybrid and electric vehicles to your curriculum or want more information, please feel free to [reach out](#). I am more than willing to sit down in-person or online and share my experiences. Are you looking for a classroom textbook? [Reach out to Pearson](#) and ask for a review copy of the all-new [Electric and Hybrid Electric Vehicle](#) text that Jim Halderman and I co-authored. It is a comprehensive text covering all the latest information on the subject.



Figure 3: Coolant Testing

Want to learn from other educators on what they are doing for classroom engagement?



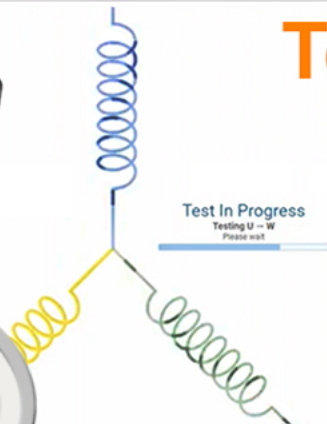
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EVPRO+ CONGRATULATES SOUTHERN MAINE COMMUNITY COLLEGE ON ITS ELECTRIC VEHICLE TECHNICIAN TRAINING PROGRAM

Midlothian, TX- April 25, 2023-Future Tech Auto and EVPro+ congratulate Southern Maine Community College (SMCC) and Automotive Technology Department Chair, Ruth Morrison for being honored with Presidential recognition for their electric vehicle (EV) technician training program.



First lady Jill Biden with Education Secretary Miguel Cardona during a tour of Southern Maine Community College.

On Wednesday, April 5th, First Lady Jill Biden, Secretary of Education, Miguel Cardona, and U.S. Representative Chellie Pingree visited the electrical vehicle technician training program at Southern Maine Community College in Portland, Maine. The visit was part of the Biden-Harris administration's "Investing in America" tour to highlight how the current administration's economic policies are benefiting hard working Americans across the country.

"EVPRO+ is proud to be an EV Solutions supplier to the Southern Maine Community College automotive program providing them virtual and hands on training, certification exams, EV diagnostic tools and equipment," remarked Chris Quarto of EVPRO+. "SMCC currently has two instructors completing training components in addition to completing exams to secure their EVPro+ Global Certifications authenticated by SAE-ITC (they have earned Level 1 and are enrolled for Level 2 in our August 2023 event)."

Ruth Morrison explains why SMCC has offered an EV technician training program, "A local business requested training in EV service. I had wanted to offer a class in this subject for years because I thought it was interesting and important. Once we had interest from the local business community our Workforce Development Department was able to get grant money from Maine Quality Centers to purchase tools and offer the course for free to professional technicians and students. Our EV course is aligned with (Maine) Governor Mills' goals of workforce training in green jobs, so the administration is offering a lot of support. The Governor's staff also encouraged us to apply for Congressional Directed Spending to expand our EV curriculum, and it was awarded to us."

Why did SMCC choose EVPRO+ as your curriculum provider? Ruth explains, "Dr. Quarto is an excellent instructor! I took classes with him in 2009 and 2010 and the information he provided was so thorough, practical, and well presented. It was much more useful than any OEM factory training I had. When we finally got the class going in 2019, I turned to Future Tech Auto and found the online training that was so convenient, along with the specialized tools and equipment that Future Tech Auto offers. I have been frustrated that EV tasks have been slow to be incorporated into certification standards. I appreciate that EVPRO+ is a high standard of training supported by SAE. I am glad that EVPRO+ includes hands on testing and is not just a written test."

How did it feel for the SMCC program to be recognized by the Biden-Harris administration? "It is an honor to be recognized by the White House. Dr. Biden is a community college professor, so she is familiar with the territory and that makes it especially meaningful that we were chosen for her visit. Secretary Cardona shared that he took four years of automotive classes in high school, so that was a special connection too. Recognition from the White House and the Department of Education reinforces the importance of our work training students to service EV's. I am encouraged to keep building our program. It was also just wicked exciting preparing for the big visit and showing off our program. I am so proud of our rockstar students who presented their projects to our special visitors," remarked Ruth.



First lady Jill Biden learns more about the Electronic Vehicle Technician Training Program at Southern Maine Community College.

[Video coverage of this event can be viewed at this link.](#)

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- Min. 5 years automotive repair/service experience
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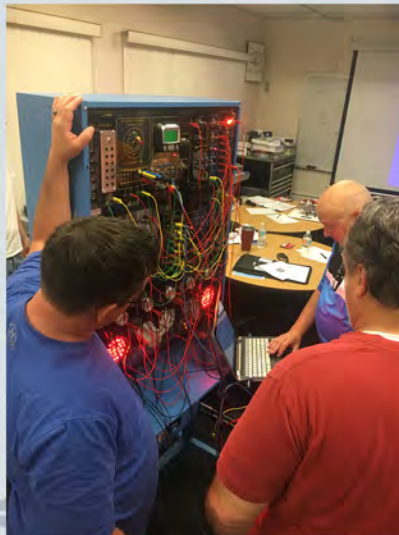
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The mission of the Youth Automotive Training Center is to train and educate at-risk youth in basic automotive repair skills, academic remediation, job readiness and life management skills. The goal of this program is to prepare young adults who are at a disadvantage in their lives to become self-sufficient, productive, law-abiding citizens.

Location: Deerfield Beach, FL

ConsuLab salutes Al Santini as NACAT 2023 Keynote Speaker



Be sure to listen to the Great Santini address the NACAT attendees as the keynote speaker.

His topic will be: 50 Years of Teaching: A Comical Look at Situations that Shaped How I Work in Schools with Students.

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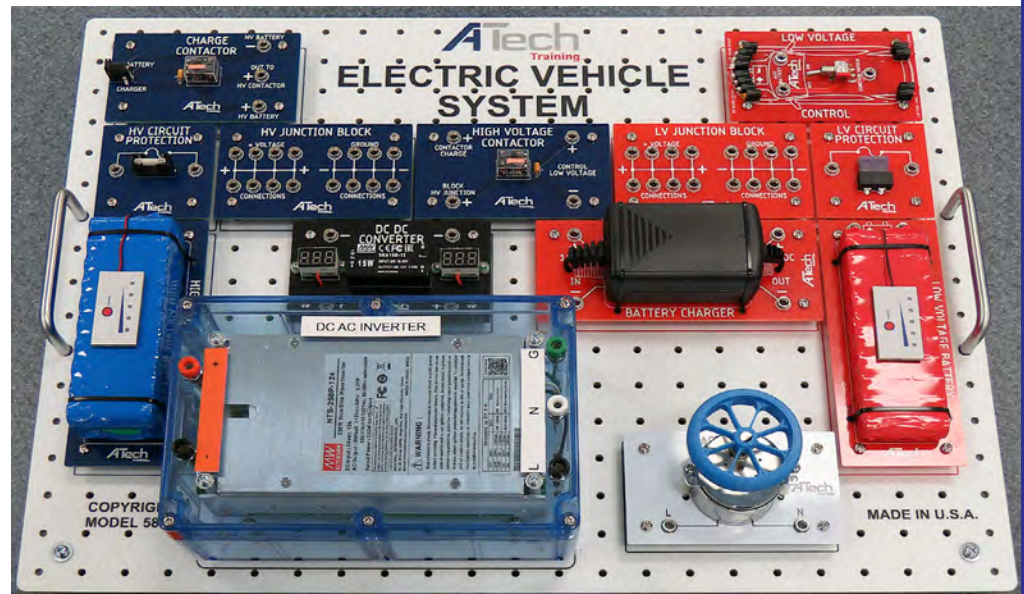
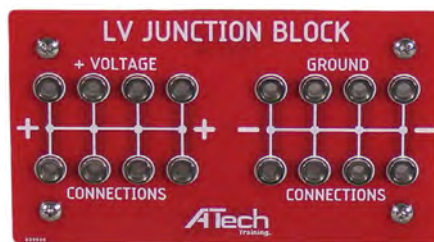
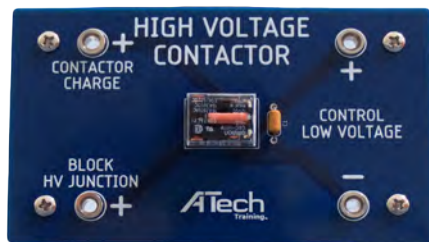
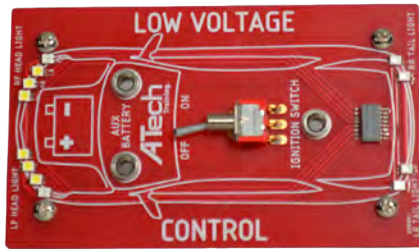
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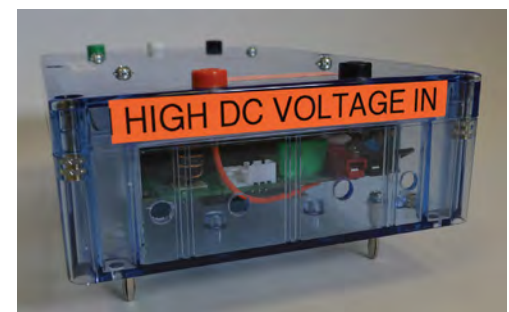
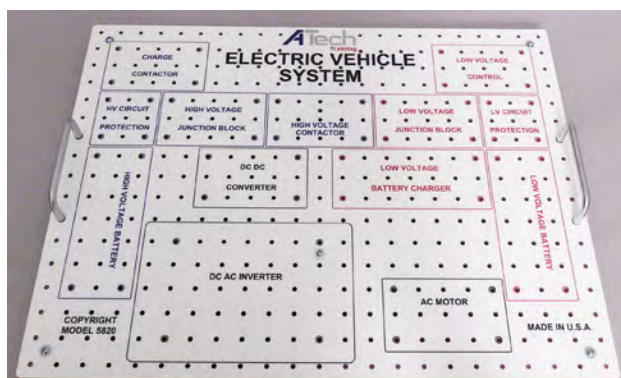
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MOUNT WACHUSETT COMMUNITY COLLEGE AUTOMOTIVE TECHNICIAN PROGRAM AWARDED NATIONAL SCIENCE FOUNDATION GRANT TO DEVELOP ELECTRIC VEHICLE TECHNICIAN TRAINING

The National Science Foundation awarded Mount Wachusett Community College a \$350,000 [grant](#) to train electric vehicle technicians.

The college will use the "Accelerating Massachusetts Automotive Future: Producing Electric Vehicle Technicians" grant over three years to develop a new Hybrid and EV curriculum for an Advanced Automotive Technician Hybrid and EV certificate and degree program. They will recruit 40 students into this advanced automotive degree and certificate program in the repair and maintenance of Hybrid and Electric Vehicles. The project will provide professional development for faculty, equip the program with Hybrid and EV training equipment, and develop a new state-of-the-art industry-led curriculum. The grant also extends opportunities to students in dual enrollment high school programs, allowing the chance to enroll in the entry-level Introduction to Automotive Technician dual credit course.



Eric Almeida
Director of Automotive
Programs at MWCC at the
Automotive Campus.

"We are very excited about the opportunities this grant presents to help recruit more women to the industry, and for the opportunity for dual enrollment as well," noted Eric Almeida. "This grant will help the Mount to provide access to auto tech careers to a diverse student population, including those who may not have been admitted into local vocational high schools due to high demand."

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Congratulations

to our newly elected
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HYUNDAI PARTNERS WITH SAVANNAH TECHNICAL COLLEGE TO DEVELOP NEW ELECTRIC VEHICLE TRAINING PROGRAM

Leadership from Hyundai Motor Group Metaplant America (HMGMA) and Savannah Technical College (STC) signed a Memorandum of Understanding (MOU) for a training partnership today. HMGMA CEO/President Oscar Kwon and STC President Dr. Kathy Love signed the MOU followed by a champagne toast for attendees.

"Everything we do at Savannah Technical College is about workforce development for our region," said Dr. Love. "We are proud to partner with HMGMA to help train their workforce. We appreciate their input to develop this short-term, specialized training certificate."

The first program with this partnership is a new [Electric Vehicle Professional](#) certificate starting next semester at Savannah Technical College. Those that complete the program will be preferred for employment with HMGMA. "HMGMA is excited to work with Savannah Technical College now and for many years to come. This partnership gives the community a clear pathway to employment at our exciting and cutting-edge smart factory," said Mr. Oscar Kwon.

This certificate was designed at the request of Hyundai to prepare students for entry level employment in the electric vehicle production industry. Training emphasis will be placed on safe and effective automotive shop operations, automotive electrical principles, and operation and service of electric vehicles. Graduates will have the skill set to work in sub-assembly shops, building components. They could also work on the production floor to manufacture electric vehicles.



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For more than 30 years, the Automotive Lift Institute (ALI) has taught millions of people how to properly use car and truck lifts through its copyrighted Lifting It Right™ program. Lifting It Right is the world's best-selling lift safety training program. It's the industry standard on how to properly operate any vehicle lift, including two-post, four-post, inground, low-rise, mid-rise, scissors, parallelogram, and mobile column lifts.

The interactive online course covers how to spot, lift, and lower a vehicle, prepare the service bay, and maintain load stability. It also includes basic lift maintenance. The course is mobile friendly and can be completed on a laptop, phone, or tablet.

An annual subscription lets schools offer the course to all students. Most finish it in about an hour and will receive a certificate completion after passing the final quiz.

A companion to the online course, the new second edition of the Lifting It Right car lift safety manual, reinforces and expands upon the safe lifting practices presented in the online course. Available in print or as a digital version for the first time in 2023, the manual provides the latest guidance on lift safety best practices. The second edition includes new content on lift capacity, lift inspection, load-holding devices, swing arm restraints, and being a safe lift operator. It also has a glossary.



Teach your students the proper operation of automotive lifts to help them stay safe in the bay at school and beyond with Lifting It Right, the world's best-selling lift safety training program.

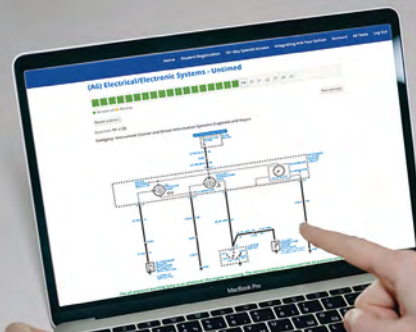
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1. Fall 2022 Student Monitor Report; 2. Cengage Unlimited surveys conducted by Marketing and Research teams 2018-2021; 3. From August 2018 through October 2022

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Bridging the Gap Between ICE and EV Starts at the Basics

By Jimmy Dinsmore, ConsuLab



EV-601-TS

Just recently ConsuLab excitedly launched our first-ever dedicated EV training aid. The **EV-601** is a Tesla-based full car that will provide hands-on exploration of a complete electrical vehicle, but in a safe environment.

The **EV-601-TS_053322 ALL EV iDEV training car** by ConsuLab has all major components identified in their actual location. Most have been exposed (cutaway) in a way that is not possible on an operating vehicle. This helps today's visual students attain a better understanding of how an electric vehicle works.

And therein lies one of the big hurdles for instructors. Are your students ready? Are you, the instructor, ready?

To find out answers to those questions, we asked members of ConsuLab's education team. Al Santini, who will be the keynote speaker at this year's NACAT conference, said that there is no simple answer to where to start or what you should be teaching. "One area we don't do enough in pertains to communication (CAN Bus)," Al said. "Communication within the vehicle is one of the few technologies that goes between gas engines and EVs." Al's parting advice to uncertain instructors is to focus on the basics. "Basics, basics, basic, that's the best place to start."

Another shared technology between ICE and EV is in Advanced Driver Assist Systems (ADAS). ConsuLab recently launched a revolutionary ADAS training aid this year. It's a perfect companion to the **EV-601 Tesla car**. ADAS is on all of today's modern vehicles, both gas powered, diesel-powered and electric.

Mastering ADAS will be vital for the electrified future. ConsuLab's **EV-360 ADAS trainer** was designed to demonstrate the fundamental concepts and technologies currently incorporated in today's advanced vehicles (whether they're gas or electric). This trainer allows a student to visualize sensor readings and results, literally locating where the components are on a vehicle and compares the strengths and weaknesses of the various sensors and technologies to one another.



EV-360 ADAS Trainer



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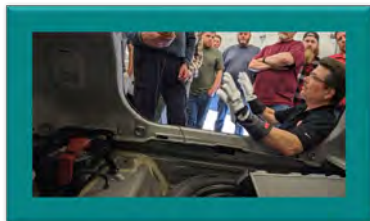
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Keeping Pace with Technology and Preparing Students for the Future Entry-Level Skill Competency, Hands-On Practice, and Certification Prep

By: Cathy Scheffers, Marketing Manager and Erin Brennan, Senior Acquisitions Editor,
Goodheart-Willcox (G-W) Publisher

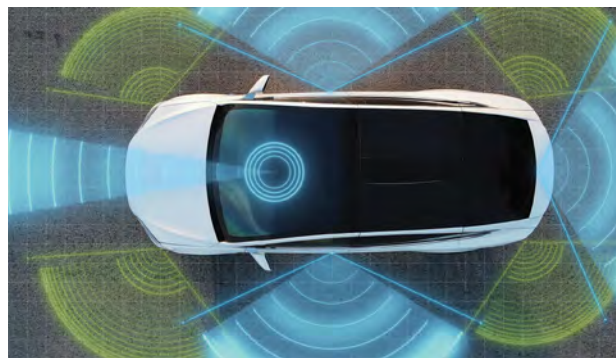
As the transportation industry continues to evolve, Goodheart-Willcox is committed to providing the highest quality, most up-to-date instructional resources that support educators and help prepare students to become skilled technicians.

The newest title in the line-up (available August 2023) is *Advanced Driver Assistance Systems (ADAS)*, a comprehensive text devoted to ADAS technology, written by the outstanding author team of Steve Zack, Kurt Shadbolt, and Scott Brown. This text provides students and automotive technicians with the knowledge they need to understand, identify, document, and calibrate ADAS technologies. With job sheets that provide hands-on practice, plus end-of-chapter ASE-type questions, this text is designed to prepare students for ASE's new Advanced Driver Assistance Systems Specialist (Test L4) certification.

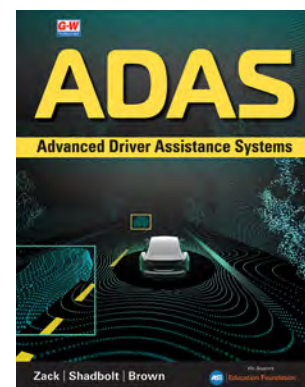
To engage students and provide real-world scenarios, special features throughout the chapters include Case Studies, Pro Tips, and Deep Dives, which expand on interesting aspects of the text. Author-developed videos provide visual explanations of concepts and allow students an up-close look at ADAS in action. Online Instructor Resources support instructors with lesson plans, PowerPoints, and assessments.

Available in print and online options, *Advanced Driver Assistance Systems (ADAS)* is appropriate for high school and college transportation programs. Instructors can reach out to their G-W Educational Consultant (www.g-w.com/consultant) to reserve an advance sample of this new textbook.

Learn more about G-W transportation resources at www.g-w.com/automotive.



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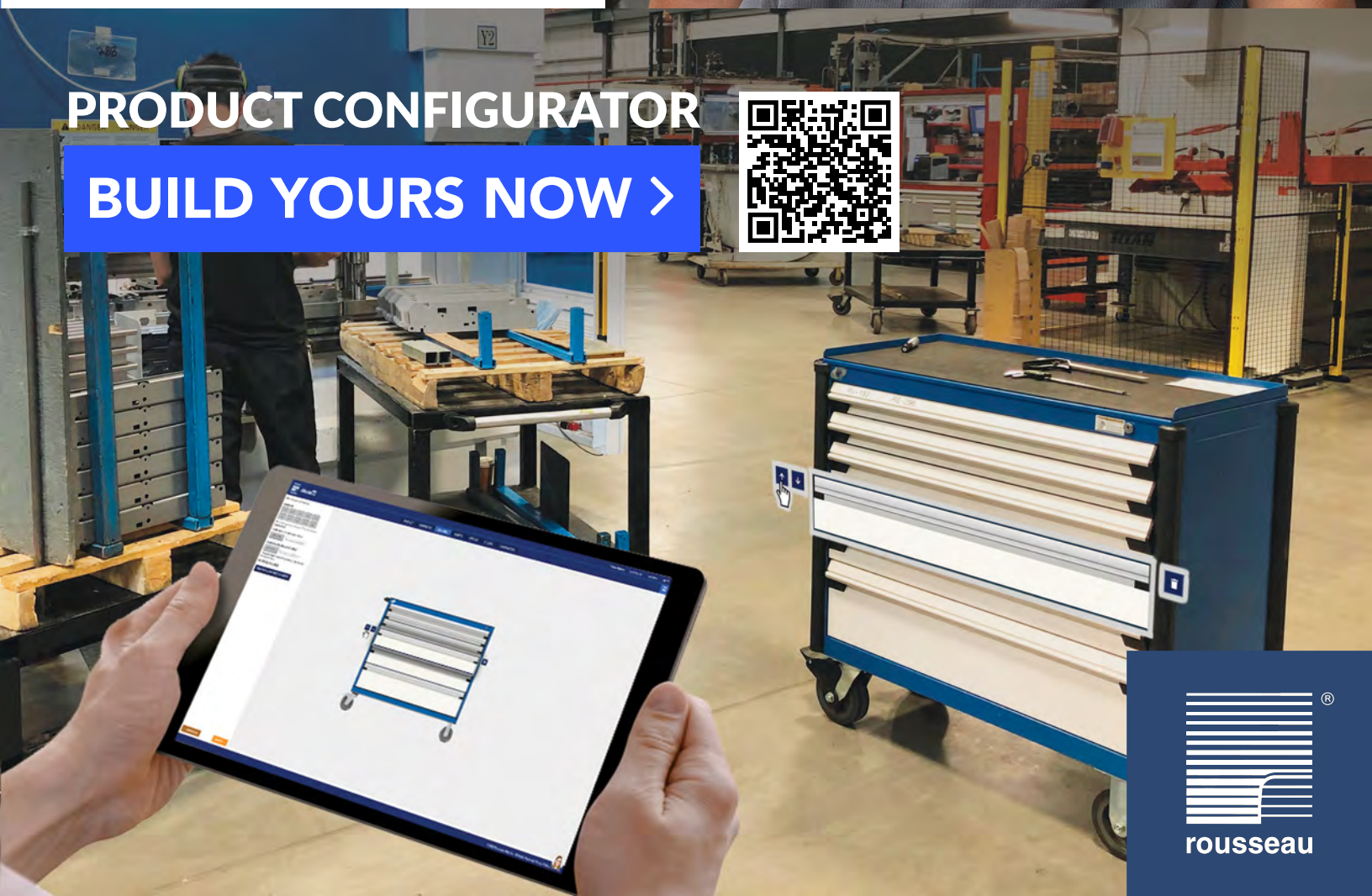
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