



# 2019 Summer Professional Development Course Electric-Drive Vehicles Technology

## Benefits of Attending

By attending this workshop, you will be able to:

- Explore the state-of-the-art advanced automotive technology including electric-drive vehicles, fuel cell vehicles, connected and autonomous vehicles, energy storage systems, power electronics and traction motors;
- Receive course materials and a certificate of completion certification accredited by WSU; and
- Discuss the emerging technologies, challenges, and development closely with professionals.

## Who Should Attend

The workshop is designed to provide fundamentals of electric-drive vehicle powertrain configurations, electric propulsion components, energy storage systems, power electronics and electric machines to

- Community college instructors / administrators;
- 4-year college/university engineering or technology faculty;
- High school science or technology teachers; and
- Automotive industry professionals.

## Workshop Content

### Topic 1: Overview of HEV/PHEV/EV/FCV

- Roadmap of vehicle electrifications
- Overview of vehicle road load
- Hybrid powertrains and components
- Fuel-cell systems for vehicle accessories
- Fuel-cell powered systems for vehicles
- Hydrogen storage systems for fuel-cell and infrastructure

### Topic 2: Advanced Battery Systems for Hybrid and Electric Vehicles

- Types of On-board Energy Storage
- Fundamentals of electrochemistry
- Battery cell characteristics, monitoring, and balancing
- Battery pack design, control, and management

### Topic 3: Power Electronics and Traction Motor for Electric-drive Vehicles

- Fundamentals of power electronics and traction motor
- Power switch analysis and controls of power electronics
- Analyze and design of traction motor

### Topic 4: Cooperative Connected Vehicle

- Connected vehicles and autonomous Development
- V2X fundamentals: principles, standards, consortiums and prior work
- Government mandate
- Vehicle to Vehicle, Vehicle to Infrastructure, and Vehicle to Pedestrian safety applications.
- V2X challenges: security and privacy, positioning, deployment, scalability.
- DSRC versus cellular based technology for V2X



## Time

9:00 a.m. - 5:00 p.m.

June 27 and 28, 2019.

## Location

New York Automotive and Diesel Institute (NYADI)  
College of Automotive and Diesel Technology  
178-18 Liberty Avenue  
Jamaica, NY 11433  
<https://nyadi.edu/>

## Stipend

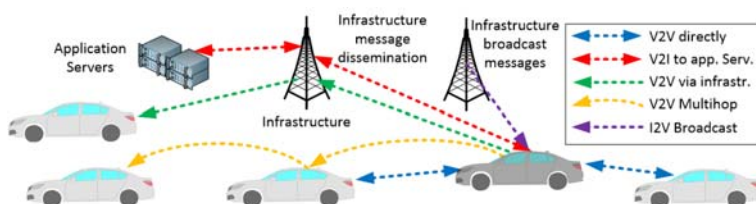
There is no registration fee for attending this workshop. Each participant will receive a **\$150** stipend upon completion of the workshop.

## To Register

Submit the application form on the second page of the flyer by Monday, June 10, 2019 to:  
[geneliao@wayne.edu](mailto:geneliao@wayne.edu)  
or Fax 313-577-1781

Seats are limited, please apply early. If you have additional questions, please contact Dr. Gene Liao at 313-577-8078 or above email.

<http://autocaat.org/Home/>



## 2019 Summer Professional Development Course

PLEASE READ THE INFORMATION BELOW, TYPE OR CAREFULLY PRINT

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Institution / Company Name \_\_\_\_\_

Position / Title \_\_\_\_\_

**Major Responsibility / Purpose**

( Please specifically describe the program and courses you are teaching, and your plan to use the workshop materials for your program)

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Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Zip \_\_\_\_\_ Phone \_\_\_\_\_

Email \_\_\_\_\_

**S.S. Number needs to be provided by all attendees for stipend purpose. A W-9 form will be sent by us requesting this information once your application has been accepted.  
PLEASE DO NOT ENCLOSE YOUR S.S.N. ON THIS FORM.**



Submit your application to [geneliao@wayne.edu](mailto:geneliao@wayne.edu) or fax to 313-577-1781 by **June 10, 2019**. For additional questions, please contact Dr. Gene Liao at 313-577-8078.

