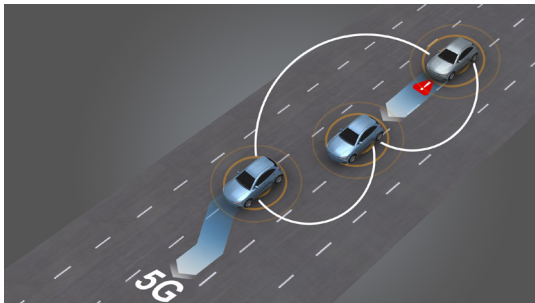


Autonomous, Connected, Electric, and Shared (ACES) Vehicle Fundamentals

eLearning courses designed to increase productivity and profits



Learning made Simple, Visual, and Interactive

The THORS Autonomous, Connected, Electric, and Shared (ACES) Vehicle Fundamentals course explores new technologies that will revolutionize the world of mobility. Empower yourself with the concepts related to ADAS and AI that are enabling self-driving vehicles. Explore the various technologies used in V2X communication, electrification, and ridesharing. This course provides a visually engaging learning experience that is measurable with pre-assessment and post-assessment quizzes.

Credit Hours **2**

Learning Objectives

- Recall the five different levels of autonomy.
- Explain the various autonomous feature functionalities.
- Understand connected vehicles that utilize V2X communication and technologies.
- Recognize the electric vehicle components.
- Differentiate between the types of electric vehicles used in the industry.
- Elaborate on the various ridesharing methods and carsharing methods.

Table of Contents

I. Autonomous Vehicles

- **Autonomy Levels**
- **Autonomous Feature Functionalities**
 - o Adaptive Cruise Control
 - o Automatic Emergency Braking
 - o Driver-Alert System
 - o Head-Up Display
 - o Front and 360-Degree Camera
 - o Lane Assistance
 - o Parking Sensors
 - o Rear Cross-Traffic and Blind Spot Detection
 - o Review Camera
 - o Artificial Intelligence
- **Advanced Driving Assisted Systems**

II. Connected Vehicles

- **V2X Communication**
- **V2V Communication**
- **V2P Communication**
- **V2I Communication**
- **V2N Communication**
- **V2X Technologies**
 - o DSRC
 - o C-V2X
 - o Embedded Modems
 - o Tethered Devices

III. Electric Vehicles

- **Types of Vehicle Electrification**
 - o Hybrid Electric Vehicles
 - o Battery Electric Vehicles
 - o Fuel Cells Electric Vehicles
- **EV Components**
 - o Electric Machines
 - o Electric Transmission
 - o Electric Axle
- **Power Management System**
- **Charging Stations**

IV. Shared Vehicles

- **Types of Shared Vehicles**
 - o Ridesharing
 - o Station-Based Vehicles
 - o Carsharing

