



Course Title: Automotive Lighting and Testing Requirements

Course Length: 1 day

Time Online: N/A

Time in Class: 8 hours

Time in Lab: N/A

Class Size: Minimum 5 / Maximum 24

Price Per Student: \$1,215.00*

Location: Company Site

Course Description:

It has not been commonly known that automotive exterior lights are safety devices and must comply with governmental regulations. Since the 1930s, the SAE Lighting Standards Committee has been actively working with the automotive industry OEMs, lamp makers, tier-two suppliers, and human factor experts to develop automotive lighting standards. These standards have been widely used or referenced by the U.S. federal or state governments in establishing and enforcing the lighting regulations. This seminar emphasizes the safety importance of automotive lighting devices and provides important information on lighting functions, standards or regulations, testing and evaluations.

This course has been approved by the Accreditation Commission for Traffic Accident Reconstruction (ACTAR) for 6 Continuing Education Units (CEUs). Upon completion of this seminar, accredited reconstructionists should mail a copy of their course certificate and the \$5 student CEU fee to ACTAR, PO Box 1493, North Platte, NE 69103.

Course Learning Objectives

By attending this course, participants will be able to:

- Describe the legal aspects and implications related to automotive lighting
- Search for and use the lighting related standards for all exterior lighting devices
- Establish or assist with lighting tests and evaluations.

Course Syllabus

- Introduction – SAE Lighting Standards Committee
 - Current organization
 - History
 - Duties, responsibilities and membership
- Definitions and Terminologies Used in Automotive Lighting
 - Illumination devices -- Functions; Types; Basic structure

* Price based on minimum enrollment, subject to change

- Classification of automotive lighting - definitions and operations -- Forward lighting; Signal lighting; Auxiliary lamps
- Automotive lighting terminology -- Terminology; Identification code; Inspection code
- Testing and Evaluations
 - General categories -- What needs to be tested?; Photometry tests; Environmental tests; Electrical tests; On-vehicle tests; Special tests for selective devices using HID, LED, neon and other light sources
 - Testing equipment -- Photometry test equipment; Environmental tests equipment; Electrical tests equipment
 - Test methods: lighting sources, subsystems, and devices -- Light source test; Special test for subsystems; Device test
 - Material tests -- Weatherability; High deformation temperature (HDT); Optical characteristic; Chemical and physical behavior
 - Human factor evaluations -- What are human factors?; Headlamp safety - seeing distance; Driver's comfort and glare; Signal detection
- Automotive Lighting Requirements
 - Industry standards and government regulations
 - SAE Requirements -- Classification; Component related requirements; Device related requirements
 - U.S. federal government requirements -- NHTSA; FVMSS 108; Petition and interpretation; Recalls
 - Comparison of SAE vs. U.S. federal regulations -- Light source and subsystem requirements; Photometry requirements for all lamps; General environmental requirements for all lighting devices; Additional environmental requirements for forward lighting devices; Additional environmental requirements for device functions – forward lighting and signal lighting devices; Technology specific requirements; Material requirements
- International requirements -- Economic Commission for Europe (ECE); International Harmonization; Global Technology Regulations (GTR)