

ELECTRIC VEHICLES FUNDAMENTALS (EVF)



**MICHIGAN
MANUFACTURING
TECHNOLOGY
CENTER**

CERTIFICATION

AS OF 2022, THERE WERE NEARLY 20 MILLION ELECTRIC VEHICLES (EV) ON THE ROAD AROUND THE WORLD*

To help meet the growing demand for EVs and battery-operated devices, SME is introducing its first Electrification Certification, Electric Vehicles Fundamentals, to increase talent in the EV industry. This credential is designed for entry-level positions in the areas of automotive assembly and production for electric vehicles. The EV Fundamentals will also provide the necessary skills for individuals with no background in vehicle production and assembly or for individuals who have experience in this area but need to tailor their knowledge to the EV market. The credential is ideal for high school and college students, dislocated workers, under-employed individuals, veterans, at-risk youth, and others who are seeking new employment in a new, fast-growing industry.

SHORT-TERM, COMPREHENSIVE TRAINING

The online classes from Tooling U-SME cover topics agreed upon by manufacturing experts as being relevant for foundational EV knowledge across a wide-range of industries. The information is presented in an engaging and interactive format for maximum effectiveness, and pre-and post assessments measure a student's increased knowledge. Classes are self-paced, typically taking 60 minutes to complete. The training program can be completed in just a few weeks (typically less than one month). They are conveniently accessible anytime, anywhere on desktops and laptops, and on tablets and phones with the Tooling U-SME app.

BUILD A COMPREHENSIVE FOUNDATION OF KNOWLEDGE

This program focuses on the fundamentals of electric vehicles required as a starting point for any career pathway a candidate may pursue in the field of EV:

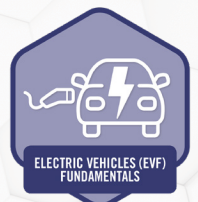
- EV Production and Assembly
- Safety
- Quality
- Measurement
- Math Fundamentals
- Blueprint Reading
- Robotics
- Electrical Units
- Power Sources and Variables
- Battery Components and Management
- Fundamentals of Electric Mobility

EARN A NATIONALLY RECOGNIZED CERTIFICATION

The SME Electric Vehicles Fundamentals (EVF) is focused on the fundamentals of Electric vehicles. The credential can help individuals begin a lifelong career in a growing industry where there is opportunity for advancement and good-paying jobs.

GAIN VISIBILITY WITH A DIGITAL BADGE

Upon passing the certification exam, individuals will earn a digital badge, providing enhanced opportunities to share their qualifications and get discovered by employers.



Choose a starting point based on employee's experience or company goals for a quick-start training solution.

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ELECTRIC VEHICLES FUNDAMENTALS

High Energy Batteries
Lithium Ion Battery Handling & Safety
Introduction to Electric Mobility Manufacturing
Overview of Electric Vehicle Components
Lockout/Tagout Procedures
SDS and Hazard Communication
Hazardous Materials Handling
Bloodborne Pathogens
Fire Safety and Prevention
Ergonomics
Arc Flash Safety
High Voltage Safety
Machine Guarding
Light Curtains Overview
Lean Manufacturing Overview
Quality Overview
Blueprint Reading
Basic Measurement
Nondestructive Testing
Inspecting with CMMs
Introduction to CMM Arms
Introduction to Laser Trackers
Structured Light 3D Scanners
3D Laser Scanners
Intro to OSHA
5S Overview

Cell Design and Pull Systems
Metrics for Lean
Total Quality Management Overview
Value Stream Mapping: The Current State
Value Stream Mapping: The Future State
Continuous Process Improvement: Managing Flow
Continuous Process Improvement: Identifying and Eliminating Waste
Personal Protective Equipment
ISO 9001: 2015 Review
IATF 16949:2016 Overview
Quality and Customer Service
Intro to Adhesive Bonding
Intro to Coating Composition
Introduction to Assembly
Abrasive Finishing Processes
Electrical Units
Safety for Electrical Work
DC Power Sources
Battery Selection
Introduction to Mechanical Systems
Introduction to Fluid Systems
Introduction to Welding
Introduction to Welding Processes
Overview of Soldering
Introduction to Automation

Introduction to Additive Manufacturing
Additive Manufacturing Safety
The Basic Additive Manufacturing Process
Additive Manufacturing Methods and Materials
The Additive Manufacturing Supply Chain
Design for Additive Manufacturing
Additive Manufacturing Materials Science
Additive Manufacturing as a Secondary Process
Introduction to Robotics
Robot Safety
Robot Application
Robot Axes and Pathways
Introduction to Collaborative Robots
Introduction to Smart Manufacturing
Introduction to the Industrial Internet of Things
Introduction to Digital Twin
Essentials of Communication
Conflict Resolution Principles
Conflict Resolution for Different Groups
Team Leadership
Managing the Diverse Workplace
Wire Harness Components