
Core Tools Champion (APQP, PPAP, FMEA, SPC, MSA)

Course Description

This hands-on, activity-driven course immerses participants in the five essential Core Tools—Advanced Product Quality Planning (APQP), Production Part Approval Process (PPAP), Failure Mode and Effects Analysis (FMEA), Statistical Process Control (SPC), and Measurement Systems Analysis (MSA)—as defined by AIAG and IATF 16949 requirements.

Through real-world case studies, group activities, and interactive simulations, attendees will learn by doing—applying each tool in practical scenarios that mirror real manufacturing challenges. Emphasis is placed not only on technical proficiency but also on linking Core Tools to measurable financial gains, such as reduced scrap, minimized rework, lower warranty claims, and improved throughput.

By the end of the course, participants will understand how to integrate these tools into a seamless quality planning and control system that drives both compliance and profitability.

Course Objectives

Understand & Integrate Core Tools:

- Explain the role of APQP, PPAP, FMEA, SPC, and MSA in product quality planning and launch.
- Map Core Tools activities to IATF 16949 and customer-specific requirements.

Apply Tools in Real Situations:

- Conduct risk-based planning using FMEA to prevent costly design and process failures.
- Develop and submit compliant PPAP documentation packages.
- Use SPC to monitor, control, and improve processes in real time.
- Perform MSA studies to validate measurement system reliability.

Reinforce Financial Impact:

- Quantify the cost of poor quality (CoPQ) and link tool use to cost reduction.
- Identify opportunities to improve ROI through proactive quality planning.
- Demonstrate how early detection and prevention save material, labor, and warranty costs.

Collaborate Cross-Functionally:

- Engage engineering, quality, and production teams in joint problem-solving.
- Use Core Tools outputs as communication and decision-making aids across departments and with customers.

Achieve Compliance & Competitiveness:

- Ensure processes meet or exceed AIAG Core Tools standards.
- Leverage Core Tools to gain competitive advantage through consistent quality and reduced waste.

Training Format

- Day 1: PPAP & APQP
- Day 2: FMEA
- Day 3: SPC
- Day 4: MSA