



MMTC trainers strive to stay on top of the latest versions of the Core Tools and interpret the requirements for practical deployment. Training sessions are offered in open enrollment format or on-site for employees. Each attendee receives a copy of the latest reference manual issued by AIAG. MMTC offers Core Tools training in:

- APQP, FMEA and PPAP combination
- SPC
- MSA
- Root Cause Analysis and Reporting Methods



MMTC CORE TOOLS TRAINING AND IMPLEMENTATION

Core Tools: APQP, FMEA and PPAP (2-Day Training)

MMTC offers this combination class to train companies in the planning, launch and validation of a new automotive product or process. The course blends the three powerful tools to guide participants through all steps of the launch process. With an emphasis on contextual learning, attendees will use actual production parts in all phases of training.

Advanced Product Quality Planning (APQP) is applied to our injection molding process, which produces several different components that are assembled later. Participants use blueprint drawings for the parts as they learn project management skills in planning the sequence, selecting the gages, inspection points in the process, floor layout, and generating the control plan. Content includes:

- TS 16949 requirements
- Planning and defining the program
- APQP team dynamics
- Product design and development
- Validation of product and process
- Control plan methodology

Failure Mode Effects Analysis (FMEA) During day two of the training, participants apply the latest version of FMEA to the plastic parts to determine “what can go wrong” with the parts and the process. Content includes:

- What is FMEA; how does it fit into APQP
- Quality system requirements
- Recommended FMEA process sequence
- Robust design concepts (DFMEA)
- Design & process FMEA objectives

Production Part Approval Process (PPAP) As the PPAP process is introduced; it is applied to the parts produced. Actual measurements are taken and are used to complete the various test sheets of PPAP. Content includes:

- When is PPAP required (applicability)
- Process requirements
- Dimensional, material & test results
- Floor layout (single process flow)

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Offered on-site or in an open enrollment format the remaining Core Tools are delivered in one day sessions.

Statistical Process Control (SPC) (1-day class)

Basic SPC is applied using the parts produced in the MMTC factory. Participants run a group of sequentially produced parts and then measure them to determine average, range and sigma. Control limits are calculated using these same parts and additional samples are measured and plotted to determine where the process is going and why. Interpretations of results are part of this course as well as capability study exercises.

- Concepts of SPC detection vs. prevention
- Improving the process (attacking waste)
- The 7 statistical tools
- Basic fundamentals
- Gathering data and preparing charts
- X bar and R charts (setting control limits)

Measurement System Analysis (MSA) (1-day class)

If measurements are used to guide decisions, then it follows logically that the more error there is in the measurements, the more error there will be in the decisions based on those measurements. The purpose of Measurement System Analysis is to qualify a measurement system for use by quantifying its accuracy, precision, and stability. Content includes:

- Over-correction/tampering
- Understanding your measurement system
- Basic concepts of gage analysis

Root Cause Analysis and Reporting Methods (1-day class)

Root cause analysis and problem-solving tools are presented and demonstrated in this session. Both internal (yield issues) and external (warranty, field failure, customer complaint) problems are introduced in the manner they are typically encountered. Teams use these tools to identify, analyze and solve the issues and determine root cause. Understanding is gained through practical hands-on exercises using common measurement gauges. Problems are introduced to demonstrate the typical formats for reporting the findings, applying solutions and corrections such as Global 8-D and 7 Step. Tools covered include:

- 5-Whys
- Cause and effect
- Scatter diagram
- Brainstorming
- Process mapping and analysis

For additional information, contact MMTC West at 616-771-0561 or email at mmtcwest@rightplace.org.