

### Feature:

The core tool program is focused to meet automotive supplier requirements with special focus on fundamental of SPC and MSA. Special focus on analysis when MSA results are not achieved. The program includes 1<sup>st</sup> edition of AIAG-VDA FMEA released in 2019 for PFMEA apart from PPAP and APQP. APQP includes overview of PERT & CPM and 23 steps needed to cover five phases of APQP.

### Course Objective:

- 1) Enable participants to meet customer requirement on all five AIAG core tools
- 2) Participants should be able to predict defect based on Cp and CPk
- 3) Avoid common mistakes while conducting MSA and be competitive to analyse when GR&R is not achieved.
- 4) Apply FMEA as a preventive tool using latest standard AIAG - VDA, 1<sup>st</sup> Release 2019
- 5) Apply PPAP and manage APQP phases effectively by applying PERT & CPM technique

### Who Should Attend?

People from quality, production, process engineering, design department, implementer, trainer, consultant, etc.

### Course Duration:

3 Days

### Course Content:

<b>Statistical Process Control</b>	
1) Introduction	8) Z - Curve and estimation of defect rate
2) Precision and accuracy	9) Concept of process capability and process performance
3) Concept of variation	10) X-bar, R Chart
4) Mean Median and Mode	11) Control limits
5) Concept of sigma	12) Out of control condition
6) Histogram	13) Selection of SPC tool
7) Standard Deviation for population and sample	

<b>Measurement System Analysis</b>	
1) Introduction to measurement System Analysis	7) Conducting MSA for variable
2) Accuracy and Precision	8) GR&R and NDC
3) Sources of variability and uncertainty	9) X bar and R chart for variable MSA
4) Concept of number of distinct data category (NDC)	<b>10) Analysis when %GR&amp;R fails to meet target</b>
5) Bias, linearity, stability, repeatability, and reproducibility	11) Analysing attribute MSA
6) Sample collection for variable MSA	12) Sample Collection for attribute
	13) Evaluation of effectiveness, miss rate and false alarm
	14) Evaluation of kappa

<b>Failure Mode &amp; Effect Analysis and Control Plan</b>	
1) Introduction to FMEA	9) Current Prevention Control, Current Detection Control
2) Concept of system, sub system and component	10) Severity, Occurrence, Detection and Action Priority criteria
3) Relationship between, APQP, DFMEA, and PFMEA	11) Actions, responsibility, assessment, status and continual improvement
4) Scope definition	12) PFMEA results and documentation
5) Structure Analysis	13) Development of control plan
6) Functional Analysis	14) Prototype, Pre launch and production control plan
7) Failure Analysis - Failure network and chain, effect, mode and cause	15) Review of control plan
8) Risk Analysis	

<b>Production Part Approval Process and Advanced Product Quality Planning</b>	
<b>Production Part Approval Process</b>	<b>Advanced Product Quality Planning</b>
1) IATF 16949 requirement of product approval	1) Need for planning project
2) Product approval process	2) Capturing customer requirement
3) Level of submission	3) Planning for project
4) Submission warrant	4) Concept of PERT
5) Retention of PPAP documents	5) APQP Phases
6) Retention of master samples	6) Program need date
7) PPAP approval	7) Risk analysis

### Certification:

Certificate of successful completion for one who attend entire duration of the course & pass the written examination. Certificate of participation for those who do not pass in the examination.