FORD AUS- UND WEITERBILDUNG e.V.

Training Catalog 2019 / 2020

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Content

FORD AUS- UND WEITERBILDUNG e.V.

Q1 MSA

Q1 = **Q**uality recognition status by Ford
MSA = **M**anufacturing **S**ite **A**ssessment

Target Audience:
- Employees of all levels and areas, particularly product development, manufacturing, logistics and quality, with responsibility for product quality, process planning, service or part release activities.
- Experienced employees & newcomers, who want to gain an overview of the requirements to attain or maintain the quality recognition status by Ford.

Duration: 8h

Objectives:
At the end of the course delegates will have an overview about:
- Basic prerequisites necessary to achieve part release submission level 1 (self-certifying).
- Related requirements as well as scoring system which rates the supplier site.

Contents:
- Q1 definition and benefits of a Q1 certified supplier site
- Q1 eligibility aspects
- Q1 categories and related metrics
- Q1 scoring system (point awarding within the Q1 categories)
- Customer endorsement to attain Q1 status
- Q1 codes
- Contents of Q1 MSA (**M**anufacturing **S**ite **A**ssessment)

Methods:
Presentation, examples, exercise, interactions and discussions

Prerequisites:
none

Necessary materials:
Pocket calculator

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore, courses can be ordered in German or English language on-site.

2019 / 2020

Q1 MSA Training

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APQP/PPAP Requirements

APQP = **A**dvanced **P**roduct **Q**uality **P**lanning
PPAP = **P**roduction **P**art **A**pproval **P**rocess
[for programs following timing GPDS 3.0 and beyond]

Target Audience:
- Employees at all levels and from all areas (internal and suppliers) – especially from Product Development, Manufacturing, Purchasing and Quality – who are responsible for quality of products, capacity, services and production part release activities.
- Experienced employees & new comers wishing to gain an overview of automotive quality requirements.

Duration: 8h

Objectives:
At the end of the course delegates will have an overview about:
- The collectivity of all Ford requirements to the Suppliers in scope of new product and / or production development.

Contents:
- Background, history, and philosophy of ISO/TS 16949 / IATF 16949,
- Contents of "AIAG 6-Pack",
- Benefit and use of a well-engineered advanced quality planning,
- Structure and contents of vehicle project management,
- Structure and contents of system- and subsystem project management,
- Overview of quality and capacity requirements to be applied in scope of product- and/or process development,
- Meaning and contents of these quality and capacity requirements especially of all Deliverables and related Expectations of Ford's APQP reporting tool "Schedule A",
- Responsibilities and target dates,
- Dependences and relationships amongst these quality requirements.

Methods:
Presentation, examples, project work, and discussions

Prerequisites:
None

Necessary materials:
None

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

APQP PPAP Training

October

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GPDS Supplier Engagement Process
Schedule A / eAPQP / Sub-Tier Supplier APQP

GPDS = **G**lobal **P**roduct **D**evelopment **S**ystem
eAPQP = **e**lectronic **A**dvanced **P**roduct **Q**uality **P**lanning

[for programs following timing GPDS 3.0 and beyond]

Target Audience:
- Employees at all levels and from all areas (internal and suppliers) – especially from Product Development, Manufacturing, Purchasing and Quality – who are responsible for quality of products, services and production part release activities.
- Experienced employees & new comers who want to understand Ford's requirements regarding APQP/PPAP readiness status reporting.

Duration: 6h

Objectives:
At the end of the course delegates will understand:
- The Ford GPDS Supplier Engagement Process,
- The eAPQP application,
- The usage of Health Charts,
- The sub-tier Suppler APQP/PPAP readiness tracking document.

Contents:
- Definition, principles and benefits of the “Supplier Engagement Process”,
- “Priority Supplier” definition and assessment criteria,
- “On-Site Evaluation” definition, topics and plan,
- Reporting forms,
- Usage of Ford's eAPQP reporting tool "Schedule A",
- Handling of part related Health Charts,
- Deliverable rating criteria,
- Sub-tier Supplier APQP/PPAP readiness tracking document and usage,
- Sub-tier Supplier key areas of focus and relating APQP/PPAP Readiness Deliverables.

Method:
Presentation, examples, and discussions

Prerequisites:
“APQP/PPAP Requirements” training contents are assumed as known. The appropriate seminar is usually offered a day before so that it is beneficially to book both training days together.

Necessary materials:
None

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

GPDS Training

October

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January

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CPA Capacity Planning Analysis

Target Audience:

- Employees at all levels and from all areas – especially from Product Development, Manufacturing, Purchasing, Sales, Material Planning & Logistics and Quality – who are responsible for capacity planning, quality of products, services, and production part release activities.
- Experienced employees & new comers who want to understand Ford's requirements regarding capacity planning analysis.

Duration: 4h

Objectives:
At the end of the course delegates will:

- Understand Ford requirements of capacity analysis
- Be able to calculate possible capacities and assess degree of capacity utilization of manufacturing facility
- Be able to register as certified capacity planner in Ford's systems

Contents:

- basics of capacity planning analysis,
- timing for capacity demonstration,
- capacity analysis related terms and abbreviations,
- capacity requirement sources,
- OEE calculation,
- Capacity Analysis Report completion,
- required actions in GCP (**G**lobal **C**apacity **P**lanning) and MCPV (**M**anufacturing **C**apacity **P**lanning **V**olumes),
- interpretation of capacity analysis output,
- transferring capacity analysis figures into Ford's adopted PSW form,
- Certification and registration process for **Certified Capacity Planners.**

Methods:
Presentation, examples, and discussions

Prerequisites:
It is strongly recommended to participate in "APQP/PPAP Requirements" and "GPDS Supplier Engagement Process" trainings before, since CPA is part of these requirements. Only all modules together will explain the complete relationships of all production part release requirements and how to document them.

Necessary materials:
None

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

CPA Training

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December

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Advance Capacity Workshop

Target Audience:
- Employees at all levels and from all areas who are responsible for, or assist in performing, the capacity analysis (current and new models, internally or for sub-tiers), that have some experience with CARs (Capacity Analysis Reports)

Duration: 8h

Objectives:
At the end of the course delegates will:
- Understand Ford capacity analysis process.
- Understand Ford capacity tools and calculations.
- Be able to register as certified capacity planner in Ford's systems or refresh the certification.

Contents:
Capacity Analysis Process Overview:
- Capacity Resources
- Capacity Process & Volume information
- Capacity Studies & GCP/MCPV
- Capacity Risk mitigation

Tools:
- Value Stream Mapping
- Capacity Analysis Report overview & OEE
- Understanding CAR calculations
- CAR 5.6 & practical exercise
- Detailed Shared loading & practical exercise
- Production support Plan / Rate of Climb Chart

Methods:
Presentation, practical examples, and discussions

Prerequisites:
It is mandatory to have some experience with CARs and to have completed the 6-hr Web Based Capacity Analysis Training (Ford Supplier Learning Institute Course ID 18162).

Necessary materials:
Laptops for the practical exercise.

Notes:
Open courses (internal and external delegates) will be held at Ford locations.
Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

Advanced CPA Training

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May

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June

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July

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August

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September

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October

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November

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December

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APQP / PPAP Evidence Workbook (incl. SCCAF):

Evidence to fulfill PSW requirements (Ford)

APQP = **A**dvanced **P**roduct **Q**uality **P**lanning
PPAP = **P**roduction **P**art **A**pproval **P**rocess
SCCAF = **S**pecial **C**haracteristics **C**ommunication and **A**greement **F**orm

Target Audience:

- Employees at all levels and from all areas (internal and suppliers) – especially from Product Development, Manufacturing, Purchasing and Quality – who are responsible for quality of products, services and production part release activities
- Experienced employees & new comers who want to understand Ford's requirements regarding APQP/PPAP Evidence Workbook (incl. SCCAF)

Duration: 3h

Objectives:

At the end of the course delegates will:

- Understand structure of standardizes evidence forms of APQP/PPAP Evidence Workbook
- Know how to complete the APQP/PPAP Evidence Workbook

Contents:

- Background and benefits of APQP/PPAP Evidence Workbook (incl. SCCAF)
- Contents and key Deliverables of APQP/PPAP Evidence Workbook (incl. SCCAF)
- Completing APQP/PPAP Evidence Workbook (incl. SCCAF)
- Meaning of APQP/PPAP Evidence Workbook (incl. SCCAF) key Deliverables
- Necessary expertise for completing APQP/PPAP Evidence Workbook (incl. SCCAF)

Methods:

Presentation, examples, and discussions

Prerequisites:

It is strongly recommended to participate in "GPDS Supplier Engagement Process" training before, since APQP/PPAP Evidence Workbook (incl. SCCAF) is part of these requirements. Only all modules together will explain the complete relationships of all production part release requirements and how to document them.

Necessary materials:

None

Notes:

Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

EWB Training

October

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November

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January

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February

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April

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May

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June

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July

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August

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September

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October

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November

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December

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FMEA **F**ailure **M**ode **E**ffect **A**nalysis:

Prevent, detect and prioritize Failures

Target Audience:

- Employees of all levels and from all areas – especially from Product Development, Manufacturing, Purchasing, Sales and Quality – who take place in the development, production and handling processes.
- Experienced employees & new comers who want to understand Ford's FMEA approach.

Duration: 24h

Objectives:

At the end of the course delegates will understand and can apply:

- Ford's FMEA approach
- Customer (Ford) specific requirements
- Identifying and handling of special characteristics
- To address criticality of design and/or process issues

Contents:

- Design FMEA
- Process FMEA
- Special Characteristics YS/YC, CC/SC/HI/OS
- FAP 03-111
- Handling of special characteristics
- Function approach
- Cause Analysis
- Effect and its Severity
- Risk assessment
- Recommended actions
- Interactions with: Design Control Plan, Production Control Plan, SCCAF
- Special Controls, Poka Yoke

Methods:

Presentation, exercises, case studies, discussion

Prerequisites:

None

Necessary materials:

None

Notes:

Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

FMEA Training

October

M	D	M	D	F	S	S
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November

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December

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January

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February

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March

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April

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May

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June

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July

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August

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September

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October

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November

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December

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Ford Failure Mode Avoidance

Robustness Documentation

Target Audience:

Product Development- and Quality- Engineers

Duration: 8h

Objectives:

The participants will be prepared to conduct, with a special Excel Template, the Ford requested Robustness Documentation to comply with the Failure Mode Avoidance Process

Content:

Boundary Diagram
Function and Robust Design
P-Diagram,
Robustness Checklist
Robustness Demonstration Matrix
Test Methods
Robustness Excel Template

Method:

Presentation and Exercise

Prerequisite:

Ford FMEA Knowledge according Ford FMEA Handbook 4.2

Materials: none

Remarks:

The Trainer is a former Product Development Engineer he is familiar with the Ford FAP's and stays in close contact with Ford of Europe PD Quality and with the worldwide Ford Failure Mode Avoidance Experts.

2019 / 2020

FMA Training on request

October

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November

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December

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January

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February

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March

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April

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May

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June

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July

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August

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September

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October

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November

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December

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FORD AUS- UND WEITERBILDUNG e.V.

Global 8D

Describe the Problem, identify Root Cause and permanent elimination

Target Audience:

- Employees of all levels and from all areas – especially from Product Development, Manufacturing, Purchasing, Sales and Quality – who take place in the development, production and handling processes.
- Experienced employees & new comers who want to understand Ford's G8D approach.

Duration: 24 h.

Objectives:
At the end of the course delegates will understand and can apply:

- Ford's Global 8D approach
- Global 8D report
- G8D to solve problems

Contents:

- Problem description
- Team approach
- Emergency Response Action
- Interim Containment Action
- Permanent Containment Action
- Root cause analysis
- Is./ Is not analysis
- Differences and changes investigation
- Testmatrix
- Root cause of the root cause

Methods:
Presentation, exercises, case studies, discussion

Prerequisites:
None

Necessary materials:
None

Notes:
Open courses (internal and external delegates) will be held at Ford locations.
Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

Global 8D Training

October

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November

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December

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January

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February

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March

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April

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May

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June

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July

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August

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September

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October

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November

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December

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Measurement System Analysis

Basics, Variable and Attributive MSA Procedures acc. AIAG 4th and FORD

Duration: 8h

Target Audience:
- Employees who are responsible for the MSA confirmation.

Aim:
Learn the MSA Requirements:
- MSA AIAG 4th
- Ford

Content:
- Bias,Stability, Linearity
- Study 1 Gage Capability
- Study 2 Anova Gage R&R
- Study 3 Gage R for automated Messurements
- Attributive Short Method
- Attributive Signal Detection
- Attributive Cohens-Kappa-Analyses
- Attributive Gage Performance Curve
- MSA with MiniTab Software

Method:
Presentation and Exercise

Prerequisite:
Basic Statistical Knowledge and SPC Awarness, ideally completion of SPC Training.

Material:
Pocket Calculator or Laptop

Remarks:
The Participants will get several Excel MSA Examples after the Training.

2019 / 2020

MSA Training on request

October

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November

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December

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January

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February

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April

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September

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FORD AUS- UND WEITERBILDUNG e.V.

Statistical Process Control (SPC)

Statistical method for the evidence of Stability and Capability

Target Audience:
Employees at all levels and from all areas (internal and suppliers) – especially from Product Development, Manufacturing, Purchasing and Quality – who are responsible for quality of products and services.

Duration:16h

Objectives:
At the end of the course delegates will be able:

- To dominate important product characteristics in scope of mass production
- To understand customer requirements for process capability
- To derive actions from process capability results

Content:
Purpose of Statistical Process Control is to monitor process dispersion and location in order to control processes. This allows user to take appropriate actions on their processes with reference to continuous improvement. For this the following contains will be considered:

- Background, history and philosophy of SPC,
- Context to other quality tools as source of SPC characteristics,
- Meaning and how to deal on special characteristics,
- Determination and prerequisites for SPC criteria,
- Basics of statistics,
- Shapes of distributions and interpretation,
- Basics of Measurement System Analyses,
- SPC application for variable and attribute data,
- Selection and application of process control charts for variable and attribute data,
- Differentiation of common cause and special cause variation,
- Stability criteria,
- Out-of-control indications,
- Indices to determine process capability (c_p, c_{pk}) and process performance (p_p, p_{pk}),
- Interpretation of indices and derived actions

Methods:
Presentation, examples, exercises and discussions

Prerequisites:
None

Necessary materials:

- calculator

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

SPC Training

October						
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January						
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April						
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June						
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August						
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November						
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December						
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DoE: Design of Experiments

Efficient experiments and identification of significant factors and interactions.

Duration: 16h

Target Audience:

- Research- Design- and Process-Engineers

Target:

The necessary skills will be provided to:

- Plan an experiment
- Run a structured experiment
- Analyse observed data
- Generate a mathematical prediction model

Content:

- One Factor Experiment (linear Regression)
- Full Factor Plan
- Daniel Plot
- Fraction Factor Plan
- Response Surface Experiment

Method:
Presentation, examples, experiments, calculations and discussions

Prerequisite:
None

Material:
Pocket Calculator ideally laptop for DoE excel calculations sheets

Remarks:

DoE training is the prerequisite for the 3 day engineering statistic class.

2019 / 2020

DoE Training on request

October

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November

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December

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January

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February

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April

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May

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July

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August

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November

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December

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Engineering Statistics

Statistical tools for development and process

Target Audience:

- Research-, Design- and Manufacturing - Engineers.
- Black Belts (DCOV)

Duration: 24h

Aim:

Learn important statistical tools for
- Product Development
- Process and Manufacturing

Content:

- DoE
- Process Run Chart
- Taguchi Robust Design
- Weibull Analyses
- Gage R&R
- Response Surface Experiment
- Excel Solver Multiparameter Optimization
- Process Capability Analyses

Method:
Presentation, exercises, calculations and discussions

Prerequisite:
Completion of DoE training class or DoE knowledge and excel basics is mandatory to attend Engineering Statistic Training Class.

Materials:
Laptop for DoE excel calculation sheets.

Remarks:

DoE stands for Design of Experiments a structured efficient Test approach using orthogonal Test Matrices.

DoE is the prerequisite to attend the 3 Day Engineering Statistics training class.

DCOV (Define Characterise Optimise Verify) is the Design for Six Sigma Approach and will be simulated with a Fuel Filler Flap Example during the Engineering Statistics Training.

2019 / 2020

Engineering Statistics Training on request

October

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April

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May

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November

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December

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Production Part Approval Process PPAP

Guideline and basics for PSW

Target Audience:
- Employees at all levels and from all areas (internal and suppliers) – especially from Product Development, Manufacturing, Purchasing and Quality – who are responsible for quality of products, services and production part release activities (no Newcomers!!).
- Employees who want to gain a detailed understanding of Ford's production part release requirements.

Duration: 8h

Objectives:
At the end of the course delegates will understand:
- AIAG PPAP requirements,
- Ford specific requirements for use with PPAP,
- Ford's Global Phased PPAP requirements.

Contents:
- PPAP application
- Submission Levels
- PPAP process requirements
- Ford specifics
- Phased PPAP demands
- Exception management (Alerts)
- PPAP reports (**C**apacity **A**nalysis **R**eport CAR & **P**art **S**ubmission **W**arrant PSW)

Method:
Presentation, examples, and discussions

Prerequisites:
This course is recommended for employees who have already gained experiences on Ford product launch projects. At least prior attendance on "APQP/PPAP Requirements" and / or "GPDS Supplier Engagement Process" training(s) is recommended.

Necessary materials:
None

Notes:
Open courses (internal and external delegates) will be held at Ford locations. Furthermore courses can be ordered in German or English language on-site.

2019 / 2020

PPAP Training on request

October

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November

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December

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January

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February

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March

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April

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November

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December

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