Training Catalog 2022

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“20 years of Quality engineering Tool Teaching each”

FORD AUS- UND WEITERBILDUNG e.V.

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Content

Training Catalog 2022 1
Contact 2
Q1 MSA 5
APQP/PPAP Requirements 7
GPDS Supplier Engagement Process Schedule A / eAPQP / Sub-Tier Supplier APQP 9
CPA Capacity Planning Analysis 11
eCAR electronic Capacity Analysis Report 13
APQP / PPAP Evidence Workbook 15
SCCAF & Control Plan 17
FMEA acc. FORD FMEA HANDBOOK 19
VDA AIAG Design FMEA 21
VDA AIAG Process FMEA 23
Global 8D 25
Statistical Process Control (SPC) 27
DoE: Design of Experiments 29
Engineering Statistics 30
Measurement System Analysis 31
Ford Failure Mode Avoidance 32
Production Part Approval Process PPAP 33
Price List 2022 34

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: presence training 8h / online Training 3x 2h

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
- Q1scoring 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) are offered as presence or live online events.

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Q1 MSA Training

2022

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Classroom Training

modulare 2h Online Live Seminars (coherent) 6h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

APQP/PPAP Requirements

APQP = **A**dvanced **P**roduct **Q**uality **P**lanning
PPAP = **P**roduction **P**art **A**pproval **P**rocess

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: presence training 8h / online Training 3x 2h

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 project management on vehicle level,
- Structure and contents of project management on system- and component level,
- 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) are offered as presence or live online events.

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APQP Training

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Classroom Training

modulare 2h Online Live Seminars (coherent) 6h in total

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

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 & newcomers who want to understand Ford's requirements regarding APQP/PPAP readiness status reporting.

Duration: presence training 6h / online Training 2x 2h

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.

Necessary materials:
None

Notes:
Open courses (internal and external delegates) are offered as presence or live online events

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GPDS Training

2022

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Classroom Training

modulare 2h Online Live Seminars (coherent) 4h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

CPA Capacity Planning Analysis

Capacity Analysis based on EXCEL – for Capacity Analysis based on DATABASE see "eCAR" training

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: presence training 4h / online Training 2x 2h

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) are offered as presence or live online events.

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CPA Training

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Classroom Training

modulare 2h Online Live Seminars (coherent) 4h in total

eCAR electronic Capacity Analysis Report

Capacity Analysis based on DATABASE – for Capacity Analysis based on EXCEL see "CPA" training

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: presence training 4h / online Training 2x 2h

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,
- structure of eCAR database
- 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" training before, as eCAR is part of these requirements and builds on them. 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) are offered as presence or live online events.

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eCAR Training

2022

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modulare 2h Online Live Seminars (coherent) 4h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

APQP / PPAP Evidence Workbook

APQP = **A**dvanced **P**roduct **Q**uality **P**lanning
PPAP = **P**roduction **P**art **A**pproval **P**rocess

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

Duration: presence training 3h / online Training 2.5h

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
- Contents and key Deliverables of APQP/PPAP Evidence Workbook
- Completing APQP/PPAP Evidence Workbook
- Meaning of APQP/PPAP Evidence Workbook key Deliverables
- Necessary expertise for completing APQP/PPAP Evidence Workbook

Methods:
Presentation, examples, and discussions

Prerequisites:
It is strongly recommended to participate in "GPDS Supplier Engagement Process" training before, since APQP/PPAP Evidence Workbook 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) are offered as presence or live online events.

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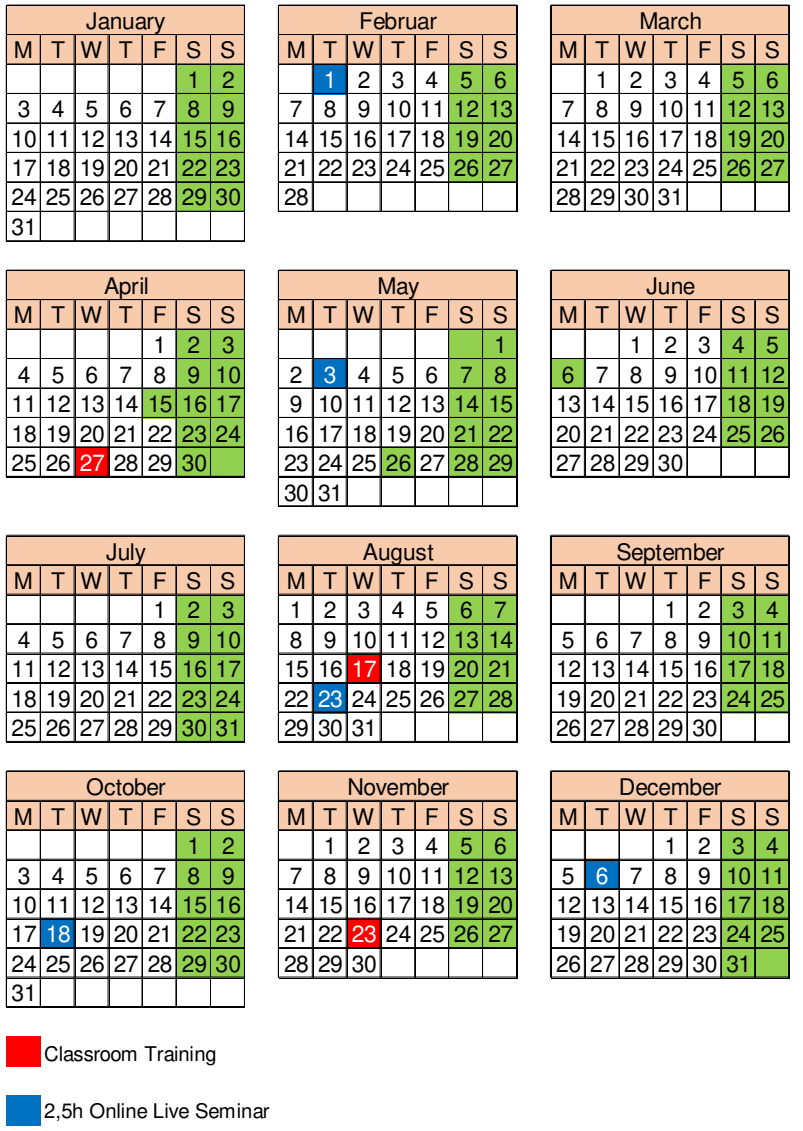
EWB Training

2022



SCCAF & Control Plan

SCCAF = **S**pecial **C**haracteristics **C**ommunication and **A**greement **F**orm

Target Audience:
- Employees of all levels and areas, particularly product development, manufacturing, and quality, with responsibility for product quality, process planning, service or part release activities.
- Experienced employees & newcomers who are involved in the planning, handling and / or approval of Special Characteristics.

Duration: presence training 4h / online Training 2x 2h

Objectives:
At the end of the course delegates will have an overview about:
- The structure and handling of the SCCAF and the Control Plan.
- The rules, procedures and timing for creating these documents.

Contents:
- Definition and benefits of a regular SCCAF process
- Timeline of the SCCAF process and responsibilities
- SCCAF inputs and outputs
- SCCAF change management
- Transition from SCCAF to the Process Control Plan
- Areas and contents of SCCAF and Process Control Plan
- Structure and correct creation of these documents

Methods:
Presentation, examples, exercise, interactions and discussions

Prerequisites:
Basic knowledge of FMEA and the APQP process according to Ford guidelines are desirable and advantageous.

Necessary materials:
none

Notes:
Open courses (internal and external delegates) are offered as presence or live online events.

FORD AUS- UND WEITERBILDUNG e.V.

SCCAF Training

2022

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Classroom Training

modulare 2h Online Live Seminars (coherent) 4h in total

FMEA acc. FORD FMEA HANDBOOK

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 & newcomers who want to understand Ford's FMEA approach.

Duration: Classroom 2,5 days Online separated in Design- and Process-FMEA each 5h

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

- Ford's FMEA approach
- FMEA specific requirements IATF 16949 Ford CSR
- 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
- Foundation-, Family-FMEA and Reverse FMEA

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.

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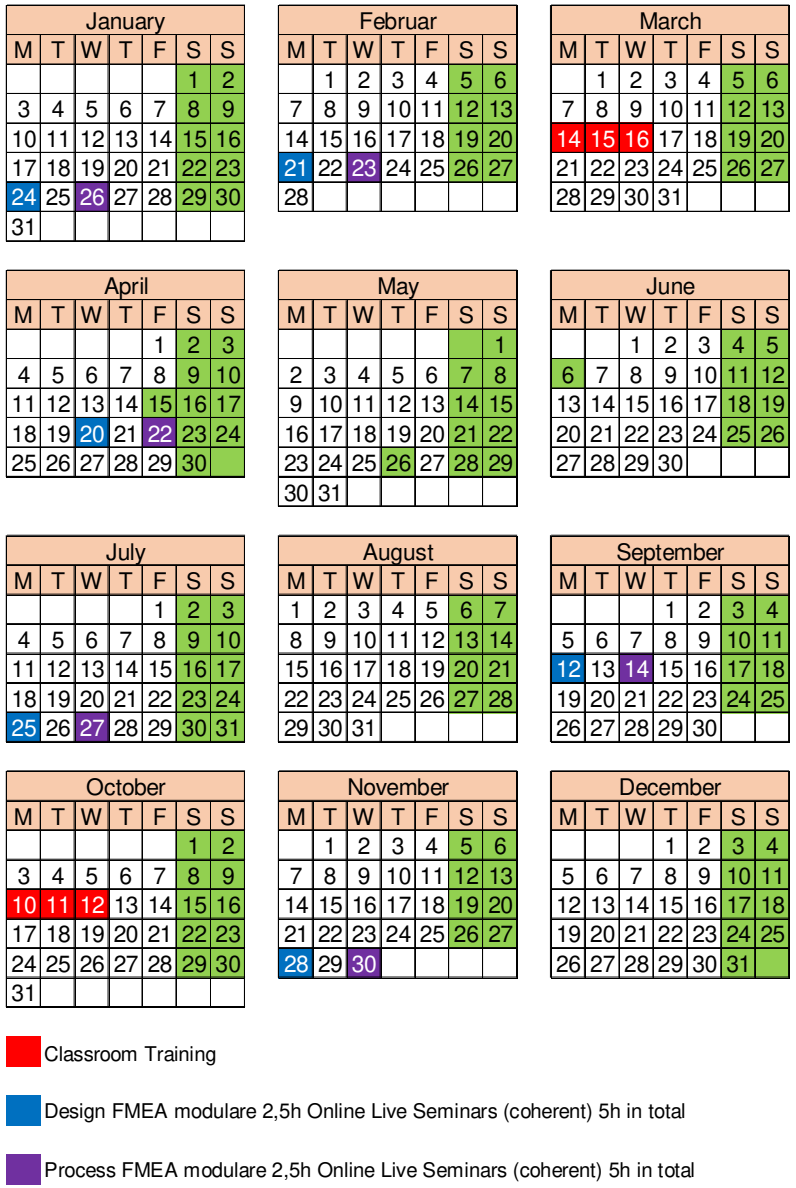
FMEA Training

2022



Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

VDA AIAG Design FMEA Harmonisation 1st edtion :

Prevent, detect and prioritize Failures

Target Audience:

- Employees of all levels and from all areas – especially from Product Development.
- Experienced employees who want to understand VDA AIAG Design FMEA approach.

Duration: Online 4h

Objectives:
At the end of the course delegates will understand:

- The new VDA AIAG Design FMEA approach
- FMEA specific IATF 16949 Ford CSR

Contents:

- The Harmonization VDA AIAG
- The 7 Step approach
- The System Structure
- The Function Failure Net
- The new Design FMEA 3 Layer Form
- Boundary Diagram
- Interface Analyses
- Parameter Diagram and Robustness Checklist
- The new Action Priority (former RPN)
- The new Rating Tables
- Survival Tipps for easier Transition
- Monitor System response FMEA supplement
- Foundation-,Family-FMEA
- FMEA Software use

Methods:
Presentation, exercises, discussion

Prerequisites:
VDA or AIAG FMEA experience

Necessary materials:
none

Notes:
none

FORD AUS- UND WEITERBILDUNG e.V.

VDA AIAG Design FMEA Training

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modulare 2h Online Live Seminars (coherent) 4h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

VDA AIAG Process FMEA Harmonisation 1st edtion :

Prevent, detect and prioritize Failures

Target Audience:

- Manufacturing, Purchasing, Sales and Quality – who take place in the development, production and handling processes.
- Experienced employees who want to understand VDA AIAG Process FMEA approach.

Duration: Online 4h

Objectives:
At the end of the course delegates will understand:

- The new VDA AIAG Process FMEA approach
- FMEA specific IATF 16949 Ford CSR

Contents:

- The Harmonization AIAG VDA
- The 7 Step approach
- The Process Structure
- The Function Failure Net
- The new Process FMEA 3 Layer Form
- Process Flow Diagram
- Micro Operation Process Function description
- 4M approach Failure cause mechanism
- The new Action Priority (former RPN)
- The new Rating Tables
- Survival Tipps for easier Transition
- Foundation-,Family-FMEA and Reverse FMEA
- FMEA Software use

Methods:
Presentation, exercises, discussion

Prerequisites:
VDA or AIAG FMEA experience

Necessary materials:
none

Notes:
none

FORD AUS- UND WEITERBILDUNG e.V.

VDA AIAG Process FMEA Training

2022

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modulare 2h Online Live Seminars (coherent) 4h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

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 & newcomers who want to understand Ford's G8D approach.

Duration: Classroom 2,5 days, Online 7,5h.

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
- Test Matrix
- 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.

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G8D Training

2022

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Classroom Training

modular Online Live Seminars (coherent) 3x 2,5h --> 7,5h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

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: presence training 2x 8h / online Training 1x 3h and 4x2h

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) are offered as presence or live online events.

FORD AUS- UND WEITERBILDUNG e.V.

SPC Training

2022

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November						
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	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

December						
M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Classroom Training

modular 2h Online Live Seminars (coherent) 10h in total

Ingo Lucka
GIS 1 Item Number:02.02
GIS 2 Classification: Public

DoE: Design of Experiments

Efficient experiments and identification of significant factors and interactions.

Duration: Classroom 1,5 Days, Online 5h

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.

On request

FORD AUS- UND WEITERBILDUNG e.V.

Engineering Statistics

Statistical tools for development and process

Target Audience:

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

Duration: Classroom 2,5 Days, Online 7,5h

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.

On request

Measurement System Analysis

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

Duration: Classroom 6h, Online 3h

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.

On request

FORD AUS- UND WEITERBILDUNG e.V.

Ford Failure Mode Avoidance

Robustness Documentation

Target Audience:

Product Development- and Quality- Engineers

Duration: Classroom 4h, Online 2h

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.

On request

Production Part Approval Process PPAP

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.
- Employees who want to gain a detailed understanding of Ford's production part release requirements.
- Employees involved in a Ford project are recommended to attend the "APQP/PPAP Requirements" training instead of the "PPAP" training, because in contrast to the “PPAP” training, the "APQP/PPAP Requirements" training also highlights the structure of a Ford project in addition to the requirements and focuses less on the sources rather than the contents of the requirements.

Duration: presence training 8h / online Training 3x 2h

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:
Detailed knowledge of the following modules is required:
- FMEA
- MSA
- SPC
- SCCAF

If this prior knowledge is not fulfilled, it is strongly recommended to book the "APQP/PPAP Requirements" training as an alternative.

Necessary materials:
None

Notes:
Open courses (internal and external delegates) are offered as presence or live online events.

On request

FORD AUS- UND WEITERBILDUNG e.V.

Price List 2022 (plus 19% VAT)

Modul	Classroom	Online Training	Price
APQP/PPAP Evidence Workbook	3h	1x 2,5h	450 €
APQP/PPAP Requirements	8h	3x 2,0h	610 €
Capacity **P**lanning **A**nalysis	4h	2x 2,0h	450 €
Design FMEA		2x 2,5h	610 €
Design **o**f **E**xperiments	12h	2x 2,5h	610 €
e **C**apacity **A**nalysis **R**eport	4h	2x 2,0h	450 €
Engineering **S**tatistics	20h	3x 2,0h	990 €
Failure **M**ode & **E**ffect **A**nalysis	20h		990 €
Global 8D	20h	3x 2,5h	990 €
GPDS **S**upplier **E**ngagement **P**rocess	6h	2x 2,0h	610 €
Measurement **S**ystem **A**nalysis	8h	2x 2,0h	610 €
Process FMEA		2x 2,5h	610 €
Production **P**art **A**pproval **P**rocess	8h	3x 2,0h	610 €
Q1 **M**anufacturing **S**ite **A**ssessment	8h	1x 3,0h 2x 2,0h	610 €
Special **C**haracteristic **C**ommunication & **A**greement **F**orm	4h	2x 2,0h	450 €
Statistical **P**rocess **C**ontrol	16h	1x 3,0h 4x 2,0h	990 €
VDA AIAG Design FMEA		2x 2,0h	610 €
VDA AIAG Process FMEA		2x 2,0h	610 €

Cost for each single participant, training material included.
The equivalent content is conveyed in the live online training courses as in the class-room training.
Please make sure to install the WEB EX Application.