



Masterclass in process and product development: from customer requirements to series maturity

Innovative and proven methods and tools for optimizing development processes

Workshop description

Expand your expert knowledge in this workshop with tried-and-tested methods and tools that simplify your day-to-day work. We will show you how to integrate AI tools effectively and reliably into your development process. Learn how to translate customer requirements into measurable variables and how to use Design of Experiments (DoE) to find optimal solutions and manage your budget efficiently. Based on specific requirements for a 3D printing process, we will go through the entire development process together. We start with the customer requirement, implement it in product and process development and then integrate AI-based solutions for digitalized quality assurance.

Why should you take part?

- **Interactive learning methods:** Our workshop combines lectures, discussions, case studies and hands-on exercises for an optimal learning experience
- **Benefits of artificial intelligence:** practice-oriented use of AI in process development and QA (keywords ML and digital twin)
- **Learn & apply:** Benefit from real-life examples and practical exercises that help you to apply what you have learned directly.

Agenda-Highlights:

- **Day 1:** Understanding and prioritizing customer requirements, assessing risk, and defining critical features
- **Day 2:** Process and test description, measurement system analysis (MSA), and statistical design of experiments (DoE).
- **Day 3:** Use DoE to intelligently adjust parameters, derive low-risk testing strategies and develop lean sampling concepts.

Learning objective(s)

Translation of customer requirements into measurable variables:

- Participants learn how to derive technically feasible specifications from customer requirements and prioritize them. This includes the use of methods such as the KANO model, SWOT analysis and tools from QFD.

Application of method tools in development:

- Understanding of the application of the KANVAS model for structuring and visualizing development processes.
- Comparison and application of different process models (e.g. V-model, DFSS, SCRUM) in product development.

Tried and tested methodological tools and “structured pragmatism”:

- Introduction to proven methodological tools that can be used independently of the internal development and quality philosophy.
- Development of a pragmatic approach to problem-solving and decision-making, also with the aid of AI.
- Merging domain knowledge and findings from statistical data analyses

Optimization strategies for experiments:

- Differentiation and application of the methods “One Factor At a Time” (OFAT) and “Design of Experiments” (DoE)
- Practical exercises to find optimal settings and transfer them to new designs.

Importance of careful documentation:

- Recognize the importance of careful documentation during the development process
- Identification and avoidance of common pitfalls

Agenda – Day 1

09:00h to 17:00h

- Welcome and introduction
- Customer requirements -> Presentation of a case study for our workshop
- Concept phase (product development) -> Design development, KANO model, SWAT analysis, ...
- Identify influencing factors -> Ishikawa and/or tools from QFD
- Use of AI in the development process
- Customer requirements in risk assessment -> C&E, DFMEA, ...
- Making customer requirements measurable -> Defining critical characteristics and measuring equipment qualification
- Questions and answers - topics from our “topic container”

Focus Day 1: Understanding and prioritizing customer requirements. Identification and prioritization of critical influencing factors.

Agenda – Day 2

09:00h to 17:00h

- Create process maps and consider which data should be measured in the future
- Insight into correlation analyses based on historical data (keyword: machine learning and digital twin)
- Plan and carry out a “pilot test” with subsequent measurement system analysis (MSA)
- OFAT vs. DoE: methods for optimization, theoretical principles and differences
- Group work: development of a DoE plan for a production process
- Budgeting and resource planning in projects
- Test documentation -> why record what? Use of AI in test parameterization and subsequent documentation to secure the knowledge advantage.
- Carrying out DoE tests and measuring products
- Questions and answers - topics from our “topic container”

Focus day 2:

Process and test description. Measurement system analysis and statistical design of experiments (DOE).

Agenda – Day 3

09:00 to 13:00h

- Perform DoE tests and measure products (continued)
- Statistical analysis of DoE test results and target size optimization / prediction
- Verify optimal settings for 3D printing
- Parameter optimization for quality and efficiency (sensitivity analysis and statistical tolerance design)
- Perform verification experiment and statistical determination of process and tolerance limits
- Creation of statistically validated sampling concepts
- Questions and answers - topics from our “topic container”
- Summary - Conclusion

Focus Day 3: In-depth study of essential PPAP tools such as Control Plan, MSA and ISIR (Initial Sample Inspection Report)

Application of DoEs, target value optimization, verification experiments and Monte Carlo simulation for sensitivity analysis and tolerance calculation

Recommended requirements

An ideal participant will have several years of professional experience in a technical or engineering environment and be familiar with the basic concepts of product and process development.

Participants should be open to new methods and tools and have an interest in expanding their skills in process optimization and product development.

Learning objective description (short):

After completing this workshop, participants will know methods and tools to:

- Translate customer requirements into clearly defined and measurable specifications.
- Apply selected method tools from DFSS and PPAP in their development process.
- Determine optimal process and product settings through statistical design of experiments (DoE).
- be able to select quality management processes and tools such as MSA, SPC and FMEA.
- Systematically document processes and tests and avoid common pitfalls.

Speakers



Dr. Aaron Hutzler

Dr. Aaron Hutzler completed his doctorate at the Friedrich-Alexander University Erlangen-Nuremberg in cooperation with the Fraunhofer IISB in the field of reliability testing of SiC semiconductors manufactured by silver sintering. After six years, he left the Fraunhofer Institute and took over the position of Head of the Applications Department at Pink GmbH Thermosysteme, a leading machine manufacturer for vacuum soldering and sintering systems. In 2019, he founded the consulting company Bond Pulse, which specializes in the development of power module housings as well as failure analysis and troubleshooting in electronics manufacturing processes. With over 15 years of experience in power electronics packaging, he also provides training and workshops for international customers. In addition, Bond Pulse develops software solutions based on artificial intelligence that support process engineers in production processes and thus contribute to the optimization of manufacturing processes.



Björn Noreik

Björn Noreik is an experienced consultant and trainer specializing in the optimization of manufacturing processes and product development in industries such as automotive, electronics, pharmaceuticals and plastics. He empowers project teams through the use of methodological and statistical tools, especially using machine learning and other statistical methods such as Design of Experiments (DoE), to improve processes and develop new products. With over two decades of experience, including as a certified Minitab trainer at ADDITIVE, Björn Noreik has extensive expertise in data analysis, supporting quality projects and conducting workshops.

Registration



Workshop: Masterclass in process and product development: from customer requirements to series maturity

Date: 25.03. to 27.03.2025

Location: Werner-von-Siemens Center for Industry and Science, Rohrdamm 88 in 13629 Berlin

Price (net): 1.899.- for the first person from your company. Each additional 1.499.-€.

Overview: Expand your expert knowledge in this practice-oriented 2.5-day workshop and learn how to translate customer requirements into measurable and technically feasible specifications. Our workshop combines in-depth theoretical knowledge with practical exercises that will help you take your process and product development skills to the next level.

Target group: This workshop is aimed at process developers, product developers, quality engineers, project managers, production engineers and technical managers who want to expand their knowledge and skills in process and product development.

Services:

- Workshop implementation: 2.5 days of intensive training with an experienced team of trainers
- Catering: Including drinks during breaks, snacks and lunch on all days
- Dinner together: Networking dinner on the second evening
- Training documents: Digital documents and materials
- Not included: Computer and software licenses are not included

Registration and further information: Simply register now by [e-mail](#) or on [our website](#) and secure your place in this exclusive workshop.

Contact



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