Additive Manufacturing – Basic Training

From theory to practice of AM

Theory

- History of Additive Manufacturing (AM)
- General AM materials and processes
- Advantages, limits and challenges of AM
- General AM applications
- Further AM developments

Practice

- Design process and basic principles for AM design
- Fused Deposition Modeling (FDM) basics
- Preparation for printing a part via FDM
- Start of 3D printing via FDM
- Post-processing for FDM parts

Objectives

- Create a knowledge base for additive manufacturing of thermoplastic materials.
- Create awareness of all possible materials, processes, process chains, applications, potentials and limits.

Practical course parts will be performed in the CTC 3D-Hub

Details

- Duration: 2 working days (8h per day).
- Language: English (German on demand).
- Location: CTC GmbH, Airbusstrasse 1, 21684 Stade, Germany.
- Target group: People and companies who wish to gain initial experience and an overview in the field of additive manufacturing.
- Number of participants: 4 to 6 (minimum / maximum).
- Focus:
  - Creating the theatrical basis for assessing additive manufacturing, its general opportunities and obstacles.
  - The methodical approach is underpinned by the preparation and additive manufacturing of a part via FDM.

Costs

- The course can be booked individually by companies and can be tailored to specific requirements.

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Additive Manufacturing – Advanced Training

Theory & practice for industrial AM in the aviation industry

Theory

- History of Additive Manufacturing
- General AM materials and processes
- Advantages, limits and challenges of AM
- General applications and further developments
- AM design and optimizing principles / guidelines
- Basics and principles for reverse engineering for AM
- AM requirements and certification in aviation

Practice

- Design process and basic principles for AM design
- Design and modification of an AM part
- Fused Deposition Modeling (FDM) along the process chain
- Selective Laser Melting (SLM) along the process chain
- Post-processing and evaluation of FDM and SLM parts
- Reverse engineering and 3D measurement in practice

Objectives

- Create a knowledge base for industrial additive manufacturing and reverse engineering in aviation industry.
- Create awareness of all possible materials, processes, process chains, applications, potentials and limits.

Practical course parts will be performed in the CTC 3D-Hub

<u>Details</u>

- Duration: 5 working days (8h per day).
- Language: English (German on demand).
- Location: CTC GmbH, Airbusstrasse 1, 21684 Stade, Germany.
- Target group: People and companies who wish to gain detailed experience and an advanced overview in the field of additive manufacturing for aviation industry.
- Number of participants: 4 to 6 (minimum / maximum).
- Focus:
  - Creating the theatrical basis for professional assessing additive manufacturing including opportunities and obstacles for an use in aviation industry.
  - The methodical approach is underpinned by the real demonstration of part design, industrial FDM as well as SLM process chains and reverse engineering methods.

<u>Costs</u>

- The course can be booked individually by companies and can be tailored to specific requirements.

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