Wohlers Associates, Inc.

One-Day DfAM Course Outline

Hands-on exercises Presentations/discussions

Time	Topic	Details
8:30-8:45	Introduction	Introduction to the course and attendees.
8:45-9:30	State of the AM industry	Recent AM growth trends and developments around the world.
9:30-9:45	AM design optimization exercise	Thought processes behind DfAM. In this exercise, participants will design a hydraulic manifold while considering print orientation and support material.
9:45-10:00	Break	
10:00-11:00	Economics of AM	When does it make sense, or not make sense, to use AM for production quantities? What determines AM costs and how are parts designed to minimize cost?
11:00-11:45	DfAM expert panel session	A group of AM experts offer opinions and answer questions from participants.
11:45-12:15	Part consolidation exercise	Hands-on exercise on the implications of part consolidation for AM.
12:15-1:00	Lunch	
1:00-1:15	Lattice structure exercise	A solid part is transformed into a shell filled with a lattice structure.
1:15-1:45	Designing for polymer AM processes	Specific issues and design guidelines surrounding polymer AM (material extrusion, LS, SL, etc.), including post-processing.
1:45-2:15	Topology optimization	Designing topology-optimized parts for AM, and creating light-weight parts using software such as Inspire from solidThinking. The workflow of topology optimization, setting up multiple load-cases, and then using the generated ideas to produce a final design.
2:15-2:30	Break	
2:30-3:00	Designing for metal AM	Specific issues and guidelines around designing for metal AM, including anisotropy, process constraints, general guidelines related to wall thicknesses, hole sizes, tolerances, angles, etc. A close look at metal AM post-processing and material properties.
3:00-3:30	Putting it all together	Hands-on exercise on designing a product that can be printed in metal with minimal support material and post-processing. The exercise applies what has been learned over the past three days.
3:30-4:15	AM in the future	Looking at where AM and design software tools are headed in the future and how they may impact DfAM.
4:15-4:30	Conclusion	Closing comments and distribution of certificates of completion.

DfAM
Design for Additive Manufacturing