

## **AM210**

### **Design for Additive Manufacturing with Metals**

#### **Module 1 – New Possibilities with Additive Manufacturing**

1. Course Introduction
2. Benefits of AM
3. The Challenges of Additive Manufacturing
4. Use Cases and Applications of Additive Manufacturing

#### **Module 2 – Design for Additive Manufacturing and the Design Engineer**

5. Additive Manufacturing and the Design Engineer
6. Design for Additive Manufacturing (DfAM) Use Cases

#### **Module 3 – Replicate with Additive Manufacturing**

7. Why Replicate with Additive Manufacturing
8. When to Replicate?

#### **Module 4 – Preparing a Part for Additive Manufacturing**

9. Using CAD Software to Create 3D Models
10. The Build Plan
11. The Process Plan

#### **Module 5 – Post Process Planning**

12. Post Process Planning
13. A Case Study Analysis of Additive Manufacturing Post-Processing
14. Safety Considerations

#### **Module 6 – Business Considerations**

15. Business Considerations
16. Improving Consistency
17. Reducing Risk & Monitoring Results

**Module 7 – Adapt for Additive Manufacturing**

- 18. Deciding When to Adapt for Additive Manufacturing
- 19. Adapt for Additive Manufacturing: Techniques, Constraints, and Common Risks
- 20. Building a Better Business Case for Additive Manufacturing
- 21. Case Study: Oil and Gas Latticed Part

**Module 8 – Optimize for Additive Manufacturing**

- 22. Introduction: Optimizing Designs for Additive Manufacturing
- 23. Optimize for Additive Manufacturing: Software Takes the Lead
- 24. Weighing the Pros and Cons of an Optimized Design
- 25. Optimizing Case Studies: Oil/Gas Component and Race Car Upright

**Module 9 – Preparing for Build**

- 26. Preflight Checklist
- 27. Course Recap
- 28. Final Exam